Australian Conservation Foundation
Community Northern Beaches

Submission on proposed Beaches Link and Gore Hill Freeway Connection

We write on behalf of the Australian Conservation Foundation (ACF) Community Northern Beaches (ACFCNB). We are a group of local residents advocating for conservation of our natural environment. The Northern Beaches group currently has 99 members and continues to grow in support. We are affiliated with the Australian Conservation Foundation, Australia's national environmental organisation of over 700,000 members.

The issues and concerns of ACFCNB regarding this proposal extend at all levels of this proposed project, from the overall concept of building a tunnel for primary use by private vehicles, through to specific design elements of the tunnel as proposed.

This submission will have the following structure:

- Is a road tunnel which promotes driving the best solution?
- High level comments on improving the design of the proposed tunnel
- Some specific feedback on chapters of the EIS

By way of general feedback, we are disappointed with the extent of technical jargon used in the EIS, which makes it almost impossible for ordinary community members to fully engage with the material, understand what content means, or identify possible flaws or improvements. This submission has been prepared by lay volunteers who frequently struggled to fully understand what is proposed, and whether the plan represents good technical methodology. The views reflect the input of volunteers, rather than representing the ACF as a whole.

Should the Department wish to contact the authors of this submission, please contact ACFCNB convenor Kristyn Glanville at Kristyn.glanville@gmail.com.

Is a road tunnel which promotes driving the best solution?

Climate change

It is clear that Australia, and the rest of the world, are in a climate emergency. There is an urgent and compelling environmental and social impetus to rapidly decarbonise and transition to renewable sources of energy, including relevantly in the transportation industry. Construction of a road tunnel will continue to encourage and promote people to take single occupant cars for commuting and travel. Under the existing policy and market conditions, for the foreseeable future these cars will be primarily combustion engine vehicles which burn petroleum or LPG, contributing to carbon emissions.

Conversely, a transition to greater use on mass transportation systems, such as an electrified rail network or electric bus fleet, can solve transportation problems with a lower carbon footprint.

Pollution

Pollution from cars all along the tunnel will be collected and discharged from the 20m (8 storey) chimney on Balgowlah Golf Course, one 26m one on Wakehurst parkway and one on the other side of Middle Harbour.

For the foreseeable future, cars using this tunnel will primarily be combustion engine vehicles. As such, there will be significant and serious airborne pollution emissions from the stacks. Particulate matter from car fumes are a known carcinogen, as well as contributing to ill health amongst residents and animals due to respiratory conditions. These chimneys are close to a number of schools and will cause problems in air quality when the wind blows the wrong direction. The chimney itself will have visual amenity impacts on the community, as tall, industrial, venting installed in an otherwise low profile, suburban, area.

These fumes will be concentrated in discrete areas such as Balgowlah, where there is insufficient evidence that the stacks will be capable of filtering or dispersing material adequately to prevent its concentration in a small area. This might be contrasted to fumes from surface level traffic, where they are at least dispersed by virtue of being expelled throughout a journey, rather than expelled only at a single point on that journey.

Induced traffic demand and limited benefit

A breadth of traffic research from around the world demonstrates that construction of new roads provides only short term improvements in commuting times, due to the phenomenon of induced traffic demand. In short, by opening additional road capacity, this encourages additional people to drive who may have otherwise used alternative forms of transport. As such, there is unlikely to be a long term improvement in traffic exiting the Northern Beaches and Mosman, as any spare road capacity created by the tunnel would gradually be absorbed by more commuters opting to drive.

This phenomenon would likely be contributed to by the projected increases to population in Mosman and the Northern Beaches, including through the North District Plan which applies to those LGAs which sets a twenty year strategic housing target of an additional 92,000 dwellings in the northern districts,[1] of which it might be assumed that Mosman and the Northern Beaches would be expected to contribute at least 7,000.

[1] https://www.greater.sydney/north-district-plan/liveability/housing-city/providing-housing-supply-choice-and-affordability

Industrialisation of remnant urban bushland and limited green space

This proposal will necessitate the destruction of a number of pieces of green space within the Northern Beaches, including:

- Clearing and destruction of the restored riparian environment at Burnt Bridge Creek, which has been restored by volunteers through a significant community undertaking.
- Clearing of vegetation along the Wakehurst Parkway, which provides vegetation buffer and habitat for native species, particularly those which inhabit the Manly Dam Heritage listed War Memorial Park.
- Removal of established street trees which provide urban cooling and shade, and habitat for native species.
- Removal of Balgowlah Golf Club, and replacement with a smaller park.

Impacts on Manly Dam and environs

The proposal includes a design which widens the existing Wakehurst Parkway to between 4 – 6 lanes in different parts of the route. Since it runs along a narrow ridge between two environmentally sensitive regions, Manly Dam Reserve and Garigal National Park, the roadway will be necessity need to be built above the bushland in a number of places (ie reflecting a widening of the existing ridge). This will have a number of specific impacts including;

- Visual amenity and social impacts on users of Manly Dam and the National Park, as the green "oasis" these places currently provide will be interrupted with noise and sight of a major freeway;
- Construction impacts on Manly Dam users, and flora and fauna, due to construction noise, and water runoff from the road;
- Ongoing operational stormwater run off. Untreated water from the road will pour through the bush, scouring the land and filling streams below with sediment every time there is heavy rainfall. The proposed drainage processes from the EIS are inadequate.
- Light pollution from increased traffic, which will have increased visibility due to the widening of the ridge located high above the park
- Traffic collisions with animals crossing the roadway between the two parks.
- Construction will destroy a large area of bushland at the top of Wakehurst Golf Course around the two water tanks.
- The Aboriginal carvings along Engravings Trail will be under threat from road runoff, construction debris and possible blasting impacts.

Impact on Burnt Bridge Creek and environs

The proposal will have a number of concerning impacts regarding the Burnt Bridge Creek and environs

- Burnt Bridge Creek will effectively end as a naturally flowing creek. Water flowing down the creek will be drained (flow reduced 96%) and underground water pumped out to a depth of 11m. This is necessary to stop water dripping into the tunnel.
- The creek and area around it will be dried out and incapable of supporting tall leafy trees and riparian bushland.
- The creek through the golf course will be turned into a cement stormwater drain, wider than the current creek and deeper into the ground. This is to remove water more quickly to keep the land dry and prevent water entering the tunnel. This will kill trees and water-loving plants.

- There is a Grey-head flying fox camp along Burnt Bridge Creek - they have national protection and will be profoundly impacted. They are only 150m away from the construction site, they will lose their main water source (dam in the golf club) in the short term and, in the long term, they will suffer the loss of 96% of the water flow in Burnt Bridge Creek, which, will completely transform the riparian zone and all those creatures who rely on the water.
- The quick discharge of water into Manly Creek will increase sediment and send road runoff into the creek without the current filtering process, lowering water quality in Manly Creek and out to Queenscliff beach.
- There will be consequential visual amenity impacts to the community due to replacement of a pleasant, riparian, creek to a concrete stormwater culvert.

Urgent need to preserve existing green space

Australia is, generally speaking, in the midst of an extinction crisis. Our existing native species are under pressure from invasive species, climate change, and many other issues. As such, it is preferable to seek to avoid and eliminate need to undertake further clearing of the limited vegetation remaining in the Sydney Basin. Furthermore, there are documented benefits to air quality, cooling, and shade associated with urban vegetation, as green spaces operate as the "green lungs" for cities. Preserving these spaces provides opportunities for resilience from threats such as climate change, by for example, providing green shaded spaces as respite from projected temperature risk.

As the population of the Northern beaches is expected to increase primarily through increases in population density through in-fill development, it can be expected that there will be pressure elsewhere on the northern beaches for clearing (for example, clearing of established trees and vegetation on single dwelling lots being redeveloped for higher density dwellings). There will also be increased demand for public, green open space, as more residences will have no or limited private open space in medium and high density dwellings. As such, the existing public, green, open space should be preserved and expanded, rather than destroyed as per this proposal.

Inadequacy of offsets

It is inadequate to simply "offset" the impacts of this development, as:

- Established trees are capable of capturing more carbon than new trees, and have better ability to provide shade and air quality improvements. It will take a significant period of time for any replacement vegetation to confer such benefits.
- This would still result in a net loss of undeveloped green space, as "offsets" will realistically be acquired over places which are already currently undeveloped.
- There is limited evidence in practice that major projects requiring offsets, are in fact able to acquire the necessary offsets, due to demand for offsets and limited supply.

Impacts of COVID-19 and localisation of the economy

A silver lining of the COVID-19 pandemic has been to create a new working environment for employees, which will have lasting implications for the business case of a road tunnel. In many industries (although not all), employees and employers are now aware that work done in those roles can be performed from home either in whole or part. Shifting to work from home arrangements offers benefits to employees, through better work life balance, less time commuting, more time with family, and less need to pay for child care. It also offers benefits to employers, as many anticipate they will need smaller or cheaper premises as many employees opt to work part time or full time

from home. Many employees will now choose to spend more time working from home, and/or shifting their commuting times to be more flexible around their other commitments (such as only commuting for meetings). This shift is enabled by people now having greater familiarity with web based conferencing, and the recent/ongoing roll out of NBN in the Northern Beaches.

The implication of this is that this project assumes a "business as usual" situation, where a bulk of workers are commuting at peak times, five days per week. It is unaccounted for in the EIS whether this tunnel is still optimal or economic, where both employers and employers will likely seek to permanently implement more flexible arrangements into the future.

Opportunity costs of other alternatives

It is disappointing that the EIS considers in only a cursory manner the alternatives which exist to construction of a road tunnel. There is significant evidence in transport planning that increasing public transport capacity:

- Results in shorter transport times for all commuters, through reduction of congestion;
- Offers a more efficient use of urban space, as buses, trams, and trains require a smaller or comparable development footprint to roads, but are capable of carrying significantly greater number of passengers;

Source[2]

- If well designed, would require less surface level footprint, and therefore require less clearing of surface level vegetation and acquisition of private dwellings.

It is apparent that there are many infrastructure projects a proponent can build to improve transportation to an area like the Northern Beaches, which is essentially a "spoke" off a major city that does not strategically connect any areas. For example, an underground metro line providing a suburban "spoke" off Chatswood to the Northern Beaches may represent a *better* land use, as metro lines typically have a smaller development footprint than roadways. For example, it may convey the benefits of reducing (or eliminating) the need to clear limited remnant urban bushland or greenspace, allowing a more efficient use of scarce urban space, reduce need for acquisition of land, faster travel times compared to road based public transport, and by offering a greater long term carrying capacity for transporting a growing population. A multitude of other options exist, such as expanding the existing bus fleets, reinstating a light rail between Narrabeen and Manly, installing dedicated cycling infrastructure.

This submission does not seek to suggest or assert that the proponent ought to develop some alternative project, rather, it is not substantiated by the proponent whether this proposal provides the best outcome for the environment, scarce resources, and the community, as no detailed or rigorous comparative analysis has been done by the proponent. If such analysis exists, the

[2] https://www.transportshaker-wavestone.com/urban-transports-spatial-footprint-much-space-used-transports-city/

community should be given an opportunity to consider it. The consideration of alternatives in the EIS is cursory, at best.

The proponent should more fully address, for example, whether existing parking availability exists on the Northern beaches to accommodate the expected travel to the beaches on weekends from residents outside the area to visit local beaches, encouraged to drive by the availability of a new road network. This is a problem created by a road tunnel specifically, that does not exist (for example) with alternatives such as expanded public transport networks that encourage public transport use.

Improving the design of the proposal

While it has not been demonstrated by the proponent that this proposal is an orderly or economic use of land, there are nonetheless specific aspects of the design which are not optimised for the best outcome for the community or environment. Without seeking to unduly replicate the contents of submissions, we note that Northern Beaches Council in their submission has raised a number of specific concerns about the detailed elements of the proposal, and we echo their concerns and questions raised.

A redesigned proposal ought to;

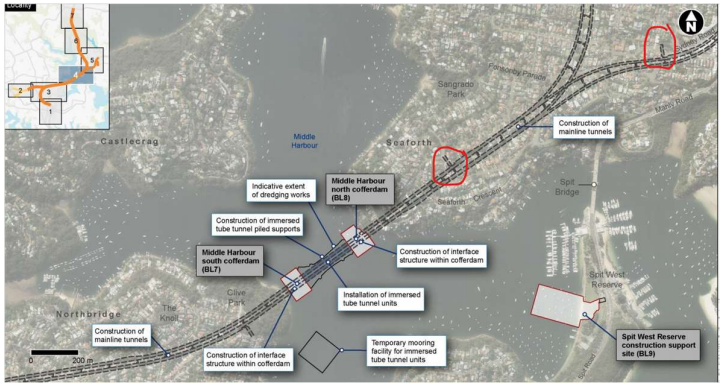
- Include dedicated bus lanes throughout the designed tunnel and connecting roads, and priority at intersections, so as to ensure that public transport commuters are not competing with private cars. If buses are competing in the tunnel with private cars, would remove a significant incentive and reward to commuters who opt to use public transport (and the collective benefits to travel times, pollution, and carbon emissions this confers).
- Filtering or redesigning stacks to filter pollution or otherwise better disperse pollution, avoiding its concentration in a particular location, particularly school aged or elderly receivers.
- Restricting use of the tunnel to electric cars, or otherwise offering an incentive or priority to electric cars to discourage use of combustion engines in the tunnel.
- Changing route to avoid clearing of vegetation burnt bridge creek deviation
- Changing route to avoid clearing of vegetation at Wakehurst parkway.
- Changing route to avoid sections of extensively wide junctions and lanes configurations. For example, at Crows Nest 20 lanes, Balgowlah 12 lanes, Seaforth 6 lanes. A staggered pattern of on and off ramps might resolve this issue.
- Changing route to avoid destruction of Balgowlah Golf Course, which is greenspace in an increasingly densified area, and will be an important vegetated area for current existing green open space.
- Include realistic modelling of light pollution impacts on wildlife at Wakehurst parkway, as safety will eventually require that lighting be installed at surface level if the tunnel is to surface in this location.
- Beaches Link is a 6 lane underground highway. It is 50% wider than the Harbour Tunnel but serving a much smaller population area. It is unclear what the justification for such a large, intensive project is, and whether a proposal with a smaller development footprint could accommodate the current and projected future transport needs of the Northern Beaches.
- There are no side exits off Beaches Link along the Lower North Shore. This will mean some traffic for Mosman etc will travel to the Northern Beaches and return West to avoid Military Rd peak hour traffic.
- The Balgowlah exit is poorly designed. Cars turn 180 degrees then go through two traffic lights to get onto Sydney Rd, then another set of lights to go past Burnt Bridge Creek Drive.

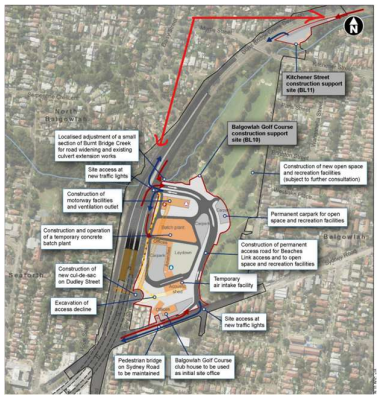
Specific comments on EIS

A majority of overall concerns and issues with this proposal are outlined in the previous two sections. This section will provide some specific commentary on the EIS lodged by the proponent, and more detailed concerns. It does not provide an exhaustive response to the EIS.

Chapter 6 - Construction Work

A comparison of the SEARS requirements and our response follows:

Secretary's requirement	Observations from the EIS
The EIS must include, but not necessarily be limited to, the following: b. a description of the project and all components and activities (including ancillary components and activities) required to construct and operate it, including:	Whilst many sections of the EIS refer to construction at normal times of 7am to 6pm, there is an caveat applied to all of that at page 6-83 Recent planning approval conditions for State significant infrastructure projects have included an extension to standard construction hours on Saturdays, allowing certain activities to be carried out until 6pm. This approval condition has been provided on other major infrastructure projects such as Sydney Gateway, M6 Motorway (Stage 1) and WestConnex M4-M5 Link. Should the project construction contractor elect to use this additional allowance on Saturdays to shorten the construction program and reduce the overall duration of impacts to amenity, site specific construction noise and vibration impact statements prepared for the project will assess any associated noise impacts and adopt appropriate noise mitigation measures accordingly. It is of great concern that a precedent set for other projects in urban settings with far less community impact may be applied to this project which has a very high impact on a large number of residents and homes.
- the proposed route	With regard to route diagrams, what are the circled items that branch off the tunnels in several places? 
- Design of the tunnels, interchanges (inclusive of tunnel portals and entry and exit ramps), road user, pedestrian and cyclist facilities, and lighting	

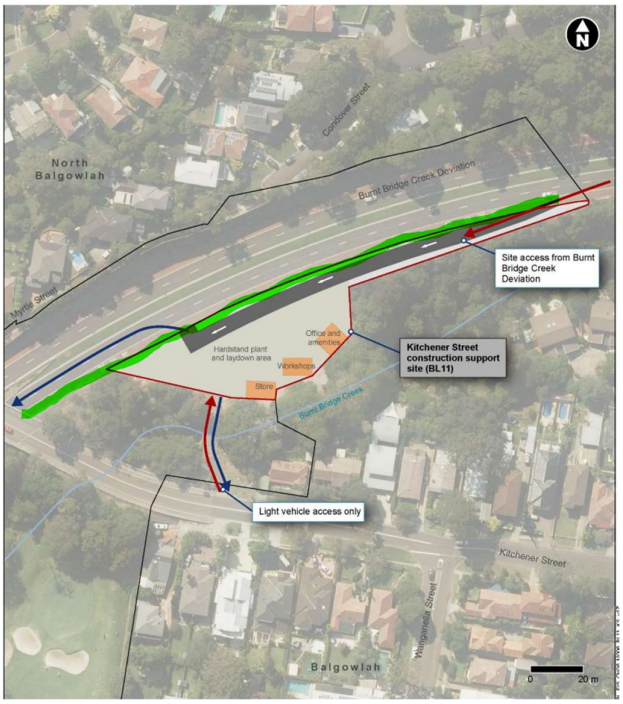
- Surface road upgrade works, including road widening, intersection treatment and grade separation works, property access, parking, pedestrian facilities (including appropriate locations for overbridges) and public transport facilities	The EIS does not describe the actual method for cut and cover construction at the Burnt Bridge Creek deviation and Wakehurst Parkway. Presumably an approach of installing a roof and excavating beneath has lower noise, dust and visual impacts than excavating the cut and subsequently covering it.
- Ancillary infrastructure and operational facilities, such as operational and maintenance facilities, ventilation structures and systems, and fire and emergency services and infrastructure for the proposal, including (if required) additional infrastructure (such as tolling infrastructure)	Whilst there are some illustrations of construction sites these are generally overlays onto maps that give no useful indication of bulk and scale. Too little is being proposed to lessen the visual impact of a multi-year construction in a predominantly residential area. The photographs of other construction sites as huge scale gaping holes in the ground are stressful when you consider that it will be a daily sight for a very large number of residents with no means of escape.
- Location and operational requirements of construction ancillary facilities and access	The dredging of the tunnel channel and coffer dams makes reference to a load out facility, however, there is no information regarding the location, volume of spoil expected to be loaded out, period of time or process to make spoil spadable, nor the control of potential hazards such as odour and contamination at the load out site. These arrows point to construction traffic movements against the flow of proposed construction routes; what types of movements are expected in these directions since the EIS includes heavy vehicle movements for both sites which would not be suited to local streets surrounding the sites in the directions of the arrows 

- Land use changes as a result of the proposal and the acquisition of privately owned, Council and Crown lands, and impacts to Council and Crown lands	
- The relationship and/or integration of the project with existing public and freight transport services.	
	6-83 Recent planning approval conditions for State significant infrastructure projects have included an extension to standard construction hours on Saturdays, allowing certain activities to be carried out until 6pm. This approval condition has been provided on other major infrastructure projects such as Sydney Gateway, M6 Motorway (Stage 1) and WestConnex M4-M5 Link. Should the project construction contractor elect to use this additional allowance on Saturdays to shorten the construction program and reduce the overall duration of impacts to amenity, site specific construction noise and vibration impact statements prepared for the project will assess any associated noise impacts and adopt appropriate noise mitigation measures accordingly.
	Realistically with 300 daily traffic movements at Wakehurst Parkway south, Judith Street will not be first choice for residents to access Wakehurst Parkway which will put pressure on Lister Street and surrounding residential streets as rat runs.
	495 heavy traffic movements per day at Balgowlah Golf Course seems disproportionate to the other sites and unsuitable for a site surrounded by residential properties; consideration should be given to moving more spoil via Wakehurst Parkway East where the site is on the edge of a residential area not in the middle of one and adjacent to a school

Chapter 8 - Construction Traffic

A comparison of the SEARS requirements and our response follows:

Secretary's environmental assessment requirements	Observations from the EIS
The Proponent must assess construction impacts, including, but not necessarily limited to: a. a considered approach to route identification and scheduling of marine and land transport movements, particularly outside standard construction hours;	The EIS does not contain detail to describe scheduling of works with regard to major public events. In particular, Christmas Day, Boxing Day (Sydney to Hobart), New Years' Eve and Australia Day are days with very high boating movements through Middle Harbour.
. the number, frequency and size of construction related vehicles (passenger, marine, commercial and heavy vehicles, including spoil management movements);	The number of heavy traffic movements is excessive for the residential areas that the construction sites are situated in. These locations are not comparable to other tunnel portals that have been in commercial and existing high volume traffic areas – Balgowlah and Wakehurst Parkway are low density, quiet suburban locations where 400+ heavy vehicle movements and 1200 small vehicle movements every day for 3-4 years is disproportionate to 'baseline' traffic volume and size. This will place a heavy strain on residents, infrastructure, wildlife and the environment.
construction worker parking;	Given the locations of construction sites in Balgowlah and Wakehurst Parkway are predominantly within residential areas, consideration should be given to restricting surrounding local street parking to a residents only scheme during the construction period.
the nature of existing traffic (types and number of movements) on construction access routes (including consideration of peak traffic times and sensitive road users and parking arrangements;	The nature of existing traffic types is inadequately assessed. The EIS rightly states that heavy vehicles avoid or are not permitted to travel Military Road, however, the construction is proposing to use Military Road as a transport route for spoil removal and materials and equipment supply without accounting for the effects of slow moving heavy vehicles up and down spit hill (30kph limit). Additionally the choke point for AM peak traffic moving from the beaches to the CBD is not Sydney Road/ Burnt Bridge Creek, it is at Spit Road and Military Road and Spit Road and Ourimba Road. Traffic impacts at these 2 bottlenecks have a flow on effect back to Sydney Road/Burnt Bridge Creek intersection and will only become worse with the type and volume of construction traffic using that route.

	Incidentally – the traffic modelling to justify construction traffic does seem to support that the Beaches Link is unnecessary and that the main junctions where traffic flow is studied can support a very large number of extra traffic movements without deterioration in traffic flow
access constraints and impacts on public transport, pedestrians and cyclists;	
how construction of the project affects the capacity of, and the need to close, divert or otherwise reconfigure elements of, the road, cycle and pedestrian network;	Access to the Kitchener Street site is via Burnt Bridge Creek Deviation – how will this affect the pedestrian/cycle path (highlighted green) between Burnt Bridge Creek Deviation and the Kitchener Street site. TfNSW have stated that this active transport link will remain open throughout the construction and operation of the project, however, there are no details of how this will be achieved. 
details of how construction and scheduling of works are to be coordinated in regard to public events and cumulative traffic impacts resulting from concurrent work on the project and other major projects, under or preparing for or commencing construction in the vicinity of the proposal;	TfNSW have emphasized that the tunnel is intended to intersect with public transport infrastructure to become a major Bus corridor that does not yet exist (new interchanges, terminus and park-and-ride would be reasonable expectations). The tunnel is an enabler for far greater development that will progress in parallel with the construction of the tunnel itself. How will the cumulative impacts be assessed when they are foreseeable?

	To truly assess the Environmental Impact of the project, TfNSW should produce a holistic plan to show how the promised public transport will be developed to take full advantage of the tunnel and minimize induced demand of car journeys.
alternatives to road transport of construction spoil including marine and rail options as well as potential re-use in existing land reclamation areas or in association with Resource Recovery Exceptions (if obtained from the EPA) to minimise traffic impacts on the road network;	
the likely risks of the project to public safety, paying particular attention to pedestrian safety and users of Middle Harbour; and	Whilst the EIS considers pedestrians and cyclists, it does not consider swimmers. Spoil barge journeys will be forced by the narrow channel to pass close to Clontarf Beach which is a popular beach for swimmers who swim quite far into the channel. Also with dredging, pilings, pumping and general disturbances to silt, are there risks to swimmers and beach goers of ingesting harmful materials? Similarly, there is a good amount of recreational fishing at the Spit, Clontarf and downstream of the construction site. Is there risk associated with eating fish, crabs and other marine life caught in these locations due to the potential effects of construction work?
impacts to water based traffic on Middle Harbour.	

Chapter 9 Operational Traffic and Transport

Page 9-4 9.1.3 Sydney's Bus Future

This section talks potential future developments which may be implemented, however this is inadequate. The proponent makes ambiguous commitments such as:

- 'a more attractive transport option'
- 'allow new public transport routes to be developed in response …'
- 'opportunity to supplement the existing services', etc

It is impossible for the Department to assess the benefits or impacts of a project, where it is unclear what public transport services will be made available, as otherwise any assessment on congestion, travel times and patronage will be speculative. Such loose commitments may mean public transport provision never eventuates, ends or is reduced by a government of the day, undermining any assumptions about congestion in the future. This is all the more concerning in an area which is projected to increase in population size.

As is expansively documented in transport planning literature, increasing road capacity carries with it the issue of induced traffic demand, encouraging new road users to drive rather than catch public transport, as users feel encouraged to take the fastest option available. As such, the improvements to congestion and traffic speed will in all likelihood be short lived. To counter this phenomenon, if road based traffic is to be entrenched on the Northern beaches, it is critical that there be a high quality, fast, public transport option from the onset, to avoid encouraging or establishing habits of driving in single occupant cars.

Page 9-4 9.1.4 & 9.1.5 Walking and Cycle Paths

The report refers to 'shared user paths' but these are not defined, but it is unclear what form these arrangements will take, and the extent of segregation of walkers and cyclists, and whether adequate safety arrangements will be in place to avoid injury to walkers from cyclist collisions.

Page 9-5 9.2 Assessment methodology of operational traffic and transport impacts

The intro states four core components were considered, these being:

- Road traffic
- Public transport
- Pedestrian and cyclists, and
- Maritime traffic.

However, there is minimal information about public transport in the remainder in the report. The volume of the report goes to analysing road traffic; in other words predominantly private cars and freight.

Chapter 10 – Construction Noise

A comparison of the SEARS requirements and our response follows:

Details and analysis of the effectiveness of mitigation measures to adequately manage identified impacts, including Beaches Link and Gore Hill Freeway Connection Environmental impact statement 10-2 Secretary's requirement Where addressed in EIS cumulative impacts as identified in (g) and (h) and a clear identification of residual noise and vibration following application of mitigation measures; and	The EIS has thousands of exceedances of noise limits throughout the construction period both day and night showing that mitigation measures are grossly inadequate. Given the impact analysis measures residential receivers, they understate the human impact significantly. Human impact is 3-4x higher than stated due to the number of occupants per residence. Furthermore, the incidences of impact are not stated, only the number of residents affected and the stage of construction. With construction going for 3-4 years, impacted residents may be affected on multiple occasions for extended periods of time, at home, at school, and at the workplace with no respite. It would be good to see a 'days of disturbance' by NCA to get an actual idea of the intensity of noise impact which is very hard to gauge.
a description of how community preferences have been taken into account in the design of mitigation measures and consider tailored mitigation, management and communication strategies for vulnerable community members.	There is no clear consideration of community preference.
The Proponent must demonstrate that blast impacts are capable of complying with the current guidelines, if blasting is required.	
The Proponent must assess construction and operation noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines. The assessment must include consideration of impacts to the structural integrity and heritage significance of items (including Aboriginal places and items of environmental heritage).	
The Proponent must demonstrate that blast impacts are capable of complying with the current guidelines, if blasting is required.	

Chapter 15 – Aboriginal cultural heritage

We have reviewed this chapter and the supporting Appendix (Appendix L)- Aboriginal cultural heritage assessment report., and provide the following comments.

General comments

While Chapter 15 and its supporting assessment report (Appendix L) appear to substantially address the 'Secretary's environmental assessment requirements' (SEARS) as they relate to Aboriginal heritage, some significant concerns remain about the possible impacts of the proposed project on Aboriginal heritage.

SEARS

In particular, SEARS 2B (Table 15-1) requires only "discussion of alternative locations and design options" considered to reduce heritage impacts. As is addressed elsewhere in this submission, consideration of fundamental alternatives to the proposed Beaches Link and Gore Hill Freeway Connection receives minimal consideration. Chapter 4 (Project development and alternatives) dismisses a 'Do nothing' option, 'Travel demand management', and 'Improvements to alternative transport modes' in just 11 pages of a 96 page document. Little consideration has been given to:

- International evidence that building new freeways creates new demand, such that in a very few years, road congestion is again substantial
- Recent trends suggesting that private vehicle ownership and use is decreasing, especially among younger people
- The recent COVID-induced restrictions leading to extensive working from home, and their likely implications for future commuter road use (addressed in just one paragraph in Chapter 3)

SEARS 2f (Table 15-1). requires consideration of measures "to avoid" and minimise identified impacts, and Requirement 6 (Table 15-1) mandates that the Aboriginal Cultural Heritage Assessment report (ACHAR) "must demonstrate attempts to avoid impact upon cultural heritage values" and identify any conservation outcomes. By failing to adequately consider major alternatives to the Beaches Link and Gore Hill Connection, the EIS fails to adequately address **avoidance** of impacts on some important Aboriginal areas and sites, both within the project construction footprint and within proximity (i.e. within 50 metres) of the site.

Reliance on mitigation measures, in several instances measures that would be implemented only after construction is under way (see Appendix L, Table E-1) is inadequate. Concern about this aspect of the project's potential damage to significant Aboriginal heritage is heightened by references in Table E-1 to uncertainties around construction vibration impacts. Of particular concern in this regard is the inclusion, in relation to AH3, to measures being taken "where possible".

Ecologically sustainable development

The ways in which the Beaches Link and Gore Hill Freeway connection (the project under consideration in this EIS) is justified are essential considerations. The main justification for this project appears to be to boost revenue from increased traffic flow to and from the Northern Beaches via the other tunnels within the wider network – an outcome not consistent with the NSW Government's vision for enhanced sustainability of the Greater Sydney Region through "three cities where most residents live within a 30 minute journey of their jobs, education and health facilities, and services" (EIS Chapter 3: Strategic context and project need, p.3-2).

The Beaches Link tunnel project as proposed does not meet the underpinning principles of 'ecologically sustainable development' (ESD) as defined in legislation. When applying the ESD principles to consideration of impacts of the proposed tunnel project, it fails in relation of both

- The precautionary principle; and
- Intergenerational equity

The precautionary principle requires that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In applying the precautionary principle, public and private decisions should be guided, in the first instance, by careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment. Whilst the introduction to Chapter 15 of the EIS (p.15-1) states that "Avoidance or minimising impacts has been a key consideration throughout the design and development process" the matters of concern outlined above indicate that avoidance of damage to Aboriginal heritage sites has scarcely been addressed. Rather, the focus has been on mitigation of likely impacts.

Consideration of inter-generational equity requires that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The significance of risk of damage to Aboriginal areas and sites is enhanced because (as is evident from Sections 4-7 to 4.9 of Appendix L to the EIS) much of the traditional cultural value of the project area has been lost to European settlement and subsequent development. For each successive generation of Aboriginal people, this loss of connection to their culture and heritage exacerbates the challenges faced by modern living.

Objects of the Act

The deficiencies in consideration of alternatives to the proposed project and the extent to which these lead to lack of proper consideration of planning for avoidance of impacts on significant Aboriginal areas and sites places in question the extent to which some Objects of the Environmental Planning & Assessment Act 1979 as amended in 2017. In particular Objects:

(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources; and

(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),

Refusal of the Project

Whilst the risk of damage to places of Aboriginal cultural significance may not, when considered alone, be sufficient to warrant refusal of the Beaches Link and Gore Hill Freeway Connection project, these impacts should be considered in combination with impacts on the environment, a detailed benefit:cost study and other matters addressed in other sections of this submission.

The deficiencies in comprehensive assessment of major alternatives to this project warrant its refusal and reconsideration only after major deficiencies in the assessment process are addressed.

Chapter 16 Geology Soils and Groundwater

There are risks of soil, groundwater, harbour and vapour contamination due to the tunnel project. These risks are numerous, and do not pose an acceptable level of risk to the community and environment when compared to the unclear benefits of the proposal. We are deeply concerned about the following environmental risks listed, and potential for offside contamination, and spread off contaminated pollution from the construction area. The issues of concern are:

- Geological structural features (page 7) *"The solid geology within the study area is cross cut by a number of* ***volcanic structural features that may impact groundwater flow. This includes geological faults (a fracture within rock where displacement may have occurred****), which are typically found within the Hawkesbury Sandstone. The presence of geological faults is associated with increased groundwater inflows".*
- Figure 16-1 Regional geological context (page 8) shows the fault lines over the whole project area. "*These faults which are likely to increase groundwater inflows, are shown to cross over Manly Dam and Manly Dam catchment. As the waterways in the diagram are greyed out, a close inspection is required to see that a large area of Manly Dam is crossed by the fault lines. Depending how far the work on and around Wakehurst Parkway extends, this presumably, has the potential to drain some of the water from the Manly Dam and surrounds."*
- Table 16-5 Groundwater dependent ecosystems (page 21). Listed below is the last item under this table, among other dependent ecosystems, is **Manly Dam.** *"Ecosystem mapped: Coastal Sandstone Gully Forest, Coastal Sandstone Plateau Heath*
  Groundwater dependent ecosystem: ***Manly Dam Reserve, Allambie Heights – Moderate potential for terrestrial groundwater dependent ecosystem***
  Receptor: ***Vegetation at Manly Dam Reserve***
  Distance construction footprint: About 650 metres east of the Wakehurst Parkway surface works"
- Two excerpts (page 26) below touch on the significant problems of **soluble contaminants** and their tendency to migrate within groundwater, streams and the harbour.
  - *Groundwater contamination*
    Groundwater samples were analysed for common contaminant compounds including heavy metals, nutrients and hydrocarbons. The contamination investigations indicated a number of groundwater samples from boreholes located in Artarmon, Willoughby, Northbridge, Balgowlah, and Wakehurst Parkway exceeded the Australian and New Zealand Environment and Conservation Council (ANZG) water quality guidelines for marine and freshwater ecosystems (95 per cent level of protection). The concentrations of contaminants above guideline levels may represent contamination, especially those contaminants and associated concentrations reported at Willoughby which may be associated with historical landfill.
  - *Middle Harbour contamination*
    A review of the technical report Sydney Harbour: A systematic review of the science (Hedge et al., 2013) indicated that sediments in Sydney Harbour (Middle Harbour being a sub catchment) contain high concentrations of a suite of metals (most notably copper, zinc and lead). More recent studies have confirmed that sediments in large areas of Sydney Harbour are not only highly polluted by metals, but also by a wide range of non-metallic contaminants including OCP, PAH and polychlorinated dibenzo-para-dioxins (dioxins) and dibenzofurans (furans). Most of the harbour's contamination results from a combination of historical inputs that remain in the sediments and some current sources of input such as stormwater.

- 16.4.4 Marine contamination.*" The sediments in Middle Harbour would potentially pose a high contamination risk due to the contamination associated with historical industrial use (over 150 years) of the harbour and the addition of polluted stormwater runoff originating from adjacent catchments. Contaminated sediments are likely to be disturbed during the dredging activities required for the installation of the immersed tube tunnel and associated piling works. Piling would also be required to establish temporary construction support site wharf structures at Spit West Reserve construction support site (BL9) and the temporary mooring facility for immersed tube tunnel units in Middle Harbour. Potential impacts as a result of disturbance of contaminated sediment may include contaminant exposure risk to project personnel and marine receptors if not appropriately managed. "* It is noted with concern that disposal will require offshore disposal, which would involve environmental impacts on sensitive marine environments, or landfill disposal, which would require considerable space in an already constrained waste industry unable to accommodate the growing waste output from the number of tunnelling projects in the Sydney basin.
- 16.4.5 Groundwater levels "*Groundwater within parts of the study area has the potential to be impacted during the construction phase of the project. The potential impacts that have been identified are:*

  - *Tunnel inflows and associated flooding*
  - ***Groundwater level decline (drawdown**) including potential impacts for:*

  - Saltwater intrusion

  - Contaminant migration from contaminated sites

  - Groundwater dependent ecosystems

  - Activation of acid sulfate soils

  - Decline in groundwater baseflow to surface water features (the groundwater that discharges to a creek or river)"

- Excerpt page 59 "*Groundwater dependent ecosystems and sensitive environments … Four groundwater dependent ecosystems or sensitive environments occur within the area of predicted **drawdown** as shown in Table 16-13. Flat Rock and Quarry Creek, groundwater drawdown is predicted to 5 metres of drawdown. Vegetation at Bates Creek, **Manly Dam Reserve**, Coastal Upland Swamp are all to be approx one metre at all these locations."*
- Appendix M – Technical working paper: contamination This project will encroach with many areas of moderate contamination. Areas of High contamination include:
  - *Page 5 – 6 (v and top vi) "Within Middle Harbour and west of Spit West Reserve. The likely excavation and exposure of contaminated sediments during the construction of the cofferdams in Middle Harbour, Middle Harbour south cofferdam Technical working paper: Contamination Beaches Link and Gore Hill Freeway Connection Technical working paper: Contamination vi construction support site (BL7) and Middle Harbour north cofferdam (BL8), as well as the construction of the Spit West Reserve construction support site (BL9), presents a **high contamination risk** to construction"*
  - *Page 6 (vi) Adjacent to the Wakehurst Parkway (Seaforth to Frenchs Forest). The likely excavation and exposure of areas of known soil contamination during the upgrade works to Wakehurst Parkway and adjacent construction of the Wakehurst*

Parkway south (BL12) and Wakehurst Parkway north (BL14) construction support sites pose a ***high contamination risk*** *to construction*

- *Page 7 (vii) Groundwater monitoring has been carried out at selected locations within the project area. Monitoring data indicates that* ***groundwater contamination is present beneath and between the Willoughby Leisure Centre and Bicentennial Reserve and may be present beneath Flat Rock Reserve,*** *the proposed location for the Flat Rock Drive construction support site (BL2). Further groundwater investigations should be carried out in these areas to target contaminants of concern and to provide additional information to support treatment of encountered groundwater (if required) during construction and operation of the project*

- The working paper also describes it as "Stage 1 contamination investigation report". **Ground water monitoring has only been carried out "at selected locations". There is obviously potential for more groundwater and other contamination.**

Chapter 19 Hydrodynamics

Secretary's environmental assessment requirements – hydrodynamics

Water – Hydrology

1. The Proponent must describe (and map) the existing hydrological regime for any surface and groundwater resource (including reliance by users and for ecological purposes and groundwater dependent ecosystems) likely to be impacted by the project, including rivers, streams, wetlands and estuaries as described in Appendix 2 of the Framework for Biodiversity Assessment – NSW Biodiversity Offsets Policy for Major Projects (OEH, 2014).

1.1

17.2.3 Figure 17-1 *Catchments, waterways and hydrodynamic and water quality monitoring locations* identifies Bantry Bay as a catchment and waterway that will potentially be impacted by the project.

17.3.1, 17.3.5, 17.3.8 and 17.3.9 do not mention the Bantry Bay water catchment area as an existing hydrological regime for any surface and groundwater resource likely to be impacted by the project, do not describe existing water quality conditions, do not analyse it as a sensitive receiving environment and do not assign it environmental values.

There is no evidence in the EIS that the project managers understand what impact the project will have on the Bantry Bay water catchment area nor that they have taken proper provisions to mitigate negative outcomes. The only information that the EIS has on the impact on Bantry Bay are a few statements about management believing that everything will work out well for the environment. There is no evidence to support this belief.

1.2

App N Annexure F 2.2 States: *"It is noted that Burnt Bridge Creek has been substantially degraded over the years largely due to the pressures generated from urban areas including a dense sewage system network and many stormwater outlets discharging to the creek. It is expected that increased stormwater runoff has contributed to the loss of coarse and fine grained sediments from the channel, leaving a scoured bedrock bed and eroded mud banks. This has resulted in Burnt Bridge Creek suffering from poor water quality, extensive weed infestation, erosion of creek banks, build-up of sediment and reduced biodiversity."*

5.2.6 States: "*the [Burnt Bridge Creek] waterway was previously realigned during construction of Burnt Bridge Creek Deviation in 1982."*

17.3.7 States: *"A key outcome of the Balgowlah Golf Course stormwater harvesting project is the golf course no longer extracts water from Burnt Bridge Creek for irrigation. As such, creek water remains as environmental flows, which re-creates the natural creek conditions."*

22.4.1 States: *"The Balgowlah precinct contains the Burnt Bridge Creek Deviation and Sydney Road corridors. Despite the amount of road infrastructure in this precinct, it has a distinct leafy character including well vegetated streetscapes and a large area of open space in the form of the Balgowlah Golf Course.*

"The precinct generally slopes from south to north, towards Burnt Bridge Creek riparian corridor. Balgowlah Golf Course has a level change of approximately 20 metres across the site. The golf course forms a large area of open space in the centre of the precinct with stands of mature trees spread across the course and along the course boundaries adjoining residential developments. Dense vegetation also occurs along the Burnt Bridge Creek riparian corridor."

The description of Burnt Bridge Creek as "substantially degraded" is totally inaccurate and covers up the negative impact that the project will have on this area. The creek was realigned in 1982 and as such, the vegetation there has been returning to a natural state for 40 years. The area has a distinct leafy character with dense vegetation and stands of mature trees.

The creek water remains as environmental flows, which re-creates the natural creek conditions. The creek flows over natural rocks along a natural looking course. The area is cool and well shaded. The land of the golf course lies below Burnt Bridge Creek Road, providing a stretch of quiet natural scenery from which cars can hardly be seen or heard. The area is one of the most beautiful urban riparian corridor landscapes in the Northern Beaches.

To give perspective on what 40+ of tree growth means, if the project can replicate the current natural conditions once construction is finished according to the current forecast of around 2028, the bushland will not return to its current state until 2068. By this time, according to current life expectancy rates, most people currently over 40 years old will be dead. These people will never live to see the bush return to its current situation. Anyone currently 30 years old will need to wait until they are 77 to see the bush return to its current situation. That is a very long time, equal to almost half the 100 lifespan of the project as modelled in the EIS.

However, this project simply cannot replicate the current situation. Burnt Bridge Creek is currently in no way degraded to the level that it will be degraded following the commencement of construction of this project. The trees and bush, once cut cannot regrow as lush as now, due to the lack of ground water that the project causes. The taller trees that will be cut down for construction are in fact much older than 40 years. The project will take this lush riparian corridor with graceful trees and a gurgling stream flowing over rocks and turn it into a bare grassed valley with a generally dry, deep concrete stormwater drain running through it. It will be a major loss of visual amenity and natural environment for the Northern Beaches area. The environment will never again be as good as it is now.

3. The Proponent must assess (and model if appropriate) the impact of the construction and operation of the project and any ancillary facilities (both built elements and discharges) on surface and groundwater hydrology in accordance with the current guidelines, including:

a. natural processes within rivers, wetlands, estuaries, marine waters and floodplains that affect the health of the fluvial, riparian, estuarine or marine system and landscape health (such as modified discharge volumes, durations and velocities), aquatic connectivity, water-dependent fauna and flora and access to habitat for spawning and refuge;

3.b. impacts from any permanent and temporary interruption of groundwater flow, including the extent of drawdown, barriers to flows, implications for groundwater dependent surface flows, ecosystems and species, groundwater users and the potential for settlement;

App N 5.5.11 States: *"In the vicinity of Balgowlah Golf Club observed groundwater levels at Bore B128 are around two to three metres below ground level, which indicates there is potential for interaction between the creek and the groundwater in this location where the creek is unlined."*

17.4.5 States: *"The drawdown beneath Burnt Bridge Creek is estimated to be up to five metres. There would be maximum of 79 per cent reduction in baseflow at the end of construction."*

App O 6.5 States: *"Maximum water table drawdown beneath Burnt Bridge Creek, North Balgowlah is predicted to be up to six metres. The predicted reduction in baseflow is estimated to be a maximum 16.8 kilolitres per day (a 96 per cent reduction) after about 100 years of operation. Baseflow impacts at Burnt Bridge Creek during the operational phase have the potential to be considerable"*

App O 4.2 States: *"Burnt Bridge Creek is a freshwater, first order stream receiving multiple inflows of stormwater. Upstream, the waterway consists of a natural bedrock and mud substrate, while downstream it is a highly modified bedrock entrenched channel with rock fill on the on the embankments."*

App O 6.4 States: *"Settlement is not expected to have noticeable impacts on Flat Rock Creek or Burnt Bridge Creek form and geomorphology as the creek drainage infrastructure along both these creeks would be designed as culverts and would mitigate some of predicted settlement impacts."*

App P 6.2.1 States: "The extension of the existing transverse drainage structure under Burnt Bridge Creek Deviation in combination with minor works within the inbank area of the watercourse immediately downstream of the road crossing has the potential to increase flow velocities by up to 1 m/s…

"While the project has the potential to alter the duration of inundation within the Balgowlah Golf Course when compared to present day conditions, the nature of the flow in this area would be altered significantly due to the proposed changes in landform."

App O 5.2.2 States: *"The removal of riparian vegetation at Burnt Bridge Creek has the potential to impact bank stability and surface water quality if mitigation measures are not implemented."*

App O 6.5 States: "*The predicted impact to the baseflow of Quarry Creek, Flat Rock Creek and Burnt Bridge Creek has the potential to be considerable."*

App N 7.2 States: *"The predicted groundwater drawdown in the vicinity of Flat Rock Creek and Quarry Creek has the potential to impact the groundwater dependent ecosystems (Coastal Sandstone Gully Forest, Sandstone Riparian Scrub and Coastal Sandstone Gully Forest) at that location."*

Where Burnt Bridge Creek currently flows through Balgowlah Golf Course, it has bedrock as its base and walls of the creek are earthen in most places except where stone blocks have been used on steep portions. The stream is slow flowing and includes a dam which supplies water for the golf course. The creek is unlined so that water seeps into the ground making the whole water table less than two metres deep, zero in the area around the creek. The abundant supply of water has made the riparian corridor lush and supports the large trees in the area.

The project modifies the creek. It removes the dam and turns it into a concrete culvert in this area and the whole of the lower reaches. This is to prevent creek water entering the ground. The water table will drop to 5m below ground during construction and 6m during operation. No water from the creek will enter the ground. Water velocity in the creek will increase by 1m/s. The amount of water in the creek will drop by 79% during construction and 94% during operation, making it effectively dry except during rainfall when it becomes a fast flowing stormwater drain. Instead of the dam allowing sedimentation to sink and be caught in the area, it will flow directly into Manly Lagoon and the sea.

The impact of the removal of all river water and ground water to 6m depth will significantly alter the area from a lush riparian landscape into a dry landscape. Without sufficient water, all the trees along the watercourse will die.

Burnt Bridge Creek will be moved east approximately 20m. This land is higher than the current creek bed (the creek is currently at the lowest point). The creek is currently around 5m below the Burnt Bridge Creek Road and 2m below the golf course. After the move, it will be 3-4m below the golf course. This will mean a fence will probably be required to separate recreational land from the creek. Burnt Bridge Creek Road is currently higher than the golf course, creating a low noise, low visual impact natural looking area on the golf course next to the creek. After the project, the road will be almost at level with the ground in the recreational area.

It will be a dry, treeless area with a deep cement stormwater drain flowing through it. The stormwater drain will be separated from the recreational land by a fence. The road will be at nearly the same height as the land, creating a noisy, visually unappealing situation for anyone in the park. It turns the current beautiful, peaceful and natural park into a highly urbanised, noisy, cement environment.

3.d. direct or indirect increases in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses;

App O 4.1.6 States: *"During storm events [Manly] creek is likely to experience high velocity flows."*

17.3.1 States: "*Manly Dam…has gradients steeper than 10 degrees and soils have very high to severe erosion potential"*

17.4.3 States: "*Once sediments enter waterways, they can directly and indirectly impact on the aquatic environment. If not appropriately managed, direct impacts would include reducing light penetration (limiting the growth of macrophytes), clogging fish gills, altering stream geomorphology, smothering benthic organisms and reducing visibility for fish. Indirect impacts of increased sediments occur over the longer term and include accumulation and the release of attached pollutants such as nutrients and heavy metals."*

17.5.3 States: "*Runoff from upgraded road pavement would typically contain pollutants such as sediments, litter, nutrients, oils and greases, petrochemicals and heavy metals, which could potentially impact on water quality when discharged into receiving waterways and sensitive receiving environments (Trefoil Creek, Manly Creek, Manly Dam, Burnt Bridge Creek and Flat Rock Creek)… The modelling results for the main locations where stormwater would be discharged (ie Gore Hill Freeway Connection, surface connections at Balgowlah and the realigned and upgraded Wakehurst Parkway) indicate that while the project would not meet the design targets in all locations, it would still meet or improve the existing water quality. On this basis impacts on surface water quality are expected to be minimal."*

App O *Glossary of terms and acronyms* states: "*Swale: A shallow, grass-lined drainage channel."*

App O 6.2.1.4 States: *"The pavement drainage system for Wakehurst Parkway has been designed to discharge to water quality basins or treatment swales before draining into the natural creeks that ultimately discharge to Bantry Bay in Middle Harbour or Manly Dam. At the northern and southern ends of the project area, pavement runoff would be discharged into the existing council drainage system.*

"The proposed water quality controls consist of two permanent basins, 18 swales and two in line gross pollutant traps…

"The project operational water quality design targets (provided in Table 6-3) would not be achieved at the Wakehurst Parkway as this would require additional land acquisition, clearing of native vegetation and fencing requirements near publicly accessible areas. It would also require higher treatment efficiency controls such as biofiltration swales which would not be possible due to topographical constraints."

App O Table 6-6 States: *"Total suspended solids (kg/year) Existing conditions: 11,000; With project and proposed controls: 5,460; % reduction: 86 (Note: % reduction represents the percentage reduction when comparing the project with and without the proposed controls)"*

App O Table 8-2 States: "*Rainfall Parameters…*

"85th percentile to be adopted for sensitive areas (ie catchments draining to Quarry Creek, Flat Rock Creek, Trefoil Creek, Manly Creek and Manly Dam). 80th percentile to be adopted at all other locations…

"Rainfall depth (mm) – five-day
"80th – 29.7mm
"85th – 38.8mm "

The project makes Wakehurst Parkway 3.5 times wider than the current road (calculated from Table 6-6), increasing stormwater runoff. To treat the stormwater, the project plans to use two permanent basins, 18 swales and two in line gross pollutant traps to treat stormwater. Swales are shallow, grass-lined drainage channels. The ones for this project are designed for rainfall events reaching a maximum rainfall of 38.8mm over a five day period. They cannot be made larger because it would require additional land acquisition, clearing of native vegetation and fencing requirements near publicly accessible areas. It would also require higher treatment efficiency controls such as biofiltration swales which would not be possible due to topographical constraints."

Rainfall in 2020 was above design specification 13 times in the year. This is greater than once every month on average. In a 5 day period in February, seven times as much rain as could be processed by the water treatment infrastructure fell. Every time that rainfall is more than the stormwater processing system is designed for, pollutants such as sediments, litter, nutrients, oils and greases, petrochemicals and heavy metals will flow out of them, directly into the environment, reducing light penetration (limiting the growth of macrophytes), clogging fish gills, altering stream geomorphology, smothering benthic organisms and reducing visibility for fish.

Month	Days	Total rainfall (mm)	Exceed design
Jan	17-21	98	253%
Feb	6-10	278.3	717%
Mar	4-8	92.4	238%
Mar	15-18	45.8	118%
Mar	26-30	73.8	190%
May	22-26	63.4	163%
Jul	11-15	40.8	105%
Jul	25-29	127.2	328%
Aug	8-11	41.4	107%
Oct	24-26	112	289%

Dec	14-16	46	119%
Dec	19-22	47.8	123%
Dec	29-31	113.6	293%

Note: Rainfall data from Terrey Hills except for February when Sydney data was used.

The project has 18 swales along Wakehurst Parkway. At each of these 18 points along the road, water is channelled into a concentrated area. When they fail, water pours out and down the steep slopes of Manly Dam and Bantry Bay water catchment areas at high velocity, severely eroding soil throughout the receiving waterways and sensitive receiving environments.

Road runoff under the project is 3.5 times the current level. The amount of water that pours from the swales is 3.5 times current road runoff and will be concentrated into 18 locations. This makes the damage to the environment much worse than the current modest road where the water disperses quickly. When swales fail, the impact they have on the environment is worse than if they had not been built.

The size of the swales cannot be increased. The problem is the width of the road which is out of all proportion to the narrow ridge it runs along.

Swales are grass lined and only effective if the grass is alive. The grass will die in droughts, turning the swales into muddy stormwater channels when it rains, discharging even more solid waste into the environment.

The grass will introduce weeds into all the water courses throughout the area in Manly Dam catchment area and Garigal National Park.

The proposed water treatment areas will repeatedly fail and cause serious environmental damage to the area.

Chapter 18 Flooding

Secretary's environmental assessment requirements – flooding

2. The Proponent must assess (and model where required), the impacts on flood behaviour during construction and operation for a full range of flood events up to the probable maximum flood (taking into account sea level rise and storm intensity due to climate change) including:

b. Any detrimental increases in the potential flood affectation of the project infrastructure and other properties, assets and infrastructure

18.4.3 States: *"The depth of ponding in ANZAC Park would occur to a maximum of 2.1 metres and 3.5 metres during a 10% and 1% AEP event, respectively, which is sufficient to result in hazardous flooding conditions to persons and property.*

"Floodwaters that collect in ANZAC Park would pond against the noise wall that runs along the western side of the Warringah Freeway to a maximum depth of about three metres during a 1% AEP event. If the noise wall were to fail under this weight of water, then floodwater would inundate the Miller Street off-ramp to a maximum depth of about two metres and extend across the northbound carriageways of the freeway….

"PMF

"Floodwaters that collect in ANZAC Park would build up to a level that overtops the noise wall that is located along the western side of the Warringah Freeway, where it would pond across the full width of the freeway before surcharging across its eastern side and into Cammeray Golf Course.
ANZAC Park would be inundated to a maximum depth of seven metres, while the carriageways of the Warringah Freeway would be inundated over a length of about 350 metres and to a maximum depth of five metres."

This modelling assumes:

1. That a noise wall is an appropriate dam wall.

2. That the failure of the noise wall when acting as a dam for a wall of water 2.1m, 3.5m and 7m high will cause water to slowly move forward, resulting in no damage other than flooding.

This modelling does not match experience with dam wall failure, such as at the BHP/Vale owned Samarco mine in Brazil. There the mine owners had over 100 years experience with managing tailings dams and this dam was specifically built for purpose, yet the dam wall still failed, causing deaths, many kilometres of destruction and billions of dollars of damage.

The collapse of the noise wall with a wall of water several metres high will result in a tsunami of water pouring across the Warringah Freeway into residential areas causing catastrophic destruction to property and potential loss of life. It could also result in a catastrophic influx of water into the entrance to the tunnel which could potentially travel several kilometres underground, flooding everything and killing any people in the tunnel.

g. Downstream velocity and scour potential

18.4.3 States: "*Flow that discharges from the drainage system at the northern end of Bantry Bay Road would pond at the inlet of the 1050 millimetre diameter pipe that crosses the Wakehurst Parkway about 140 metres south of Warringah Road. During a 1% AEP event, this ponding would have a maximum depth of over two metres but would not surcharge onto the road…*

"Flow that discharges from the drainage system at the eastern end of Yarraman Avenue would pond at the inlet of the 1200 millimetre diameter pipe that crosses Wakehurst Parkway immediately to its south. During a 1% AEP event, this ponding would have a maximum depth of over two metres but would not surcharge onto the road."

18.6.2 States: "*Increases in the rate of runoff has the potential to increase the frequency of surcharge of the existing stormwater drainage system which runs across Aquatic Drive and under Aquatic Reserve, thereby increasing the frequency and depth of overland flow that is experienced across the road and in the reserve during periods of heavy rain…*

"The concentration of flow at discrete locations along the widened section of the Wakehurst Parkway has the potential to increase peak flows, and hence flow velocities and the duration of inundation, in a number of receiving drainage lines which run to the east of the road corridor. Conversely, in a number of different receiving drainage lines which run to the east of the road corridor, the upgrade of the Wakehurst Parkway also has the potential to decrease peak flows."

These statements show that runoff to both east and west of Wakehurst Parkway will be affected by increased water flows, contrary to the later statement that it will occur on only one side – the document is not clear on whether that is the east or west.

There is no analysis of the scouring and increased water velocity of the discharge of two ponds, each over two metres in depth draining into 1050mm and 1200mm pipes.

The runoff capacity at Aquatic Reserve is limited and designed for current flooding events. If flooding increases, storm water could run over the edge of the reserve and down the hill into Manly Dam Reserve, leading to increased scouring and siltation of Manly Dam, Mermaid Pool and Manly Creek.

i. Any impacts the development may have on the social and economic costs to the community as consequence of flooding

18.6.2 States: "*Along the main arm of Burnt Bridge Creek downstream of the Kitchener Street bridge where peak 10% AEP flood levels would be increased at six residential properties in the range 10-50 millimetres.*"

18.6.5 States: "*Immediately upstream of the Burnt Bridge Creek Deviation crossing of Burnt Bridge Creek, peak post-climate change 1% AEP flood levels could be increased by up to 250 millimetres, with the impacts extending into eleven residential properties located on either side of the watercourse.*"

"Peak post-climate change 1% AEP" is not the same as PMF. The submission should state the level of destruction be under 1% AEP and PMF.

j. Whether there will be direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses

There is no mention of the impact of siltation, destruction of riparian vegetation and a reduction in the stability of river banks or watercourses. The only mention of erosion and the impact of river banks and watercourses is in 18.6.3 where it states: "*Increases in the rate of flow in the receiving drainage*

lines could result in a lowering of the stream bed through a process of headwater erosion, as well as a possible widening of the watercourse through a process of bank erosion. The lining of channels and the concentration of flow could also result in localised scour in the receiving drainage lines at the downstream limit of the drainage works."

This statement does not look at the impact of the project to the whole environment of the catchment areas affected. These impacts will probably be large and extend over several kilometres of water courses, potentially all the way to increased sedimentation at the beach at Queenscliff.

4. The EIS must assess and model the effect of the proposed development (including fill) on current flood behaviour for the 1 in 200 and 1 in 500 year flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change.

Contrary to Table 18-1, the issue of flood behaviour for the 1 in 200 and 1 in 500 year flood events is not addressed in 18.6.5.

Chapter 19 – Biodiversity

We have reviewed this chapter and the supporting BDAR (Appendix S), and provide the following comments.

General comments

This chapter generally addresses the **impacts** of the proposed Beaches Link and Gore Hill Freeway Connection project ('the project' referred to throughout the EIS and in this submission), and the requirements of the Biodiversity Development Assessment Report (BDAR). However, it fails to consider critical 'bigger picture' issues that have major implications for the conservation of biodiversity in the area. Consideration of broader alternatives with potential to better **avoid**, rather than simply seeking to **address** the impacts, is minimal.

Chapter 4 (Project development and alternatives) dismisses a 'Do nothing' option, 'Travel demand management', and 'Improvements to alternative transport modes' in a mere 11 pages of a 96-page document. Little consideration has been given to:

- International evidence that building new freeways creates new demand (generally recognised as induced demand), such that in a very few years, road congestion is again substantial. This outcome is directly contrary to the need to reduce reliance on private vehicle traffic as a key element of reducing the impacts of climate change. These trends are supported by an April 2020 international report by Deloittes (see https://www2.deloitte.com/us/en/insights/industry/public-sector/transportation-trends.html)
- Recent trends suggesting that private vehicle ownership and use is decreasing, especially among younger people
- The recent COVID-induced restrictions leading to extensive working from home, and their likely implications for future commuter road use (addressed in just one paragraph in Chapter 3)

As a consequence of this approach, the EIS relies heavily on 'offsetting' of impacts. That 'offsetting' is a highly controversial strategy, which in some instances enables developers to 'pay their way out of responsible environmental management' with little benefit to the impacted species or ecological community is widely recognised (see for instance a paper by environmental law specialist Rachel Walmsley: https://www.edonsw.org.au/political_endorsement_of_extinction.

In the case of the Northern Beaches Tunnel proposal, over-reliance on 'offsetting' unduly placing at risk a Threatened Ecological Community and several threatened species – both flora and fauna.

SEARS

Significant concerns arising in relation to the Secretary's Environmental Assessment Requirements (Table 19-1) include:

19.1.2 This requirement properly reflects the BDAR needs of the legislation and Biodiversity Assessment Method IF it is accepted that the current proposal is the one that should be the focus of the EIS. However, as outlined above, serious concerns exist about the adequacy of consideration of alternatives less damaging to an Endangered Ecological Community and to several threatened species – both flora and fauna.

In particular, the extent to which 'offsets' are appropriate or able to prevent further loss of 1.38ha of directly impacted Endangered Duffys Forest Ecological Community and a further 1.36ha predicted to be indirectly impacted, remains highly uncertain. The Biodiversity BDAR (p.207) identified this as a significant 'risk of a serious and irreversible impact'.

In 2017 the updated profile for Duffys Forest EEC (https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10254) identified only approximately 240ha of an original 1450ha of this EEC remaining – much of it in the area impacted by the proposed project. Numerous developments in recent years have further eroded the remaining area of Duffys Forest EEC. These include housing development, the Belrose Supercentre development, school expansions, the Northern Beaches Hospital and Mona Vale road widening.

When these losses are considered in concert with ongoing professional concerns about capacity to create complex ecological communities or to 'restore' them from a severely degraded state, reliance on 'offsetting' will do little to ensure the ongoing survival of this EEC. Already severely fragmented, one of the priority threats to the survival of Duffy Forest EEC is "loss and fragmentation of habitat through clearing and development" (see TEC Profile, referenced above). Other recognised threats relevant to this proposed project include:

- Habitat degradation by weed invasion {a threat already apparent on roadside verges along Wakehurst Park and likely to be exacerbated by the proposed project)
- Stormwater, soil erosion and nutrient enrichment
- Boundary encroachment
- Infrastructure

19.1.3 requires that the BDAR "must document the application of the **avoid, minimise** [emphasis added] and offset framework. The EIS goes to considerable lengths to address offsetting of impacts, and Sections 4 and 5 of this BDAR (Appendix S) address the efforts taken to identify an alternative **route**, more fundamental alternatives receive scant attention (see General Comments, above).

19.1.4 dismisses as 'Not applicable' a requirement to take 'reasonable steps' to be taken to identify 'like-for-like' when assessing offsetting. Given the heavy reliance of the EIS and the Biodiversity Assessment on offsetting, and the extent to which the Endangered Duffys Forest EEC is fragmented and highly at risk, it is difficult to reasonably consider how the EEC might be retained other than by a very strong commitment to a 'like for like' approach.

In addition to the Endangered Duffys Forest Ecological Community, **13 flora species** listed as threatened under the NSW Biodiversity Conservation Act (several of them Endangered or Critically Endangered at national level, as recognised by listing under the provisions of the EPBC Act) are recorded within 1.5km of the subject land (see EIS Appendix S, section 3.6.1). Many of these were assessed as at moderate to high risk, with two species *Callistemon linearifolius* and *Syzygium paniculatum* known to occur within the land that is subject to the tunnel proposed development.

Further adding to the environmental impacts of the proposed project on threatened flora are the likely impacts of the project on **11 threatened fauna species** "recorded or considered highly likely to occur in the subject land" (EIS Appendix S, Section 3.6.2). To this must be added the threat to the ancient Climbing Galaxias fish, the only known local population of which relies for its survival on the water quality in Manly Creek. That the water quality of Manly Dam and its feeder creeks (including Manly Creek) will likely be affected is acknowledged in the EIS (Chapter 19, p.67)

The proposed clearing of 20.92ha of threatened species habitat and an estimated loss of some3500 trees, much of this in the biodiverse-rich Wakehurst Parkway area, is an unacceptably high risk from a project for which real alternatives to any tunnel have not been properly considered.

Ecologically sustainable development (ESD)

Deficiencies in meeting the statutory requires relating to ESD, which are pertinent to the proposed tunnel project include:

(a) the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, public and private decisions should be guided by:

(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

(ii) an assessment of the risk-weighted consequences of various options,

As has been discussed earlier in this section of the EIS response, "**careful evaluation**" of alternatives which could **avoid** serious impacts on the environment is grossly inadequate. Rather than beginning from a premise that a tunnel should be built and any environmental impacts 'offset', alternatives that address demand management based on current and future projections, rather than 'induced demand', should be thoroughly addressed.

Given the high risk of extinction of some flora and fauna species that will be affected by the tunnel project, reliance on 'offsetting' as the mechanism for 'risk weighted consequences' is also inadequate.

(b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

While it is current vehicle-dependent generations that will be responsible for this project if it goes ahead, future generations will bear the costs of added vehicle emissions and the associated exacerbation of climate change – along with the additional impacts of vegetation loss and of ventilation, water treatment and other factors associated with the tunnel's ongoing operations.

(c) conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

Consistent with the focus of this chapter of the EIS, it is clear that there will be biodiversity loss through the loss of threatened species and a threatened ecological community and ecological integrity will be eroded as habitat corridors and connectivity are fragmented by the expanded road systems associated with the proposed tunnel project.

(d) improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services

Given the over-reliance of the EIS on 'offsetting' and the risks that that brings to species and their habitat, there is little evidence that value of environmental factors Has ben properly considered alongside the tunnel proposal, the costs of which risk being seriously under-estimated.

Objects of the Act

Considered from a biodiversity perspective, there are inadequacies in the ways in which the Beaches Link and Gore Hill Freeway Connection project, as proposed, meets the Objects of the Environmental Planning and Assessment Act, as amended in 2017.

In particular, there are deficiencies, as follows, in relation to Objects b), c) and e).

(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,"

As discussed above, environmental considerations and alternatives to those proposed, have been inadequately considered. The focus of the EIS is on 'planning' rather than on integrating environmental considerations into the decision-making.

(c) to promote the orderly and economic use and development of land,"

In failing to inadequately consider the environmental values of the biodiversity and other aspects of the proposed project, the EIS provides a very imperfect basis for considering 'orderly use and development of [the] land' that will be affected by this proposed project.

(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats",

It is on this point that the EIS (Chapter 19 and Appendix S) fail most dramatically to meet the Objects of the EP&A Act. Through an over-reliance on 'offsets' (the success of which as a conservation tool is too often likely to fail) the proposal fails to ensure the conservationof threatened species, ecological communities and habitats.

Further information the Proponent ought to provide to enable assessment

As discussed throughout this section of our response to the EIS and its supporting documents, the major deficiencies lie in the lack of detailed consideration of alternatives to any tunnel construction connecting the Northern Beaches to other vehicle transport corridors.

Refusal of the Project

The Beaches Link and Gore Hill Connection as proposed is not justified in its present form.

It should be rejected and replaced with more comprehensive consideration of alternatives, including:

- a 'Do nothing' option,
- 'Travel demand management', and
- 'Improvements to alternative transport modes'

Given the heavy reliance of the proposal on 'offsetting' and the recognised deficiencies of 'offsetting' as a tool for conserving key elements of our biodiversity, it is difficult to see how the project could be approved.

Chapter 21 Socio-economics

Secretary's environmental assessment requirements – socio-economics

1. The Proponent must assess social and economic impacts (of all phases of the project) in accordance with the current guidelines (including cumulative construction and operational impacts of the proposal and major projects in the vicinity of the project) and in consultation with relevant land owners (such as the Ports Authority of NSW and those land owners whose property is being acquired).

1.1

21.3.4 States: *"Overall, the business survey indicated that the majority of businesses perceived the project would have a neutral effect on demand for goods and services."*

21.4.7 States: *"39 per cent of businesses believed [construction of the project] would have a negative effect."*

For >50% of businesses, the project will generate zero economic growth. 39% of businesses will be adversely affected throughout the construction phase and will consider closing or relocating. Many of these businesses will not return.

This project will cost billions of dollars and cause years of inconvenience for residents yet in the long term will not provide any economic benefit at all to business in the Northern Beaches and may in fact be economically detrimental to business overall.

1.2

21.4.7 States: "*During construction, visual amenity would be affected by the removal of vegetation and the introduction of temporary construction support sites, equipment and other visible elements such as hoardings and fencing. This is most likely to impact on those retail, personal service providers, cafes and restaurants that rely on the pleasantness and quality of an environment to attract customers. Important aspects of visual amenity which may be affected include access to natural daylight, clear sightlines and permeability to the surrounding landscapes. Businesses that rely on storefront exposure to attract customers may be affected by reduced visibility or safety concerns of customers as a result of the presence of construction machinery and materials…*

"An increase in construction workers in an area often provides an economic injection… the largest benefits from increased trade are anticipated for convenience retail and the food and beverage industry…

"Businesses required to close or relocate due to the project are predominantly commercial, light industrial or speciality services, including a media and production company, swim school and beauty college, and are located in the Artarmon Industrial Centre... Due to the nature of these businesses and the supply of alternative industrial zoned land in the surrounding area, it is likely that these businesses would relocate to another trade catchment. This would result in relocation and establishment costs with potential loss in trade and revenue during this time."

21.5.5 States: "*Operation of the project would have benefits for businesses and business centres across the Northern Beaches by reducing travel times for light commercial and freight trips, which would in turn reduce transportation costs and increase efficiency. It is noted that Spit Road and Military Road*

have access restrictions for large articulated trucks (ie B-doubles and other higher mass limit vehicles)."

During the construction phase, retail, personal service providers, cafes, restaurants, commercial, light industrial and speciality service businesses will be negatively affected. Businesses that are negatively affected will either close or permanently relocate to other locations in Sydney.

Temporary businesses located close to the construction that supply convenient/fast food will increase. These businesses will either close or relocate to other locations in Sydney once the construction phase finishes.

After the construction phase, heavy industry will be encouraged into the Northern Beaches due to greater access for large articulated trucks (ie B-doubles and other higher mass limit vehicles), reduced transportation costs and increase efficiency. The toll cost will not be a disincentive for heavy industry since trucks are being directed to use toll roads throughout Sydney, so will be indifferent to travelling to the Northern Beaches or other areas.

It will become easier for Northern Beaches residents to shop outside the region and the toll will not be an issue if they shop after working in the CBD. Individuals from the rest of Sydney will be discouraged by the toll from coming to the Northern Beaches to shop.

Businesses in the Northern Beaches will lose trade from residents and not increase trade from non-residents. This will lead to lower profitability for many local shops, meaning that non-essential trades (anything other than groceries, fuel, restaurants, cafes, recreation etc) will not fare well with the tunnel. This will lead to a decline in diversity among businesses.

The result of the tunnel will be a loss of businesses that rely on visual amenity and light commercial businesses, a temporary flourishing of the convenience/fast food business followed by a permanent increase in heavy industry in the Northern Beaches. This will significantly impact upon the enjoyment residents have from living in the area. A higher proportion of spending by Northern Beaches residents will go to businesses that are located outside the area.

1.3

21.5.7 States: *"Surface connections at Balgowlah have potential to increase the incidence of 'rat running' on some local roads. Traffic calming measures would be implemented where required and agreed in consultation with Northern Beaches Council, which would help to minimise potential for 'rat running' on local roads… The project would contribute to improved access and connectivity to social infrastructure within Middle Harbour and the Northern Beaches"*

These two statements are logically inconsistent. Road widening, the tunnel entrance and traffic calming measures will make it easier to leave the Northern Beaches but will not improve access and connectivity to social infrastructure within Middle Harbour and the Northern Beaches. They will cause it to be more difficult to travel across the Northern Beaches in any direction other than into the tunnel. This will make it more difficult for residents to visit each other and to access social infrastructure.

Instead of residents benefitting from emptier streets, streets will become harder to drive along. If there is a genuine need to calm traffic, then now, when there are more cars on surface roads, is when traffic calming should be implemented, not after the streets allegedly have less traffic.

In the twentieth century, the car was the symbol of freedom, it gave people the ability to travel where they liked when they liked. In this proposal, people who exercise their freedom to drive where they want are likened to vermin and the proposal seeks government support to eradicate them and force them into the tunnel where they pay to use the road. This project should be all about increasing freedom of choice, not about turning ordinary drivers into toll road slaves. It should be about increasing access, not decreasing it.

1.4

21.5.7 States: *"The project would improve access to key commercial and employment centres including the Sydney CBD, North Sydney, Artarmon, St Leonards, Macquarie Park and other strategic centres."*

There are no plans to increase parking at North Sydney, Artarmon and St Leonards. The project will lead to more people driving to these places which will cause parking difficulties during business hours. It is not feasible that more people drive to work at these locations.

1.5

21.5.7 States: "*The new tunnels would allow the opportunity for new public transport routes"*

The tunnels do not supply busses. There is no guarantee that the possibility of increased routes would lead to increased busses. On the contrary, the expectation, since car numbers increase, is that bus numbers will decrease. This will make it more difficult for people to travel from the Northern Beaches by public transport.

1.6

21.5.7 States: "*The project would improve cyclist and pedestrian connectivity along the project corridor through increased provision of dedicated cyclist and pedestrian links. This includes the provision of a new and upgraded pedestrian and cyclist infrastructure around surface connections and along the upgraded Wakehurst Parkway.."*

If the government believes that a cycle path along Wakehurst Parkway will improve the welfare of cyclists and pedestrians and lead to a better society, then such a path should be built immediately and without consideration to the tunnel. Comparing such a pathway (one built in the absence of the tunnel) with what is offered in the project, the former is far superior in every way. It offers greater road safety, air cleanliness, visual amenity, lower noise pollution, less wind hazard and greater accessibility. Compared to the former, the project is a reduction in quality of life for the users of the cycle path.

The tunnel does not provide additional access across Middle Harbour for cyclist or pedestrians. There is no improvement in travel for cyclist or pedestrians but in many ways there have been reductions.

1.7

21.5.5 States: *"With the project, travel time from Artarmon to Manly, Frenchs Forest to North Sydney and North Sydney to Balgowlah would be between 10-15 minutes faster in both directions, compared to an alternative 'Do minimum' (without the project) scenario in 2027 and 2037."*

The net result of the project is only reduction in travel time of 10-15 minutes as far as the end of the tunnel. With increased traffic over the Harbour Bridge and Harbour Tunnel as well as in the CBD, the actual travel time to work in the CBD will be somewhat less than this, probably 5-10 minutes. This is an insignificant time saving and shows that the project is absurd. This is especially since it is in comparison to a "do minimum scenario" (effectively "do nothing") rather than to realistic alternative projects, such as increasing various forms of public transport.

1.8

"*Minor issues*"

Rather than an impartial evaluation of the socio-economics of the project, the EIS is very positive about how good the project is. No problem is treated seriously, all problems are described as "minor", "negligible", "low" etc, often without qualifying what that means. No benefit is ever described in these terms, although realistically, overall the project delivers negligible benefit at great cost.

There are a lot of these lesser impacts. In Chapter 21 alone, there are 15 "minor", 38 "negligible" and 56 "low" impacts upon the lifestyle of residents. That is in addition to 58 "moderate" and 29 "high" impacts. Although none of the lesser impacts is major in its own right, many minor issues equal a major issue. That issue is that life in the Northern Beaches is going to be adversely affected by the project in many different ways, all making the area less desirable to live in.

1.9

24.4.4 States: "*Direct impacts on social infrastructure: Artarmon Park: Construction of the project would require the temporary lease of a portion (about 12 per cent) of land within Artarmon Park…Clearing of mature trees would be required for construction and operation of the on-ramp…Works are unlikely to impact the recreational use of Artarmon Park, as the impacted area is steeply sloped and vegetated with dense scrub….At the completion of construction, part of the land zoned for public recreation would be converted to permanent project infrastructure."*

When the Gore Hill Freeway was first constructed in 1991, the preservation of these trees and dense bushland was seen as important to buffer the area from noise and air pollution from the road. Over the years as the road has been widened, the buffer has been reduced and will be further reduced by this project. It makes the original idea of a buffer meaningless and shows that quality of life, in terms of natural environment, is significantly lower after this project than before.

1.10

24.4.4 States: "*Direct impacts on social infrastructure: Balgowlah Golf Course: The project would return an area, equivalent to around 90 per cent of the current open space, to the community as new and improved public open space and recreation facilities…The temporary construction support site would occupy part of the land (about 28 per cent) for a period of up to five years and the golf course would be permanently closed at the start of construction, which has been assessed as of high significance."*

21.5.3 States: *"A portion of land currently occupied by the Balgowlah Golf Course would be acquired by Transport for NSW for the construction of permanent facilities, including a new access road, motorway facility and ventilation outlet, leading to the closure of the golf course."*

21.5.4 States: *"The early development of the new and improved open space and recreational facilities in Balgowlah would improve access to sport and recreational facilities for surrounding communities. Increased availability of public open space and passive and active recreation facilities would impact positively on local amenity in this area. Use of the residual land for such facilities would address the current under supply of sporting grounds available for public use in the local area."*

The project will close Balgowlah Golf Course, take 10% of its land (besides using 28% of its land during construction) to build a road, motorway facility and ventilation outlet. In addition, the pedestrian underpass under XXX street will close and Burnt Bridge Creek will no longer flow except in flood. All these things result in a loss of public open space, loss of sporting ground, loss of tree cover, loss of natural environment and loss of scenery. It is therefore wrong to state that the project "would improve access to sport and recreational facilities". If the project applicants believe that the golf course would be better used as something else, they should raise this idea with the State of NSW and try to have the land use changed independent of this project.

As it is, this destruction of open space and sport facilities is an unnecessary victim of weak engineering design that has calculated this land as valueless. The project should have used better planning to avoid the destruction of irreplaceable natural environment.

1.11

21.3.1 States: "*Demographic information for precincts: Characteristics: Travel to work for employed residents within the precinct*

"Western Precinct: About 39.8 per cent drove to work in a car as either driver or passenger.

"Eastern Precinct: About 57 per cent drove to work in a car as either driver or passenger."

From this we can see that around 17.2% fewer people in the Eastern Precinct (Northern Beaches) would drive to work if they had the level of access to public transport that is available on the other side of Middle Harbour. The current project is cementing current driving trends for the next 100 years. It assumes that people in the Northern Beaches for the next 100 years will want to drive to the CBD to work. Global trends show that this is unlikely to be the case. There is increased movement towards working closer to home, if not at home. There is also increased interest in cycling, walking and public transport. Car use is declining in the rest of the world and would decline in the Northern Beaches if alternatives could be provided.

1.12

24.4.4 States: "*Increased construction traffic along Spit Road may impact on the perceptions of safety for people accessing social infrastructure at this location…Increased construction traffic may impact on perceptions of safety for children and students…increased marine construction traffic and activities could impact upon the perceptions of safety for water craft and"*

21.4.5 States: "*Increased construction traffic could impact upon the perceptions of road safety… The presence of a large construction workforce has potential to disrupt amenity and impact on perceptions of safety for surrounding neighbours and users of nearby social infrastructure"*

21.5.4 States: "*The operation of motorway facilities and ventilation outlets at the Warringah Freeway, the Gore Hill Freeway, Burnt Bridge Creek Deviation and the Wakehurst Parkway may influence people's perceptions of air quality in surrounding areas."*

Nowhere is there any analysis to show whether safety and health is actually forecast to be affected. All statements about the impact on safety seem to imply that these impacts are not real and are only imagined by the community. This shows a lack of any real interest in finding out whether there will be impacts on safety. Without understanding whether safety will be impacted, no actual steps can be made to protect against it. This project has failed to take into serious consideration the impact that construction and traffic will have upon the safety of people in the area.

1.13

21.4.6 States: "*A project of this scale is expected to support up to 7500 full time equivalent job years (direct employment) during the five years of construction, including construction workers and professional and administration staff."*

The average employment during the project is 1500 people per year, full time for the full year, over a five year period. Most of these people will be from outside the area. The completed project seems to require almost no staff. These temporary jobs seem to be the only significant economic benefit from the project.

Offset against this will be the amount of jobs lost in businesses affected by the project. 39% of businesses in the area will be affected. Many of these will be permanently affected. There is no statement on the amount of job losses from this.

1.14

24.4.8 States: *"The permanent removal of 10 parking spaces along Ernest Street and the temporary removal of parking spaces on other local roads such as Punch Street, Dickson Avenue, Barton Road, Cleg Street and Hampden Road, resulting in a reduction of available parking. Some car parking for the construction workforce would be provided at the temporary construction support sites"*

21.5.4 States: "*Reduced travel times and improved travel time reliability may encourage some people to make trips they otherwise wouldn't"*

21.5.7 States: *"[The project] would have positive long-term impacts for motorists."*

Car use becomes more convenient. Car trips will increase and car ownership will increase. This will increase the number of cars in the area leading to increased demand for on street parking. This will increase parking congestion and make streets narrower and more difficult to drive along, since additional parking will be mainly on street. The project includes no additional parking, only the removal of some parking spaces.

1.15

21.5.5 States: *"Tolling infrastructure has been included as part of this environmental assessment to provide the NSW Government with the option to apply tolls to traffic using the Beaches Link tunnels."* The capital cost to the government of borrowing money for the project is almost zero. The government is spending billions of dollars on developing the economy. The government should own and manage transport infrastructure and supply it for free to the people.

1.16

No analysis has been made in the EIS to model the impact of visitors from out of the area to the Northern Beaches on the weekend. An increased number of residents from outside the area will travel to the Northern Beaches on the weekend due to improved road transport and the removal of a number of Manly ferries.

There will be more cars on the Northern Beaches after the project, meaning fewer car parking spaces on street. On the weekend, most of these will be occupied by locals since they have not travelled to work. With an increased inflow of cars into the area

Chapter 22 – Visual Amenity

The Proponent must identify how functional 'place' outcomes of public benefit will be achieved, including design principles and strategies that:

a. consider areas identified for future urban renewal;

- The EIS confuses the concept of "urban renewal" with "post-construction rehabilitation". There is no mention of what urban renewal will happen.
- With the project, there is no interaction between the portals/feeder roads and the local community. The road will cut residential neighbourhoods in half, make it difficult to cross suburbs. This will reduce community feeling, the profit of local shopping areas etc, turning once vibrant communities into soulless commuter suburbs.
- In the Balgowlah and Wakehurst Parkway precincts there is no real potential for urban regeneration. The area in question in Balgowlah is already well populated with houses, some of which will disappear to make room for the project. The Wakehurst area is surrounded by bushland and there should be no urban development here.
- Landscape improvements are questionable, especially to the people who had reasonably private front and backyards who will now be looking at toilet blocks and such (Pickworth Ave and Paris St).

b. capitalise on reduced traffic volumes and the reduction of traffic permeation, particularly in and around commercial and community centres;

- The project will increase traffic on the road and make travel by car more essential to travel on the northern beaches. It will increase traffic volumes throughout the northern beaches, putting strain on all parking resources.
- The access road which will be put through Balgowlah Golf Course will channel traffic directly into Sydney Rd, right before the congested intersection of Sydney Rd and Burnt Bridge Creek Drive. The connection to Sydney Rd is controlled by a traffic light. This will cause traffic to bank up on Sydney Rd, Burnt Bridge Creek Drive near the intersection and on the new access road. It will not decrease traffic volumes but cause more traffic congestion at this point.

c. avoid locating infrastructure, including ancillary facilities adjoining residential areas and other sensitive receivers, and justify where this cannot be achieved;

- We have had roads for thousands of years without service centres next to them. There is no justification for placing 5 service centres along the route. They are just a land grab by the road operators where they get free real estate for their operations and a large building built out of all proportion to the needs of the operation.
- The car park at Balgowlah Golf Course is out of all proportion to its needs to service the park. It's real function is to provide free parking for workers and visitors to the tunnel service centre.
- The service centre will be set 8m into the ground. This means that the land around the service centre will be sloped and unfit for any practical use.

d. achieve high quality landscaping, streetscapes, architecture and design;

- On Wakehurst Parkway there is no separation apart from a line of grass several centimetres high between the shoulder of the car part of the road and the shared road for pedestrians

and cyclists. This presents a safety hazard for pedestrians and cyclists in the event that a driver misinterprets the shared pathway for a side lane.

- The plan is for Wakehurst Parkway to be unlit despite being made into a 4-6 lane major thoroughfare. In all likelihood, after the first few accidents on the road there will be calls for street lighting to be installed. This will destroy the natural dark conditions of the bushland around, making it difficult for pygmy possums and other threatened species to continue living in the area.
- A proper detailed assessment of night light impact has not yet been done and should have been done as part of the process. Only a broad assessment was carried out based on stated assumptions.
- Where Wakehurst Parkway goes over gullies, of which there are a number on the route, there is no way to prevent light and noise travelling.

e. identify urban design strategies and opportunities that would enhance healthy, cohesive and inclusive communities, including in relation to accessibility and connectivity;

- The EIS has no strategies for enhancing healthy, cohesive and inclusive communities. The "new and improved sports ground" at Balgowlah Golf Course is not only more than 10% smaller than currently, with the project it will be divided in two by a busy access road, service centre, car park and toilet block. The bicycle paths that will be installed on each side will be long enough to cycle for around 1 minute in a single direction at a medium pace for a cyclist who is cycling as a sport (20km/h). This hardly provides any exercise at all.
- The plan to put in basketball courts turns grass into paved areas, reducing the amount of natural land in the area.

f. consider resulting residual land treatments, and demonstrate how the elements of the proposal would be consistent with the existing and desired future character of the area traversed or affected by the proposal;

- The environment in Wakehurst Parkway and Seaforth/Balgowlah area is characterized as natural bushland with tall leafy trees. The project reduces the amount of bushland particularly along the crest of the ridge where Wakehurst Parkway runs and in the Burnt Bridge Creek/Balgowlah Golf Course area. This changes the character of the area from quiet natural suburban to heavy road use, major transport arterial.

g. identify opportunities to utilise surplus or residual land, particularly for the provision of community space (passive and recreational) and utilise key structures (such as ventilation outlets) for multiple uses (i.e. integregration with other structures)

- There is no surplus land, and if there is, it should be defined.
- Residual land is also not clearly defined, so an assumption is made that this is land the project has taken, used during the project, and will return to the community when the project is completed. The Balgowlah Golf Club is an example of this land; it is questionable if replacing a golf club with a number of undefined sports fields is what the community want. The Balgowlah Oval is not a new space as it is being moved to a new location. None of the new land uses include increased canopy cover that would cater to wildlife.
- Landscape improvements are questionable, especially to the people who had reasonably private front and backyards who will now be looking at toilet blocks and such (Pickworth Ave and Paris St).

h. explore the use of Crime Prevention Through Environmental Design (CPTED) principles during the design development process, including natural surveillance, lighting, walkways, signage and landscape

- The report does not expand of what will be done in this area. It is vague. It does not seem to include anything new.

The Proponent must describe the accessibility elements of the proposal including relevant accessibility legislation and guidelines, including:

a. impacts on public transport infrastructure and services;

- The EIS does not adequately outline public transport. Public transport will be handled on a 'wait and see what happens' basis. By the time this stage is reached, the public will have gotten used to private transport because they will have had access to a 'brand new, big, empty road'. Thus, it will be too late and too hard to entice them away from private cars to public transport. A proper public transport plan needs to be available for the first day the NB Link is open, so people do not consider private car use and jump straight onto a public system.

b. impacts on pedestrian and cyclist access and safety across and adjoining the proposal;

- The report refers to 'shared user paths' but these are not defined. I assume this will be a two-lane path with cyclists and pedestrian sharing a lane (this is the current situation at Burnt Bridge Deviation). How will these lanes separate pedestrians from cyclists? Currently pedestrians share a lane with cyclists. Despite bell warnings from cyclists, pedestrians often don't move because they don't hear the warnings (because of headphones, …) and it creates a dangerous situation for both parties. The new shared path should be defined in more detail and resolve this problem.

c. opportunities to integrate and enhance accessibility including the provisions public and active transport infrastructure as a result of the proposal.

- The public transport system is not adequately documented. As a result opportunities to integrate and enhance accessibility are also missing.

The Proponent must assess the visual and landscape impacts of the proposal, including ancillary infrastructure on:

a. views and vistas;

- There is no question that the building of the NB Link will significantly alter the look and landscape of the area.
- However, the problem is the years that it will take to build the link. During this time the construction sites will be unsightly, noisy and create pollution.
- Ventilation stacks ejecting pollution will be added to the landscapes, which are not a great outcome.

b streetscapes, key sites and buildings;

- The NB Link will change the streetscape as well. Sadly, some residents will be forced out of their homes and need to find somewhere else to live, potentially in a place that is not as desirable to them as where they had to leave.

c landscaping, green spaces and existing tree canopy including an assessment of likely magnitude of impacts to trees and need for removal to be undertaken by an arborist including the provision of measures to minimise and offset impacts;

- The loss of bush and animal habitat along the Wakehurst Parkway in particular is of concern as nature spaces are constantly decreasing to the detriment of our society and planet. Fauna corridors will be impacted, and there is a good chance that some threatened species will be lost in our area. The noisy and lengthy construction time will cause them to look for other places to go and sadly these are constantly diminishing or just not available any more due to urban growth.

d. heritage items Aboriginal places, environmental heritage and areas of heritage sensitivity; and

- These are yet to be discovered and consequently negotiated. These should be identified before the project starts so an impartial assessment can be made independent of the progress to date when the heritage site(s) are potentially discovered.

e. the local community.

- We consider the impacts on the community to be unacceptable, particularly in relation to the stacks, and to the visual impacts on users of Manly Dam.
- the report does not mention the height of the ventilation outlet to be located within Balgowlah Golf Course. This is an important part of any urban design and visual amenity and should be stated.
- Closure of the golf course means 10% less greenspace, which has a serious impact on visual amenity.

Chapter 25- Sustainability

We provide a list of the following comments and concerns regarding the adequacy of this chapter:

Reference	Our response:
1.The assessment of the sustainability of the project in accordance with the ISCA *Infrastructure Sustainability Rating Tool* is discussed in Section 25.2. A Sustainability Management Plan would be developed during further design development. The Sustainability Management Plan would detail measures to meet the sustainability objectives and targets.	This project disappointingly only seeks an "excellent" rate (version 1) instead of aiming to the highest rate of the ISCA rating scheme. The proponent intends to prepare an SMP, however it is difficult to assess the sustainability of a project where all of the information concerning its sustainability plan is not available at the time of assessment. The community has no opportunity to comment on the accuracy of a plan submitted after approval, where it has no opportunity to contribute or object to that documents contents.
25.1 Overview Sustainable development refers to "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987).	This statement is being misused and it is also being generalised, as this project will be the enabler of more developments around the areas in which it would be constructed. It is not meeting the needs of the present as such. Community needs a more efficient public transport routes and options, notwithstanding the fact the project will compromise the ability of future generations to have access to a cleaner air, noise pollution due to induced traffic, the decline on their health and lifestyle due to the destruction of the natural environment. In addition to the above, this is a failing action in contradiction to the reviewed recommendations on the national environment laws, this means the government is accepting the decline of our precious landmarks and complacent with the extinction of threatened animals, plants, ecosystems and the right of a healthy environment for the current and future generations.
The Infrastructure Sustainability Council of Australia provides a definition specific to sustainable infrastructure development, being that which is "designed, constructed and operated to optimise environmental, social and economic outcomes over the long term" (Infrastructure Sustainability Council of Australia, 2016c).	It is quite clear the project does not meet the above-mentioned sustainability principal as this project is indeed a step back to social-economic and environmental sustainability. Communities, corporations and governments should be finding solutions to minimise the need of cars and ways of sustaining a more viable economic growth. A simple and current example was during COVID-19, where the traffic has been minimal as more people were working from home. During this period there was also substantial decrease on air pollution and noise. Hence, this project is not the ideal solution for the future of our sustainable economic growth.

• The sustainability framework that has been developed for the project, including the application of the Infrastructure Sustainability Council of Australia's Infrastructure Sustainability rating scheme to the project Beaches Link and Gore Hill Freeway Connection Environmental impact statement 25-2	All statements made by the project are the same and it repeats itself throughout this paperwork. Community needs more clarity.
• Legislation and policies relevant to the project	A policy that allows freshwater streams, which are vital for the health of the population and the environment, to be encroached to its limit by developments which will have a despicable and irreversible impact on the fresh water stream. Covering up creeks is a crime against our wildlife and flora, the creek is a vital source of water and covering it will hide the imminent pollution and degradation happening below such.
• Application of the principles of ecologically sustainable development to the project	Principles may have been applied however, level of compromise and details of application of those principles are clear on this project.
The sustainability framework has been prepared to ensure that sustainability is embedded in project planning, design, construction and operation. The sustainability framework provides the overarching vision, objectives, targets and implementation approaches for the project.	Implementation approaches seems backwards and are not taking in consideration the real future benefits for the community surrounding the project nor the real necessity and alternatives to resolve the current needs.
Figure 25-1 Framework	
Sustainability and Infrastructure SRCMP Clearly defined actions to achieve sustainability objectives and targets and address the infrastructure sustainability rating scheme credits	It is not clearly stated on this project how the offset credit will be implemented, when this offset will start to take place, where and who will be responsible to maintain it.
Environmental Assessment and approval doct. Assessment of environmental impacts and	More developments will follow surrounding the tunnel areas and although this may not by the responsibility of this project, it needs to be accounted for accurately. This will bring more housing, businesses therefore more cars which will defeat the purpose of

identification of measures to minimise adverse impacts	this tunnel which is less traffic and rat racing. This means project contradicts its own statement related to avoiding its impacts. On Chapter 18 Flooding, it again demonstrates the lack of commitment in ensuring the mitigation of assessed risks related to floodwater. This again shows the long-term negative effects community and environment will have to cope with. The increased risk of soil contamination and erosion, hazard traffic conditions and the possibly the inability of using the road needs further is increased with the current issue of temperature rise and climate change.
Infrastructure Sustainability rating Achievement of an "excellent" Design and As built infrastructure sustainability rating from the ISCA	Not very clear how this will be achieved. Why isn't the aim of a higher standard such as other projects. This project also contradicts the government initiative for green canopy.
Communication Sustainability ambitions, commitments and objectives communicated widely and transparently including through the stakeholder engagement process.	Project needs clarification so community can consult and be aware land being used is not already earmarked for protection and/or in public hands as offsets. Notwithstanding we need to be sure these areas are protected in perpetuity, such as the existence of this tunnel and not treated as another low value, regenerated area, with relatively young tress, as it is already doing so with vital patches around the project. This is worrying and we could say that if the above are not being addressed appropriately and therefore, this could happen again to these new areas which were meant to be for the offset. It is imperative clarity and transparency are shown to the community in the project paperwork for accountability and action. We have too many recent examples such as with the new western Sydney airport project and the NB Hospital. Throughout the whole document, the commitments and actions and very vague and repetitive.
The *Environmental Planning and Assessment Act 1979* facilitates ecologically sustainable development in NSW by integrating relevant economic, environmental and social considerations in decision making about environmental planning and assessment. As an object of the Act, ecologically sustainable development must be	This once again is understated as too many areas with ecological importance will be irreversibly impacted such as Burnt Bridge Creek which will become a drain and with its flow reduced by 96%, affecting the survival of native fauna and flora and the lifestyle of locals who use the area, the protected bat colony located in Balgowlah which there is no real solution to this as these can't or shouldn't be "relocated".

incorporated in the planning of the project (refer to Section 25.3).	
Transport Environment and Sustainability Policy (Transport for NSW, 2020c) The *Transport Environment and Sustainability Policy* outlines the commitment of Transport for NSW and key transport agencies to deliver transport projects and services in a manner that balances economic, environmental and social issues.	There are no immediate neither short term solutions to the current transport issues we face in this area. This tunnel will take over 10 years to be built and it will not only disrupt the life of all locals but will also not bring an effective long-term benefit to the future living standards of the local population. If the main reason for this project is to connect people, we need a solution which will benefit majority of the population, particularly to those on a lower income. We need a project which takes a real consideration on current cost of living and commuting. The residents of the Northern Beaches need better public infrastructure and not added costs to their work commute or to commute to other areas of Sydney.
Environmental Sustainability Strategy 2019-23 (Roads and Maritime Services, 2019)The *Environmental Sustainability Strategy 2019-2023* (Roads and Maritime Services, 2019) aligns with the *Transport Environment and Sustainability Policy* and outlines specific focus areas for integrating sustainability into Transport for NSW road projects and services.	With the location and sizes of the tunnel's chimneys, they are set to become the ugliest landmark of the areas they will be built. This can be proven by looking at other recent projects. How can this tunnel be larger than he major Harbour Tunnel infrastructure? Will we re-build the entire peninsula to accommodate the number of cars these planners are hoping to bring? It also seems clear that even with major road infrastructures, traffic will not improve as people will drive more therefore, increasing the number of cars. What we need is far better alternatives to incentivise the population to use a greener and more efficient alternative than using their cars.
Sustainable Design Guidelines version 4.0 (Transport for NSW, 2017)The Transport for NSW *Sustainable Design Guidelines version 4.0* are aimed at embedding sustainability initiatives across seven key themes, into the planning, design, construction, operations and maintenance of infrastructure projects. The Secretary's environmental assessment requirements for the project reference	Why would such small area need this extremely wide, destructive and expensive tunnel when not even a metro or a light rail station was able to make way to this area? Why there aren't any suggestions of incorporating more to this tunnel usage making it a multi-purpose use? Will there be yet another major project to then build more and destroy more on its surrounding areas, when we could surely have done a better design? How is this project a sustainable design when today, we don't have enough car or road space for the current residents, but the aim of this tunnel is to bring more traffic? With regards to recycling an sustainability on the operations, we need more than just office materials being acquired and disposed of in a sustainable way, we need the major polluting parts of this project, the purchasing of raw materials and the construction methods, to be innovative and as clean as possible.

the *Sustainable Design Guidelines version 4.0* as the current guidelines to be considered as part of the preparation of this environmental impact statement.	
25.2.2 Sustainability vision and policy The sustainability framework establishes the sustainability vision and policy for the project (refer to Figure 25-2). The sustainability vision and policy set the overall direction for implementing sustainability initiatives during the delivery of the project. The vision and policy reflect and align with NSW Government legislation and policies and Transport for NSW's strategic sustainability policy (refer to Section 25.2.1). The policy acknowledges the need to deliver services and infrastructure that benefit the community and minimise negative environmental, social and economic impacts while maximising positive outcomes. The vision and policy may continue to be refined as the project progresses.	We need more clarification and opportunities to know which companies will be involved on this project and their vision. Will contractors be chosen based on their sustainability standards? Our community can't be reliant on vague words of affirmation. One of our major parks is already being pushed to it limit, one development which will destroy an area of Manly Dam and now another area is added to the list as this project proceeds. We can't look at this project by itself, all projects happening concurrently needs to be looked at as one. More areas could be, will be or were already destroyed. Where will the community see the offset for all those environmental credits? And where will all those bike tracks, walking tracks and recreational areas be placed without taking even more bushland?
Vision and Commitments of the project (Page 58 - Figure 25-2 Beaches Link and Gore Hill Freeway Connection sustainability vision and Policy)	
Objective & Target Themes (Table 25-4)	
Maximise sustainability knowledge and awareness. -Sustainability commitments (including procurement commitments)	-It is not clearly stated on this document. A vary vague idea was jotted down but no concrete plans and definition of what will be used and done. -Project should have a much better stakeholder communication. This should not be only with internal stakeholder, but also with the community as they will be the ones affected for years to come.

- Sharing of sustainability outcomes with the community/stakeholders and industry -Sustainability awareness training.	No outcomes or concrete plans has been shared so far on this EIS.
Minimise energy use and greenhouse gas emissions. -Embodied energy within construction materials -Construction greenhouse gas emissions -Operational greenhouse gas emissions -Energy efficient lighting.	
Optimise resource efficiency and waste management. -Resource recovery of virgin excavated natural material -Reuse of topsoil -Diversion of office waste from landfill -Resource recovery of concrete and reclaimed asphalt -Encapsulation of contaminated material on site where appropriate -Cementitious substitution materials -Recycled content in road base -Recycling of other waste and wastewater -Recycled paper use -Avoidance of single use kitchen items.	-Encapsulation of Contaminated Material- No effective plans were demonstrated to contain contaminated material at these very sensitive locations. The community should not be burdened with more contaminated soil and water. This has happened enough in our generation.
Maximise resilience to climate change Impacts. -Climate change risk mitigation and/or adaptation measures.	How are we mitigating climate change risks when the construction of this tunnel itself is a major contributor to our climate crisis? Adaptation measures? What are they? Why does the community need to adapt instead of having realistic problem solving measures and projects?
Enhance liveability of local Communities. -Heritage values -Community benefit initiatives -Public open space	-Urban Design- The design of the tunnel will permanently change the visual amenities and the lifestyle of the entire community and greatly impact the natural environment. The unnecessary large roads and tunnel (larger than harbour tunnel), the tall chimneys (unfiltered air) and the “temporary”

-Urban design	urban elements during the construction (which period are not stated int this EIS Table 22.3) are very questionable elements of this project. -Community benefit initiatives- So far, the only clearly stated benefit on this document is improved delivery routes for freight. This tunnel will cost the tax payers (therefore the community) millions of dollars, which then, this same community will have to pay a high price tolls to be able to "benefit" from the so called improved road system. It is obvious this will not benefit the less privileged community members who do not process of a motor vehicle, having to still find their way through the broken public transport available and neither to those on lower income which would not be able to bear the costs of using a tolled road system. Possibility of improved bus routes is mentioned multiple times, however, there are no concrete plans about it and besides, as stated before, a toll road can't be the only justification for fixing a broken public transport system. As stated on chapter 9.1.3 Sydney's Bus Future, would create opportunities however, those opportunities are not concrete. There are currently ways and cheaper opportunities for dealing with public issues. Besides, the project of demands does not take in consideration future changes in the work/lifestyle our society is going through. Projected increased demand seems inaccurate as governments and corporations should be looking at a more decentralised approach. -Public open space - The increased number of open spaces which is yet another unclear statement. Over 15 hectares of land would be bulldozed, and even more being degraded as a result. There should be more clarity as to how will these open spaces look like, where will they be and how much of the native bushland will be restored. We need to ensure native plants would be used in every single area of the project open space plan. There are numerous examples of landscape projects throughout Sydney where non-natives, cheap plants (a lot of times succulents) are being planted as a cheap solution. How will this be monitored? The destruction of Aboriginal heritage, increased traffic and noise pollution and water contamination runoffs are facts being taken lightly by this project assessment.
Maximise employment and training	There are many other ways of employing and empowering community growth.

opportunities for young people, Aboriginal and Torres Strait Islanders, disadvantaged groups, long term unemployed and people who live along the project's alignment. -Apprenticeships -Training and development -Workforce participation.	This project may be creating a few opportunities for people working on it however, the same will cause a lot of local businesses to shut and relocate, meaning a lot of jobs will be lost and these businesses heavily affected (point 21.5.5).
Efficiently manage water. -Water use during construction -Water use during operation -Use of non-potable water.	
Minimise pollution generated by the Project. -Air quality -Noise and vibration -Water quality -Reporting and tracking of environmental incidents.	-Air quality- Emissions during and after the construction of this tunnel will deplete air quality in the area. -Noise and Vibration- Community will need to tolerate noise disturbances higher than the recommended levels for over 8 years. -Water quality- Studies shows the water on the Harbour floor stores highly contaminated sediments with toxic substances, the construction of the tunnel will not only disturb the topsoil but also add to its pollution and contamination through soil runoff, storm water and others. Another worrying fact is the contamination of our precious ground water and water catchments. The project shows geological faults lines runs along sensitive areas such as the Manly Dam. Not to forget the visual pollution all the community will endure throughout the construction of the tunnel as well as the permanent changes of the urban design and minimised bushland.
Minimise impacts on biodiversity. -Ecological value and biodiversity.	Minimising is not completely avoiding the imminent impacts of the degradation and clearing of these important areas. Yet again, there are no clear explanation and proposal of how this will be achieved, and it is not stated at all on point 28.2. Removal of about 15.4 hectares of native vegetation and native revegetation is unacceptable, specially in such rare and important areas located on the community. It is abhorrent to this the revegetated area is treat as not important when so much time, work and money was invested on it and not withstanding the fact there was a purpose on doing so.
Maximise sustainable procurement.	How will these "sustainable" be implemented, tracked and audited and which body will be responsible for such? There are no clear statements of hoe this will be achieved.

-Sustainability and social aspects selection criteria -Labour practices -Procurement of sustainable timber.	
25.2.4 Integration and implementation of sustainability framework	
25.3 Ecologically sustainable development Ecologically sustainable development is defined under the *Protection of the Environment Administration Act 1991* (NSW) and includes four principles: -The precautionary principle -Intergenerational equity -Conservation of biological diversity and ecological integrity -Improved valuation and pricing of environmental resources. (refer to chapter 28 and table 25-5)	This project goes against the principal of conservation and ecological integrity. Constructions along sensitive creeks and lakes should not be allowed specially with the HIGH contaminated risk areas. According to except page 59 Table 16-13 of the Geology Soils and Groundwater, ground water will affect many of our indispensable ecosystems such as Manly Dam, Flat Rock, Bates Creek and others. The list of fauna and flora being affected is endless and it includes endangered species such as ancient fish climbing galaxias and pigmy possums.
Table 25-5 Application of the principles of ecologically sustainable development to the project	
Principle -Precautionary principle If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. Application to the Project - Sustainability workshops and meetings held during design development with planning and design teams to develop draft sustainability targets and objectives for the project.	-Concrete decisions and positive outcome of these workshops was not clearly outlined throughout this plan. There are no proposals for effective ways of completely avoiding and mitigating the risks posed to the community and the environment.

Principle -Intergenerational equity The present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.	Needles to say, this statement shows how this project does not fit to the ecological sustainable principles. -100 years seems a long time, however as mentioned previously, future generations may not need a 6 lanes tunnel, future generations may have a decentralized and fairer economy, future generations should have access to greener options than motor vehicles, future generations need multi purposed projects and future generations needs a stronger protection and conservation of the very few ecosystems left specially in our urban environment.
Application to the Project - Project designed to meet with needs of both current and future generations with a design life of 100 years.	-As discussed previously, the tunnel is not the only applicable solution, let alone the solution for a sustainable economic growth.
Application to the Project Support for Sydney's long term economic growth through improved motorway access and connections across Sydney's Global Economic Corridor, particularly the strategic centres of Sydney CBD and North Sydney and the Northern Beaches, with improved connection to Macquarie Park and north-west Sydney.	-Again, doubtful functionality. -Same statements are being repeated throughout this paper. So, with that I repeat that these will be toll roads which will force locals to pay for its use in order to get the benefits. This also apply for those people less fortunate, still being disadvantaged by the tunnel construction. -The improved capacity will not minimize rat racing, will bring more cars and trucks to the area causing more congestion. There will be a lack of car space for locals as well as future visitors. There are areas which has already significant bottle neck and the tunnel will not service those areas, therefore, it will contribute to aggravating the traffic.
Application to the Project- Contribution to improving the capacity, functionality and safety of the road network servicing the Northern Beaches for motorists, buses and freight.	-How will this tunnel help reduce gas emissions? This statement is an absurdity. More cars are meant to drive through the tunnel therefore more air and noise pollution notwithstanding the amount of power, resources and carbon in order to build considering the 7+ years of construction plus operation and maintenance of such.
Application to the Project - Contribution to the increased resilience of the road network servicing the Northern Beaches through the provision of an additional crossing of Middle Harbour.	-I does not mean ventilation criteria is good, in fact, its proven there are no efficient air filtering on any of the tunnel systems.
Application to the Project - Reduction of operational greenhouse gas emissions on Sydney's road network when compared to the project not being built.	

Application to the Project - The mainline tunnel ventilation system has been designed for coordinated operation with the adjacent and connecting Western Harbour Tunnel and Warringah Freeway Upgrade project. The tunnel ventilation would meet the in-tunnel air quality criteria and would be operated in accordance with licensing requirements.	
Conservation of biological diversity and ecological integrity Conservation of biological diversity and ecological integrity should be a fundamental consideration of the project. Application to the Project - Through this process, consideration was given to avoiding and minimising biodiversity impacts by way of locating project elements away from areas of biodiversity value as far as practicable. Where this was not possible, project elements were situated in areas with lower biodiversity values. Application to the Project - The design of the project within the preferred corridor was then refined and assessed with the aim of further identifying, avoiding, minimising and mitigating impacts. The construction methodology has also been developed to avoid and minimise adverse impacts on biodiversity . Application to the Project - The project would require the removal of native vegetation and potential fauna habitat. Detailed	-These areas are sensitive areas where volunteers took years of work to recover and maintain. -The impacts of this project is extreme and in a moment that we are where scientist found at least 19 ecosystems collapsing, also due to land clearing, is not making out fight against climate change any easier. - Are these going to be offset by just planting a few shrubs and opening a lot of open spaces???? We need to be aware of conditions of the new land. Has it been examined for contamination? Was this land already promised for conservation prior to this project? This is sensitive and essential information community should be communicated about as a matter of transparency, there are already recent cases where the land where offset could not be created on another area of the tunnels (west/M8) due to unsuitability.

terrestrial and marine biodiversity assessments were carried out for the project to identify potential impacts on biodiversity and to provide a range of mitigation measures to further avoid and minimise potential impacts. Application to the Project- Residual biodiversity impacts would be offset in accordance with the requirements of the *Biodiversity Conservation Act 2016* and relevant guidelines. The offsets required for the project were calculated using the BAM Calculator. A total of 391 ecosystem credits and 1099 species credits are required to offset the direct impacts of the project. An additional 50 ecosystem credits may be required to offset indirect impacts; these would be in addition to BAM credit obligations and are at the discretion of the Minister for Planning and Public Spaces.	
Improved valuation and pricing of environmental resources Environmental factors should be included in the valuation of assets and services.	- We need to be aware of conditions of the new land. Has it been examined for contamination? Was this land already promised for conservation prior to this project? This is sensitive and essential information community should be communicated about as a matter of transparency, there are already recent cases where the land where offset could not be created on another area of the tunnels (west/M8) due to unsuitability.
25.4 Environmental management measures Table 25-6 Environmental management measures – sustainability	
Project sustainability objectives and targets will be finalised during	How can the community have their say on something that is not even finalised or clearly and openly communicated and discussed? does it mean we won't really know what the plans and strategies truly are until after project starts?

further design development, informed by the requirements of the project planning approval.	And how will the community be involved if, at any point in time during the project, there are variations on these strategies, targets, objectives and design? Since once this goes ahead, it will be all about money and making sure the project is done?
Activities to implement the sustainability framework, including requirements from the Infrastructure Sustainability rating scheme, will be implemented through a Sustainability Management Plan. The management plan will detail measures to meet the sustainability objectives and targets as well as achieving 'Design' and 'As Built' ratings of Excellent under the Infrastructure Sustainability Council of Australia (ISCA) rating scheme.	

Under SEARS –Secretary's requirements relating to Table 28.1

Table 28.1 states **"**A succinct, but full, description of the project for which approval is sought" is required under SEARS.

Under: **28.1.1 Overview of project need**

This section provides assumptions about road congestion and a **LACK of information about the specifics of bus services planned to be provided, especially WITHIN the tunnels.**

Under the full description of the project 28.1.1 Overview of project need, the second paragraph states "road infrastructure that would relieve congestion" and ……"The project would reduce congestion and improve road network performance"

These, and other similar statements are unsubstantiated. They appears to be assumptions. History has shown that new roads usually provide only temporary relief in congestion. They then attract more car drivers, quickly filling roads to capacity once more.

Half way through paragraph three, "The project would improve the capacity, journey times and reliability of **bus services for the Northern Beaches region** through reduced congestion on existing surface routes and would **facilitate opportunities** to expand the express bus service network through allowing express buses to travel within the new tunnels"

Buses in the tunnels (as well as on surface routes) are crucial, especially given the absence of rail in the whole Northern Beaches district, however " **facilitate opportunities to expand the express bus service network**" is vague regarding WHAT bus services will be provided through the tunnel and their frequency. It is also vague and non-committal regarding WHEN these services will come into existence. Or indeed how they are being planned for, how planning for current capacity and future capacity has been, and will be, carried out.

We need much more detail regarding public transport on both surface roads and via the tunnel.

- Are we to assume existing **road bus services** remain or are to be increased?
- Are we to assume that additional bus services will be provided **via the tunnel**?
- Will there be a **dedicated** public transport lane?
- Is that one lane for buses and two for cars?
- What form will this tunnel public transport take?
- Electric buses could be a viable alternative, having been used successfully elsewhere in Sydney.
  Electric buses are a transport of the future and importantly, produce ZERO emissions.
- The Northern Beaches is critically short of public transport infrastructure, now and for the future.
- What are the longer term plans regarding public transport?
- Have rail and light rail been seriously investigated as options for the future of transport in the Northern Beaches?

Under: **28.1.2 Project objectives**

"• Creating opportunities to expand and improve the public transport network connecting the Northern Beaches and key centres across Greater Sydney "

Again the document talks about "**opportunities** to expand public transport", and **no actualities**.

"• Improving productivity and access to services by facilitating faster and more reliable journeys for commuters and freight to reach their destinations"

This sentence refers to the speed and reliability of transport, but it refers to **freight and commuters**. Are these "commuters" travelling by private car? What percentage of commuters are anticipated to be served by effective **public transport**?

Under: **28.2.1 Key construction activities**

The "construction footprint" ….both underground and above ground is massive. The EIS report emphasises most of the work being below ground, which still has huge ramifications, but there is also plenty of above- ground work too. There are massive excavation works in multiple locations, including but not limited to, tunnel construction, harbour dredging, surface road works and operational facilities to be built.

And then there are all the temporary support sites (that will be there throughout construction) and all the related disturbance to people and the natural environment.

Under **28.3 Project Uncertainties**

Table 28.1 "A description of any uncertainties related to the design, construction methodologies and/or operational methodologies and their **proposed resolution in Section 28.3**"

The end of the first paragraph 28.3 stipulates "Some flexibility has been provided in the design to:
• Allow for refinement during further design and construction planning phase to consider alternative construction techniques"

Whilst flexibility is admirable, it seems very late in the planning of this massive project to "consider alternative construction techniques". Surely, the engineering work regarding design, construction and operational methodologies, would have been completed before the project is put forward for approval.

Among the dot points listed under 28.3 Project Uncertainties are:
"• **Avoid areas of environmental sensitivity**"

So there is admittedly the need to avoid areas of environmental sensitivity. And yet there is no explanation as to how this is to be achieved.

Significantly, avoiding areas of environmental sensitivity, is completely missing from the Table 28.2, which attempts to address or mitigate the listed project uncertainties.

In other words, avoiding environmental sensitivity does not make the table for proposed resolutions at all !!!

Questions remain as to how far the project will go to protect wildlife and natural habitat along Wakehurst Parkway, Manly Dam, Balgowlah and other areas of natural habitat and delicate ecosystems.

Under **Table 28-2 Resolution of project uncertainties**

This important table attempts to outline project uncertainties and proposed resolutions. There is much to potentially go wrong under project uncertainties and attempted resolution, some of which are fundamental to the tunnel and project success, for example alignment of tunnels.

Under **Local road changes**

"The need for, design and location of traffic calming measures as part of the surface connections and road works to be provided at the Burnt Bridge Deviation at Balgowlah …"

These have the capacity **to become major bottlenecks** on these important surface road intersections.

Under **Cofferdam**s and extent of dredging works in Middle Harbour.

The final location, layout of cofferdams, as well as the extent of dredging is yet to be determined. This could be an ongoing **eyesore, disturbance and source of pollution in middle harbour** generated from the tunnel work between Northbridge and Seaforth.

Under **Spoil disposal management and encapsulation**

"Further site investigations during the further design development and construction planning phases would inform contamination management" …..and….dot point 6 which states "The location, design and configuration for **encapsulating contaminated materials** encountered on site during earthworks at Flat Rock Drive construction support site (BL2) and surface works associated with Balgowlah and Wakehurst Parkway would be confirmed during further design development and construction planning."

So there is thus far NO PLAN how to contain potentially massive amounts of contaminated material at three major locations, ie Balgowlah and Wakehurst Parkway on the Northern Beaches, and Flat Rock Drive at Naremburn. This is clearly a major concern.

Under **Groundwater drawdown impact on groundwater dependent ecosystems and stream flows.**

There is the potential for medium and long term detrimental effects to groundwater dependent ecosystem health, relating to Burnt Bridge Creek, Flat Rock Creek and Quarry Creek, and other important locations.

Table 28-3 Summary of key project impacts and management measures

Under **Biodiverity**

There is potentially huge negative impact on biodiversity. There is a **concerning very LONG list** of adversely effected biodiversity in the EIS marked as key impacts. They are listed below, with bolding for emphasis:

" • Removal of native remnant and planted individuals of Netted Bottle Brush (Callistemon linearifolius) and Magenta Lilly Pilly (Syzygium paniculatum) listed under the Biodiversity Conservation Act 2016 and EPBC Act

• Removal of about **15.4 hectares of native vegetation and native revegetation**

• **Fragmentation of habitat** and removal of hollowbearing trees due to the realignment and upgrade of the Wakehurst Parkway. The fragmentation of vegetation would potentially adversely affect the movement patterns of a number of threatened terrestrial fauna species known or likely to occur in the area

• Potential edge effects to vegetated habitats next to the Wakehurst Parkway

• Potential for short-term noise impacts from surface works at Balgowlah to the Grey-headed Flying-fox (Pteropus poliocephalus) camp identified in the vegetated area between Balgowlah Road and Burnt Bridge Creek Deviation, about 120 metres from the construction footprint

• Potential noise and vibration impacts to Large-eared Pied Bat during the realignment and upgrade of the Wakehurst Parkway, particularly during blasting and/or rock hammering

• Potential impacts to key fish habitats in Middle Harbour due to the removal of medium/high relief rocky reef habitat, turbidity and sedimentation from dredging, and underwater noise from dredging and piling

Potential impacts on marine threatened species in Middle Harbour, such as the Black Rockcod and White's seahorse that reside in habitat affected during construction

• Potential impacts on some marine mammals, turtles and sharks, which may forage or transit through seagrass, rocky reef or deepwater soft sediment habitats

• Potential underwater noise impacts to marine fauna generated through construction dredging and piling activities."

While management measures are listed in the EIS, the scale of the project will inevitably have detrimental effects on ground dwelling and water dwelling wildlife, some of which are threatened species near multiple project sites.

Some management measures listed to mitigate or address the above, have concerning loopholes, where it is obvious the pressure of construction deadlines is likely to be put ahead of the needs of natural species, for example :

"Vegetation removal along the Wakehurst Parkway will be timed to avoid the winter breeding period for the Eastern Pygmypossum (May to July), where possible"

"Where feasible and reasonable, noise intensive works with the potential of impacting the Grey-headed Flying-fox camp (ie demolition involving rock hammering or resurfacing works) should be programmed to avoid September to February. A person experienced in flying-fox behaviour will monitor disturbance levels within the Grey-headed Flying-fox camp at Balgowlah during construction activities."

There is no guarantee these recommendations will occur - just that they "should be" or will occur "where possible".

Under Geology, soils and groundwater

Some potentially disturbing key impacts listed include:

" • Ground movement may occur as a result of the construction of the project or from settlement induced by groundwater drawdown "

The community is all too aware of some of the terrible cracking and subsidence in homes above major infrastructure projects such as Westconnex and elsewhere, as well as the negative impact groundwater drawdown is likely to have on the natural environment.

Further, of obvious concern is:

" • Disturbance of sediments in Middle Harbour during dredging activities which could potentially pose a contamination risk due to the contamination associated with historical industrial use of the harbour."

Under Resource use and waste management

"• About three million cubic metres of spoil would be produced from land-based construction activities (terrestrial spoil) during construction. In addition, marine construction works for the project within Middle Harbour would produce around 163,000 cubic metres of dredged and excavated material."

The EIS management measure listed in the table states "Wastes will be appropriately transported, stored and handled according to their waste classification and in a manner than (that) prevents pollution of the surrounding environment".

This is a massive amount of land and sea floor material and waste in built up areas to be disposed of. It is hard to imagine classification and disposal of such material being seamless. It is hard to imagine there will not be unforeseen ramifications, leakage into waterways and contamination.