Supplementary Submission No 58a

INQUIRY INTO IMPACT OF THE WESTERN HARBOUR TUNNEL AND BEACHES LINK

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I am strongly opposed to the Beaches Link.

The Beaches Link has too many design weaknesses.

Rail is a better solution

A Chatswood-Manly Metro Line would provide better transport outcomes with better economic stimulus, less environmental and social impact all at a lower cost.

The problem of size

At six lanes wide, the Beaches Link tunnel carries an enormous volume of traffic but has only two entrances/exits at each end of the tunnel.

This causes all feeder roads at the entrance and exits to the tunnel to be massively expanded to cope with increased traffic flow.

At Crows Nest, Warringah Freeway is expanded to 25 lanes at the tunnel entry/exit. This is an absurd road width and the result of poor planning rather than actual traffic volume need.

Burnt Bridge Creek Deviation is expanded to 12 lanes at the entry/exit. That is three times the current width.

Wakehurst Parkway is expanded to 6 lanes at the entry/exit although with road dividers included, the actual width is equal to around four times current width or the width of an 8 lane road.

This problem would be much less if the following techniques were used:

- Feathering entrances and exits so that not all lanes enter the tunnel at the same point.

- Increasing the number of entrances and exits so that users are taken onto a variety of roads rather than all put onto a single arterial road.

The use of arterial roads for the Beaches Link is similar to the command economy style urban planning of Moscow or Beijing and is inefficient because it increases trip length and causes congestion on the arterial roads, particularly at exits.

The tsunami risk

See 18.4.3 of the EIS.

Amazing but true, the Beaches Link risks a catastrophic tsunami that could kill people and flood both the tunnel and surrounding suburbs.

In an extreme weather event, Anzac Park Crows Nest is forecast to flood to 7m high. The flood water will be held back from the tunnel by regular sound barriers.

From the EIS:

"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."*

Sound barricades do not make safe dam walls and if they collapse, water will not move forward in a slow, organised way, leading to ponding of water on the road, but will come as a powerful tsunami that can surge for kilometres, knocking over buildings and causing enormous damage.

We have seen dam walls collapse, such as at BHP/Vale's mines in Brazil which killed a number of people and caused billions of dollars of damage. This was a properly constructed purpose-built dam, built and maintained by people with over 100 years' experience with tailings dams.

Here, in Crows Nest and Cammeray, we risk a similar catastrophic event occurring.

Anzac Park is right at the entrance to the Beaches Link and Western Harbour connection. Water will travel along the tunnel, drowning people in their cars. Houses downhill from the Cammeray Golf course are also at risk.

The flooding at Anzac Park is an unacceptable risk and must not be allowed to happen no matter what type of flood water barricade is used. The risk of dam collapse in an urban setting is too high, even for properly constructed dams.

Building hills underground

Hills do not exist underground. Therefore you can theoretically build a tunnel underground that simply goes down and then up without any hill-like rises.

However, the Beaches Link is not smooth but has steep sections as well as relatively flat sections. The worst steep section is on the Northern Beaches side of Middle Harbour. Here the tunnel recreates underground the current steepness of the climb from the Spit to Sydney Road by having a long, relatively flat section where the tunnel starts before sharply descending in a roughly parallel line to the current road, following the surface topography.

This steep section means that when travelling from Northern Beaches to CBD, drivers will break the whole way down. Travelling from CBD to Northern Beaches, as soon as they pass the lowest section, all cars and trucks will accelerate, creating a massive cloud of pollution on the uphill slope. Cars and trucks will be fighting to overtake each other at 80km/h with slower vehicles that are unable to climb the hill so well being woven between. This will make the drive a very unpleasant experience.

This could be fixed if the rise from Middle Harbour was straight, with no flat and steep sections. If the approximately 60-70m rise over 2km of tunnel from Middle Harbour to Burnt Bridge Creek Deviation were spread evenly, it would be only a slight incline. It is currently a steep incline.

Lack of exits along route – missed opportunity

The tunnel passes along the Lower North Shore but there are no exits at Northbridge, Cremorne, Mosman and Balmoral.

This is a missed opportunity to improve transport needs for people travelling to these suburbs.

Lack of exits along route – the perverse incentive to over travel

The pricing of the Beaches Link will create an unusual and unnecessary traffic problem on weekends. It is expensive to travel to the Northern Beaches but free once there. This creates the incentive to travel as far

as possible once in the Northern Beaches and this will lead to weekend traffic jams from Avalon to Palm Beach. This traffic jam will be made up of people trying to get as much free driving as possible to mentally compensate for the high cost of getting to the Northern Beaches.

This problem could be alleviated if there were exits along the route, spreading the trouble of weekend traffic jams over a larger area and lowering the cost of simply getting out for a drive around town.

Lack of exits along route – seriously lost drivers

Warringah Freeway takes traffic in two major directions: to the Hills District and the Northern Beaches. They are completely opposite direction. One is in the west, one in the east.

There is only one place to enter the Beaches Link if travelling from the south of the Harbour. There is no exit until the Northern Beaches.

This means that anyone who makes the mistake of missing the turn off will have a hard time getting back on to the Beaches Link.

Anyone who accidentally gets into the Beaches Link will not be able to get off it again before the end.

People who make these mistakes will generally be people unfamiliar with this part of Sydney, out of towners, unconfident drivers and people with out of date GPS. These people will then be taken to the complete opposite side of the city from where they intended to go.

They are the worst people to get lost because they will have a very hard time getting out of the problem. There are only 4 ways to get into or out of the Northern Beaches and if you don't know the roads well, you will find it very hard to use them to get to or from the Hills District.

The Beaches Link will create a new class of driver in the Northern Beaches and Hills District: the seriously lost.

Unnecessary destruction of golf courses

Cammeray Golf Course will be partly destroyed and Balgowlah Golf Course will be completely destroyed.

Part of the destruction is to put up buildings and parking lots for use by Transport for NSW staff. Two office blocks will be built on Cammeray Golf Course. Balgowlah Golf Course will have one office block, one parking lot and one toilet block.

Never before have golf courses been reclaimed to build office blocks for government staff. There seems to be no justification for this land rezoning now either.

Part of the destruction is for unnecessary road widening. The widening of Warringah Freeway to 25 lanes is made possible by the destruction of Cammeray Golf Course.

The widening of Burnt Bridge Creek Deviation to 12 lanes is made possible by the destruction of Balgowlah Golf Course.

This road widening is unnecessary and simply the result of poor road design. The designers seem to allocate a zero value to golf courses, which is why they have allowed this poor design to make it through to the final proposal. If the land taken from the golf courses was compensated at market value, the wastefulness of this poor design (25 lane and 12 lane roads) would be obvious.

Fragmentation of communities

To understand how wide arterial roads fragment communities along their route, you only need to visit Moscow or Beijing which are at a more advanced stage in arterial road construction.

If you think the communities living in suburbs along these arterial routes are good models for the future of Sydney, then we should build arterial roads. If instead, you value the Australian way of life, then we should look for alternatives.

Arterial roads create a river of traffic that is difficult to cross by people who live beside it. Travel along arterial roads is easy but travel across them is difficult. The increase of traffic on Wakehurst Parkway and Condamine Rd make travel east-west across the Northern Beaches difficult. It breaks up the integrity of the area, making it easier to leave the Northern Beaches than to travel around it.

People who do not drive are particularly disadvantaged by having a large, busy road through the neighbourhood. This includes the aged, disabled, children and teenagers. They become less likely to travel around the neighbourhood and more dependent upon public transport along the arterial road and car travel provided by those with cars. Without the participation of the youth and aged in the community, communities lose their vitality and people lose their connection to society.

The idea of having a road tunnel should be to avoid problems at ground level. The design of this tunnel however, creates problems at road level. We should not merely accept this as inevitable but should reject any proposal that does this.

A polluting heat trap

Exhaust chimneys will be located near the tunnel exits. The idea that these do not create pollution hotspots is counter intuitive. If it was not the case, there would be no need for chimneys and the air vents could be at ground level.

At Balgowlah there are a number of schools in the area. These schools will be subjected to the concentration pollution at various times.

The tunnel design wants the locals to accept this impact on the health of their children as the price of progress. If a rail connection was used instead of a road tunnel, there would be no health cost.

The advantage of a tunnel should be that it is underground so does not require parkland and bushland reclamation.

This design however, greatly increases the amount of surface road and reduces bushland and parkland to do it, turning the land around turn tunnel entrances into heat traps.

Traffic jams at the tunnel entrance

The Burnt Bridge Creek Deviation entrance/exit is particularly poorly designed.

It requires that an "*access road*" is built through Balgowlah Golf Course. This road is 4 lanes wide, so it is a major road.

Its function is to enable cars to turn 180 degrees as soon as the leave the tunnel to drive to destinations along the lower Northern Beaches. This is a very odd design which you do not see on better projects such as the Harbour Bridge. When you leave the Harbour Bridge, you do not have a major road doing a U-turn to go back towards the bridge.

In order to do this 180 degree turn, vehicles pass through two sets of traffic lights, the first before you even leave the tunnel. In other words, traffic coming out of the tunnel has to cut across traffic going into the tunnel, so at all times, either the entrance or exit to the tunnel will always have a red light.

This will generate totally unnecessary traffic jams at the tunnel entrance/exit. They are unnecessary because a better design would make one side of the traffic pass over the other by keeping one side of the road below the traffic on the surface until they pass each other.

Once they leave the tunnel there is another set of traffic lights at Sydney Rd/ Burnt Bridge Creek Deviation. This is a terrible intersection to get through. These lights currently allow 3 cars to pass going straight along Sydney Rd of an afternoon, 4 cars if one goes through on a partly red light.

All these traffic lights will cause traffic jams in the tunnel.

The Beaches Link design has cars climbing to the top of the hill at Sydney Road just so they can travel downhill again to where people live at Manly, Balgowlah and Seaforth etc. But why not take them there directly and save fuel, travel time and avoid traffic jams?

A better solution is to have exits along the route that take people where they actually want to go rather than forcing them to go through a series of traffic lights on enormous congested arterial roads.

Turning back over Spit Bridge

A certain amount of traffic will cross Spit Bridge to enter the tunnel. They will do this to avoid congestion on Military Rd.

These people will be travelling the opposite direction to where they want to go.

This is totally unnecessary traffic that is generated simply because the design lacks entrances/exits closer to the CBD at Northbridge, Cremorne, Mosman and Balmoral.

Destruction of Burnt Bridge Creek

The destruction of Burnt Bridge Creek is collateral damage from the Beaches Link project. This creek is one of the best preserved riparian corridors in urban Sydney with tall trees and vegetation that has built up over 40 years since the realignment in 1982.

Much of the bush and trees will be removed for the project. Some bush will be replanted.

The replanted bushland will take until almost 2070 to reach the level of maturity of the current low growth bush. Replanted trees will take much longer to recover since many are hundreds of years old.

That means anyone over 35 today is unlikely to be alive by the time it could possibly recover to today's situation. However, it is unlikely that the bushland will recover.

That is because Burnt Bridge Creek effectively ceases to be a flowing stream as a result of dewatering for the tunnel – the EIS states that the flow of the creek will be reduced by 96%. Below the ground, groundwater is reduced by 11m.

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.

This will be a major loss of visual amenity and natural environment for the Northern Beaches area.

It is also not necessary but simply the result of having the tunnel exit located at the exact point that the creek crosses the road.

A widened Wakehurst Parkway simply does not fit

Wakehurst Parkway runs along the top of a very narrow ridge between two sensitive and environmentally important catchment areas, Garigal National Park on one side and Manly Dam Reserve on the other.

Wakehurst Parkway will be widened to 5-6 lanes for approximately 1.5km and 4 lanes for the remainder. The expansion will make Wakehurst Parkway wider than the ridge top.

The EIS (Appendix V, Figures 4.26 and 4.27) shows the two methods by which the road will extend over the bush.

The first is a sheer wall, leading to a high drop to the bush; the second is earthworks that raise the land around the road so that it slopes more gradually to the bush.

Both these techniques will be extremely destructive and will degrade a swathe of pristine bushland beside the road approximately 2-3 times the width of the road.

The road will be above the bush. The trees that currently screen the road from sight will be removed. The expanded road will be visible all the way across Manly to the Eastern Suburbs.

Widening Wakehurst Parkway destroys escarpments

16.6.2 of the EIS looks at Greater Metropolitan Region Water Sharing Plan, Part 9 – 41 concerning the rules for water supply works located near sensitive environmental areas.

It says, "*The project is outside the required distance for the following sensitive environmental areas: 40 metres from a lagoon or escarpment*".

This is not true of Wakehurst Parkway where there are a number of escarpments along the top of this environmentally sensitive region which are within 40 metres of the project.

Runoff from Wakehurst Parkway will degrade bushland

Since the ridge is so narrow, it is not possible to build big enough swales to treat runoff from the road. See EIS, Appendix O Table 8-2. The swales that will be built can handle 38.8mm of rain over five days.

In 2020, this would have been exceeded 13 times or more than once a month.

In February, design capacity was exceeded by over 7 times in a single five day period.

BOM rainfall statistics for 2020 (Terrey Hills except for February which uses Sydney due to lack of Terrey Hills data).

Month	Days	Total rainfall (mm)	Design capacity (mm)	Exceed design
Jan	17-21	98.0	38.8	253%
Feb	6-10	278.3	38.8	717%
Mar	4-8	92.4	38.8	238%
Mar	15-18	45.8	38.8	118%
Mar	26-30	73.8	38.8	190%

May	22-26	63.4	38.8	163%
Jul	11-15	40.8	38.8	105%
Jul	25-29	127.2	38.8	328%
Aug	8-11	41.4	38.8	107%
Oct	24-26	112.0	38.8	289%
Dec	14-16	46.0	38.8	119%
Dec	19-22	47.8	38.8	123%
Dec	29-31	113.6	38.8	293%

Analysing the data in Appendix O of the EIS, it can be seen that post-expansion, runoff from Wakehurst Parkway will be 3.5 times the current level. It will be concentrated into 18 swales. When the swales 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.

When swales fail, the impact they have on the environment is worse than if they had not been built. The swales collect and channel water into powerful, earth scoring torrents.

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 undersized swales mean that "*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*" will flow into Manly Creek, Manly Dam and Bantry Bay (EIS 17.5.3).

According to Appendix O 6.2.1.4 of the EIS:

"*The project operational water quality design targets … 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*."

In other words, it is not possible to build a wide road on the ridge which does not cause significant environmental destruction to the bush. The wider the road, the wider the swales required to process the water, but such wide swales cannot be built without causing more bush destruction.

The impact on Bantry Bay is unknown

One of the criteria from the secretary for the project in Chapter 19, under Water – Hydrology, Criteria 1 states:

"*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)*."

Yet, there is no information on Bantry Bay. This will be a place that will be majorly impacted by runoff from Wakehurst Parkway, but there is no modelling to what damage will happen to the bush, waterways, aboriginal engravings and the water of the bay. This criterion is not properly answered in the EIS.

17.2.3 of the EIS identifies Bantry Bay as a catchment and waterway that will potentially be impacted by the project.

However, 17.3.1, 17.3.5, 17.3.8 and 17.3.9 do not describe existing water quality conditions, do not analyse it as a sensitive receiving environment and do not assign it environmental values for the Bantry Bay water catchment area. The impact of the Wakehurst Parkway on Bantry Bay was not considered in the EIS.

The EIS talks about a "*Stage 1 contamination investigation report*" where ground water monitoring was carried out at selected locations. These locations only look at the impact on ground water quality for human consumption. The impact on drawdown and runoff contamination from Wakehurst Parkway on Garigal National Park and Manly Dam Reserve has not been considered under the EIS.

Street lights and car lights on Wakehurst Parkway will destroy animal habitats

There is no evaluation of street lighting for the expanded Wakehurst Parkway in the EIS. See Chapter 5.1.1 or Appendix V.

From a safety perspective, it is not possible to have no street lighting since vehicles leaving the well-lit tunnel will be blinded in the darkness at night.

It is very dangerous to have a road that is shared between 40t construction vehicles, express busses to the city and cars all travelling 80km/h with families cycling on the bike path beside the road if the road has no street lighting.

With street lighting, since the road extends right across the top of a ridge over the bushland and trees have been cleared for road construction and use, the light from street lights and cars will shine right across the Garigal National Park and Manly Dam Reserve, severely disrupting the lives of endangered animals in both parks. Diurnal animals will not sleep well and nocturnal animals will become visible to predators.

Garigal National Park and Manly Dam Reserve are home to pygmy possums and a rare type of monitor lizard. Night time lighting will significantly degrade the area as a wildlife refuge.

As the rest of the country degrades environmentally, these well preserved parts of original bushland will increase in value and it is important not to destroy them needlessly.

With street lighting, the environment is destroyed. Without street lighting, safety is compromised.

Flaws in the EIS – soil contamination

16.5.2 states that "*Contaminant migration caused by drawdown from the tunnel has the potential to degrade water quality more than 40 metres from the tunnel*."

The EIS only looks at the impact of the effect of this on the two groundwater dependent ecosystems, at the upper reaches of Flat Rock Creek and Quarry Creek in the vicinity of the Willoughby Leisure Centre and Bicentennial Reserve.

What is overlooked is that in sites elsewhere with contaminated soils, such as at Artarmon, Willoughby, Northbridge, Balgowlah, and Wakehurst Parkway, movement of contaminates may move into the soil and affect the environment at a slow rate and over a long period of time, gradually killing the bushland along the tunnel route.

The EIS says that the excavation works along Wakehurst Parkway will likely expose areas of soil contamination.

With the inability to prevent water runoff from entering the bushland on either side of Wakehurst Parkway once the road is widened, contaminated soil will be washed into the waterways through the bushland, harming native species such as climbing galaxia fish which have been in the region for 60 million years and are now not found elsewhere in the Sydney region.

Flaws in the EIS – flood calculations

In Chapter 18, the Secretary's environmental assessment requirements – flooding section 2j states:

"*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: 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.*"

Yet there is no mention of the impact of siltation, destruction of riparian vegetation and a reduction in the stability of river banks or watercourses. This criterion is not properly addressed in the EIS.

In 18.6.3 it only talks about erosion and detrimental impact on river banks and watercourses 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.

In Chapter 18, the Secretary's environmental assessment requirements – flooding section 4 states :

"*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*."

Yet despite Table 18-1, the issue of flood behaviour for 1 in 200 and 1 in 500 year flood events is not addressed in 18.6.5. This criterion is not properly addressed in the EIS.

The Beaches Link has negative economic benefit (is economically destructive)

The Beaches Link is forecast to cost between $14 billion and $32 billion. This forecast is based on a leaked government forecast ($14 billion) and the usual project cost blowout that occurs when projects are not open tender ($14 billion x 2.5 = $32 billion).

The project is forecast to generate 7500 worker years of temporary jobs. The cost to generate each job is therefore between $1.9 million and $4.3 million per year.

This is much lower than the expected average wage ($100,000 per year) plus any realistic multiplier effect of wages on the economy (less than 10x or <$1,000,000), meaning that the money spend on the tunnel will be greater than the value of the jobs and growth generated from it.

In other words, the project destroys economic value.

The project will create 1,500 temporary jobs each year during construction and will probably destroy more jobs in the Northern Beaches during that period due to lack of access to businesses near the construction and loss of amenity for restaurants and recreation nearby.

There is no business case for the Beaches Link.

The Beaches Link does not generate long term economic growth in the Northern Beaches

The wide arterial feeder roads that will be built to service the tunnel will divide communities in the Northern Beaches, leading to less intra-suburb economic activity.

Northern Beaches residents will find it relatively easier to leave the Northern Beaches to shop and for recreation than to remain in the area, leading to a decline in spending by locals in the area.

Non-residents will be discouraged from shopping and travelling to events in the Northern Beaches by the cost of the road toll so will not come to the Northern Beaches specifically for these activities.

Non-residents will find it easier to drive to the Northern Beaches, so this activity will increase on the weekend with more cars visiting these suburbs and there will be increased demand for cheap fast food and other low cost incidental spending by these visitors.

Overall, this will cause a decline in economic activity in the Northern Beaches. The area will become a mainly residential area and businesses will be a combination of low cost fast food shops for visitors and supermarkets/cafes/small restaurants for locals from the immediate neighbourhood.

Conclusion

A tunnel should be a good transport solution. However, this tunnel, the Beaches Link is not a good transport solution.

There is no economic case for it. It destroys value in the short term and does not lead to long term economic growth.

The tunnel itself is strangely designed with a kink in it which causes parts of it to be much steeper than need be. This will generate a stressful and unnecessarily polluting journey.

There are too few entrances and exits to the tunnel. The entrances and exits that will be built are poorly designed and will result in traffic jams and confusion.

For some strange and unfathomable reason, one entrance has been designed in such a way that it creates the risk of catastrophic tsunami damage.

The above ground sections of the Beaches Link seek to change the current road network system that we have in the Northern Beaches and elsewhere into a communist-light command style system of arterial roads that reach a width of 12 lanes wide (and 25 lanes wide at Crows Nest).

These massive arterial roads will destroy communities and irreparably damage some of the best inner urban bushland in Sydney.

Wakehurst Parkway will be widened to a width that is wider than the ridge it runs along. This will destroy the fragile and precious ecosystems on both sides of the road (Garigal National Park and Manly Dam Reserve).