

Submission
No 44

INQUIRY INTO IMPACT OF THE WESTERN HARBOUR TUNNEL AND BEACHES LINK

Organisation: Northern Beaches Council

Date Received: 31 May 2021

Council resolved at its meeting on the 25 May 2021 to:
“Request the Legislative Council Inquiry into the Impact of the Western Harbour Tunnel and Beaches Link to note Council’s submission made to the Beaches Link EIS”.



northern
beaches
council

2021

Northern Beaches Council Submission on Beaches Link and Gore Hill Freeway Connection Environmental Impact Statement



Prepared by: Manager -Transport Network
Northern Beaches Council
2/15/2021

Contents

Executive Summary.....	2
Introduction	3
Assessment Process	4
Strategic Context and Project Need.....	4
Project Development and Alternatives.....	6
Project Description.....	7
Construction Work.....	10
Stakeholder and Community Engagement	12
Construction Traffic and Transport.....	13
Operational Traffic and Transport	15
Construction Noise and Vibration.....	20
Operation Noise and Vibration	21
Air Quality	22
Human Health	22
Non-Aboriginal Heritage	23
Aboriginal Heritage	26
Geology Soils and Groundwater	27
Hydrodynamic and Water Quality	29
Flooding.....	33
Biodiversity	35
Land Use and Property.....	42
Socioeconomics Impacts.....	45
Urban Design and Visual Amenity.....	46
Hazards and Risks.....	47
Resource Use and Waste Management.....	47
Sustainability.....	48
Climate Change Risk and Adaptation.....	49
Cumulative Impacts	50

Executive Summary

The Beaches Link Tunnel project is broadly supported as the largest investment in infrastructure by the NSW Government in the Northern Beaches Local Government Area. Northern Beaches Council continues to provide, in principle, support for the construction of the Beaches Link Project, subject to the minimisation of the impacts on the community and the environment.

In November 2018, Council resolved to support the Project subject to the further development of the Project addressing the concerns of the community. A written submission was endorsed by Council and provided to the Project Development Team, that highlighted the concerns of the community to be addressed, as the Project was progressed to the Environmental Impact Statement (EIS) stage of the approval process.

Key considerations in revising the Project design at the time of the reference design submission were to include:

- Ensuring that the Project caters for appropriate levels of public transport within the tunnel, thereby supporting increased mode shift from private to public transport.
- Exploring alternate options to address the community concerns regarding the Link Road and connectivity to the portal.
- Maximising green space in Balgowlah.
- Ensuring that an independent scientific review of the Project's potential air emissions from ventilation outlets is undertaken by the Office of the Chief Scientist and Engineer and is publicly available pre and post monitoring of emissions.
- Impacts on flora and fauna.
- Location of construction compounds.
- Enhanced consultation for future stages of the project

The Project Team has taken these key issues into account and where possible, addressed the local community's and Council's concerns in the further development of the Project and documented them in the Environmental Impact Statement.

The Environmental Impact Statement was released on 9 December 2020 for public comment and will close on 1 March 2021. The EIS including appendices, contains almost 11,000 pages of both high-level summary comment and detailed assessment information provided by various consultants as part of the response to the Secretary's Environmental Assessment Requirements (SEARs) as part of the State Significant Development planning approval process.

Council staff formed a group of subject matter experts to review and provide feedback on the EIS documents for the project. The attached submission is the combined response from the internal subject matter experts and the input provided by the Transport and Travel Strategic Reference Group's extraordinary meeting held on 28 January 2021.

The key areas of concern to be addressed by the Project through the detailed design phase of the Project are:

- Bushland and biodiversity impacts and associated offsetting.

- Groundwater drawdown in the local catchments.
- Ecological impacts on the local creeks and Middle Harbour.
- Construction impacts on the local residents and how this is managed through the Environmental Licence. Noise, traffic and vibration.
- Impact on the adjoining road network, congestion during construction and operational impacts around the peripheral network approaching the tunnel.
- Public Transport Priority over the private car usage.
- Tunnel emissions and the ongoing monitoring. If the modelling is incorrect and it creates a hazard - what measures are in place to manage the issue?
- Active transport and bus connectivity during and post construction.
- Local road network being used to bypass the work zones.
- Balgowlah Golf Course precinct and the reuse of the clubhouse for the community.
- Consultation and next steps.

There is further work to be done by the project proponent to address the concerns raised in the response to the Environmental Impact Statement as they move into the detailed design.

Introduction

The Beaches Link Tunnel Project is identified as the largest investment in infrastructure by the NSW Government in the Northern Beaches Local Government Area. In November 2018, Northern Beaches Council resolved to support the Project, subject to the further development of the Project addressing the concerns of the community. A written submission was endorsed by Council and provided to the Project Development Team that highlighted the concerns of the community to be addressed as the Project was progressed to the EIS stage of the approval process.

Key considerations in revising the Project design at the time of the reference design submission were to include:

- Ensuring that the Project caters for appropriate levels of public transport within the tunnel, thereby supporting increased mode shift from private to public transport.
- Exploring alternative options to address the community concerns regarding the Link Road and connectivity to the portal.
- Maximising green space in Balgowlah.
- Ensuring that independent scientific review of the project's potential air emissions from ventilation outlets is undertaken by the Office of the Chief Scientist and Engineer and is publicly available pre and post monitoring of emissions.
- Impacts on flora and fauna.
- Location of construction compounds.
- Enhanced consultation for future stages of the Project.

The Project Team has taken these key issues into account and where possible, addressed the local community's and Council's concerns in the further development of the Project and documented these issues in the Environmental Impact Statement.

Assessment Process

Council has reviewed the assessment process and notes that the Environmental Impact Statement has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) that would generally apply to a State Significance Project of this magnitude. A multi-stage assessment and review process are typical for major infrastructure projects, following SEAR's approval, the Proponent (in this case, Transport for NSW) can further progress the Project.

The reference design consultation process undertaken in 2018, provided the community with the opportunity to provide input into the design of the Project and allow the Project Team to address some of the future concerns that the local community had in relation to the concept design circulated for comment, which was displayed at multiple public engagement sessions. This process also allowed Council staff and the elected representatives to engage with our community, both those directly affected by the proposal and the wider community, to formulate the adopted position of Council – to broadly support the concept, subject to the 10 key issues being addressed as the Project progressed.

Once the EIS submission period has closed, further assessment will be undertaken by the Department of Planning, Industry and Environment of the response to the submissions made to the EIS, provided by the Proponent (TfNSW), prior to further assessment and consideration by the Minister for approval.

Strategic Context and Project Need

The justification and need for the Beaches Link for the Northern Beaches is supported. As the Environmental Impact Statement (EIS) notes, the Northern Beaches region faces a number of road transport challenges, including existing high traffic volumes, the presence of only three arterial roads connecting the Northern Beaches to Greater Sydney and a high reliance on road-based transport modes, in particular the private vehicle. Accordingly, Council acknowledges that the Beaches Link will transform the transport network of Northern Beaches by relieving existing pressure on the main arterial roads and providing an additional access point to the region.

For the Northern Beaches, there are five (5) key reasons why the Beaches Link is vital:

1. To address the existing high levels of traffic congestion on Northern Beaches with only three access points that are highly congested in both the AM and PM peaks, plus on weekends, whilst contending with the impact of an opening bridge on one of the key access points – i.e. Spit Bridge;
2. To provide a direct connection to the Sydney Motorway Network which has been in planning in various forms since the 1960's;
3. To support the future growth of the Northern Beaches region;
4. To unlock Phases Two (2) and Three (3) of Council's Hospital Precinct Structure Plan for Frenchs Forest;
5. To support additional growth in Brookvale as part of Council's Brookvale Structure Plan project; and
6. To support an infrastructure led recovery in light of the COVID-19 pandemic.

Direct connection to the Sydney Motorway Network

The original planning for the Warringah Freeway included a surface expressway from Wakehurst Parkway at Seaforth, to the current Warringah Expressway at Cammeray, with a high-level bridge across Middle Harbour. This proposal would have resulted in significant property acquisition and would have created a physical barrier across the route, similar to that created by the M2, M4, and M5 motorways where they were built through existing residential areas. This proposal was scrapped in the 1980's, due to these issues and the visual impact the route would create.

The project proposal will provide a direct connection to the Sydney Motorway Network, seamlessly linking the Northern Beaches with Greater Sydney and beyond, whilst reducing the cost of congestion and delays to both residents and businesses. The opportunity to provide direct links for improved public transport connections via bus services direct to North Sydney (Metro and Heavy Rail), Sydney CBD, St Leonards, and Macquarie Park.

Supporting the future growth of the Northern Beaches region

To provide further strategic context to support the need for the Beaches Link, the Northern Beaches region is forecast to grow from 265,468 people in 2016 to 288,431 in 2036, representing an increase of approximately 22,963 people (8.7% growth or 0.4% annual growth rate). Whilst there may be short term impacts to this growth as a result of the COVID-19 pandemic, it is crucial that all levels of Government continue to plan for infrastructure projects, to ensure that long term growth is appropriately managed.

The majority of this growth is expected to occur in the four (4) Strategic Centres (Frenchs Forest, Brookvale-Dee Why, Mona Vale and Manly). Land use planning strategies are currently underway for these centres earmarked for growth. Of particular relevance to the Beaches Link, are the Frenchs Forest and Brookvale-Dee Why Strategic Centres. Both are expected to accommodate a significant number of dwellings over the next 20 years.

Unlocking Phases Two and Three of Council's Hospital Precinct Structure Plan for Frenchs Forest

In regard to the Frenchs Forest precinct, Council's adopted Hospital Precinct Structure Plan (Structure Plan) identifies the phased delivery of 5,360 dwellings to 2037. This dwelling target has now been revised to 4,360 dwellings as a result of additional work being prepared by the Department of Planning, Industry and Environment for the Frenchs Forest Planned Precinct.

Phase One of Council's Structure Plan will be implemented through a State-led re-zoning known as the Frenchs Forest Planned Precinct. Subsequent phases are expected to be delivered by Council, noting that Council's Structure Plan identifies that Phases Two and Three are reliant upon the delivery of State infrastructure items, such as the Beaches Link and/or an east-west bus rapid transit system from Chatswood to Dee Why. The Beaches Link is therefore critical to achieving the objectives of Council's Structure Plan and approach to the delivery of housing for the Northern Beaches region over the next 20 years.

Supporting additional growth in Brookvale as part of Council's Brookvale Structure Plan Project

The Brookvale precinct is also undergoing review to identify capacity to accommodate additional dwellings. In 2017, Council placed the draft Brookvale Structure Plan on public exhibition, when 108 submissions were received. The major issue identified was the ability of the road and transport network to accommodate additional growth. In response to this, the Project was placed on hold to undertake additional traffic modelling.

Council has worked with Transport for NSW to complete traffic modelling of the Brookvale-Dee Why precinct. The model identifies a range of housing and employment growth scenarios, including the impact that the B-Line has had to the transport and traffic movement patterns in the precinct. Furthermore, the model has included an assessment of the impact of the Beaches Link.

One of the key findings from the model relevant to the Beaches Link, has been the identification of positive benefits to the Brookvale precinct. In addition to other traffic and transport upgrades, the Beaches Link has demonstrated a reduction in traffic loads on key roads at Pittwater Road and Condamine Street. It is considered that this will provide a positive benefit to the transport network within Brookvale, with flow-on effects to surrounding areas. The Brookvale Structure Plan therefore, further supports the need for the Beaches Link to support additional housing and employment growth.

Supporting an infrastructure led recovery in light of the COVID-19 pandemic

The economic impact of the COVID-19 pandemic has provided the opportunity for an infrastructure-led recovery and the Beaches Link provides an opportunity to meet this objective. The NSW Government's 'COVID-19 Recovery Plan' identifies the delivery of an infrastructure pipeline over four years, as a key action to assist with the economic recovery of NSW.

If approved, the Beaches Link will increase the range of projects identified under this infrastructure pipeline. The Project's contribution towards additional job creation and economic growth will provide positive benefits and accelerate the economic recovery of NSW.

Project Development and Alternatives

This project has transformed from the initial surface expressway of the 1950's to the current tunnel connection to the Warringah Freeway and Western Harbour Tunnel Project. With advances in tunnelling techniques and lower emission vehicles, a tunnel of this length has become a viable alternative to the surface connection. This will result in a significant decrease in the number of properties that need to be acquired for the Project and also the reduces the impact on the environment that a surface connection would make.

Council staff have been involved in discussions regarding development of the Project and have provided comment on several different options relating to access portals, main construction site locations and the overall need for the Project in its current form.

Several versions of the Seaforth portal and construction site locations have been discussed and Council is generally satisfied with the portal location. The construction site location has been reduced in footprint considerably, compared to early versions of the project designs and now

minimises the impact on the Manly Warringah War Memorial State Park and little to no impact on the Seaforth Oval Precinct. The emissions stack at this location has been pushed further north away from the dwellings in Judith and Kirkwood Streets.

Requests have been made by sections of the community for access from Seaforth into the Wakehurst Parkway portal. However, Council is satisfied that the impact of this option on the environment due to the increased width of the corridor required or the relocation of the portal into close proximity of the residential area, that this option is not viable.

There was considerable work done on several options for the Balgowlah portal and the proposed access road connection. The portal has been moved further south to take advantage of the natural grade to assist with the tunnel dive under nearby residential areas. The access road has also been moved to reduce the impact on the nearby residential properties that are not in the acquisition area. The current design takes into account some of the community issues raised during the reference design consultation process. The proposed design maximises the recreational space returned to the community, and earlier in the project timeline than was previously possible.

Several options were considered and discounted early in the evaluation, due to increased property acquisition, flood impact concerns and visual and environmental impacts that included additional vegetation clearing, impacts on Burnt Bridge Creek further downstream of the current Kitchener Street Bridge and impacts on a wider population catchment. Furthermore, refinement of the detailed design in this location will produce greater benefits to the community.

Project Description

The Project description is broadly accepted by Council as what has been previously discussed with the community and Council. The current design has evolved from the reference design that was the subject of the previous community engagement.

Council has several concerns relating to localised issues that need to be addressed prior to construction or included in the detailed design process for consideration. Some items are just for consistency or clarity, where different terms have been used between separate Subject Matter Expert Reports, which could lead to confusion in the community. Other items detailed are where an improvement could be made to the Project, to provide a superior outcome for the asset development and longevity.

Points raised for the Balgowlah Precinct

- Downstream impacts to coastal wetlands and habitats including Manly Golf Course (1km east of the site) that are partly fed by Burnt Bridge Creek and may be adversely impacted by a reduction of up to 96% of surface water.
- The potential indirect impacts to the Grey-headed Flying Fox Camp located immediately downstream of the Balgowlah construction footprint, such as noise and failure of riparian vegetation that might occur due to changes in hydrology.
- The access road could be reconfigured and modified by using the access incline, to provide the access and egress from the tunnel to the access road without the need for traffic signals. It is acknowledged that this will require additional works to grade-separate this part of the alignment, however it will benefit the overall road network, and specifically, the inbound bus services using the surface road connection along Burnt Bridge Creek Deviation.

- The intersection of the access road and the sports field carpark shows as signalised on the concept plan and given the need for the safe crossing point for pedestrian access, the detailed design needs to formally implement the all movements signal design at this location.
- The Project description is inconsistent in its description of open space at Balgowlah. Figure 5-5 provides an indicative concept of the upgraded open space at Balgowlah Park and no open space over the tunnel portal, whilst Figure 5-28 provides a more detailed schematic. If Figure 5-58 is the more accurate, Council does not support the facility mix or location presented, acknowledging that it is indicative and negotiations with TfNSW on the exact nature of this site have not commenced. If the open space above the tunnel portal is connected to pedestrian crossing at Sydney Road, Council would like to consider to use this space as an off-leash dog park and would require a suitable fence to contain the site. If it is not connected to pedestrian crossings, Council does not want to take possession of this open space and it will remain with TfNSW.
- The realigned shared path between the Kitchener Street bridge and Dudley Street is to be built out of concrete to meet current TfNSW shared path standards, not replaced in asphalt which is the current material.
- Council's understanding was that the existing Balgowlah Oval would not be directly impacted for five years, as suggested, and would retain its current function until it required reconstruction to facilitate its expansion. The exhibited plan identifies it as a rectangular field and clearly implies that it will be unusable until 2025 at the earliest. This will pose significant issues for Council to relocate existing users for this period of time.
- As Crown Land Manager for Balgowlah Oval, and due to having a relationship with the many sporting and recreation groups that use this site, Council would like to discuss options for the types of sport and recreation facilities to be included in the design of this new public open space, following tunnel construction in this area. Options may include, but are not limited to, organised sporting facilities, passive recreation opportunities, dog exercise areas and improvements to the condition and amenity of the creekline.
Council looks forward to planning this new space in partnership with the State Government and key sporting and community groups as well as the current users of these green spaces.

Points raised for the Seaforth Precinct

- Works and assets delivered along Wakehurst Parkway must be wholly contained within the Wakehurst Parkway road corridor and not take place on, or encumbered in any way Manly Warringah War Memorial State Park (Manly Dam) without prior agreement from Council as Reserve Trust Manager.
- Manly Warringah War Memorial State Park has been mis-labelled "Manly Dam Reserve" through the document.
- The connection from Yarraman Avenue through to the proposed underpass and bus stop needs to be realigned to improve the accessibility for all users.
- There are substantial land clearing impacts (approximately 15ha) most of which are associated with the construction footprint along Wakehurst Parkway.
- Increases in habitat fragmentation and indirect impacts to native vegetation adjoining the new Wakehurst Parkway roadside edge.

- The Wakehurst Parkway east construction support site will be surveyed prior to any excavation so the original topography of the site can be restored as close to the original condition as possible. The site must be handed back to Council to be included in Manly Warringah War Memorial State Park and must be re-planted with endemic species. All landscaping and revegetation work must have a three-year maintenance period provided by the TfNSW partner delivering the Project, with maintenance frequency to be determined, with the intention of it being a rehabilitation and regrowth site.
- Run-off from the upgraded Wakehurst Parkway and new shared path must be drained away and not be allowed to sheet flow into the Manly Warringah War Memorial State Park lands.
- Access to the full 11km mountain bike trail loop at Manly Warringah War Memorial State Park (Manly Dam) is to be retained. This is one of the few authorised mountain bike trails on the Northern Beaches and a solution needs to be found to ensure the continuity of a loop trail. Trail data indicates that up to 10,000 laps are ridden of the Manly Dam mountain bike trail per month. The loss of access to the full 11km loop during a lengthy tunnel construction phase would be devastating to the mountain bike community. Council request the any relocation is to be discussed with the Proponent if the plans are not able to be adjusted to avoid impacting this trail.
- Council is developing an Off-Road Cycling Action Plan as part of the draft Open Space and Recreation Strategy. Our preliminary findings indicate that unauthorised trails are developed by riders when there are insufficient facilities to meet their needs. The loss of access to one of the only tracks authorised for mountain biking on the Northern Beaches, even temporarily, will exacerbate the problem of unauthorised trail building that Council is already dealing with.
- The proposed works in the Environmental Impact Statement impacts an unauthorised mountain bike trail network that runs parallel to Wakehurst Parkway. These trails form part of what is known to riders as the “Extended Possums Loop”. They are mapped in detail on the Trailforks.com website. Although not authorised, these trails provide important connections, i.e. missing linkages between the formal trail network. They provide a link between the formal Manly Dam mountain bike trail on the eastern side of Wakehurst Parkway and the formal mountain bike trails in Garigal National Park on the western side of Wakehurst Parkway. When combined, the trails in the two areas provide a ride experience over approximately 20kms. Given the extent of works for the Beaches Tunnel Project, the detailed design following on from the current Environmental Impact Statement should provide a formal, safe connection between the mountain bike trails on either side of Wakehurst Parkway. Council’s document “Mountain Biking in Warringah: Research and Directions (2012)” identified the need to formalise a safe link between these two trail networks on either side of Wakehurst Parkway.
- Safe connections for bushwalkers between Garigal National Park and Manly Warringah War Memorial State Park need to be provided at several locations along Wakehurst Parkway.

Points raised for Frenchs Forest Precinct

- The Proponent is to consider the results of the traffic modelling that indicates several issues on the peripheral network which need to be addressed as part of the Project to allow access to the tunnel through the Frenchs Forest Precinct.
- Active Transport connections between the works completed as part of the Northern Beaches Hospital Connectivity and Enhancement Project and the proposed network on the Wakehurst Parkway.
- Consideration to provide a shared path underpass at the Sydney Water pipeline alignment, to allow access for the future regional shared paths linking Beacon Hill and St Ives.
- The north-bound right turn from Wakehurst Parkway into Frenchs Forest Road East is to be maintained with additional capacity to south-bound traffic lanes to be provided by widening the carriageway to the east between Frenchs Forest Road and Warringah Road. The documented detour of 1.4km (actually measured in the field as 1.6km to the last driveway in Frenchs Forest Road) from the intersection of Warringah Road is unacceptable, especially given the changes to land uses in this area including aged care residential and uplifted commercial floor spaces.
- The Proponent should consider the south-bound widening of Wakehurst Parkway from Dreadnought Road to Frenchs Forest Road.

Construction Work

All assets created as part of the Project where maintenance responsibility resides with Council at the expiry of the contracted maintenance period, need to be constructed to Council's standards and the detailed design needs to have concurrent approval from both TfNSW and Council. Where assets are created and remain the responsibility of TfNSW or the future concession holder, the road reserve is to be adjusted or an agreed Memorandum of Understanding is to be entered into between Council, TfNSW and the concession holder. Where the landings of the proposed new pedestrian bridges at Wakehurst Parkway may be on a Council reserve and the approach ramps associated with the bridge components are located on Council land, Council will not take responsibility for the asset which will remain with TfNSW.

Definition of asset ownership must be determined prior to the 50% design approval, to allow all modifications required during the detailed design process to be completed to the satisfaction of all asset managers. The asset management accounting requirements of Council, especially the way assets are catalogued and recorded for the GIS systems of the asset manager, need to be considered in the design phase to eliminate issues during handover. All design revisions are to be approved by Council prior to construction.

All work affecting the Local Road Network will require approval from Council as the relevant Roads Authority under Section 138 of the Roads Act, inclusive of the implementation of Traffic Management. These arrangements will be determined during the TCG process and will be required

to meet both TfNSW Standards and the requirements of the relevant Australian Standards and where required in Council’s Operational Management Standards. Community access and public safety in, over and through the public road or adjoining publicly accessible reserves are to be maintained at all times, when practical.

The Wakehurst Parkway East construction support site must be wholly contained within the approved site and have no encumbrance on Manly Warringah War Memorial State Park. The Manly Dam mountain bike track passes close by this site and a risk assessment must be undertaken if the presence and activity conducted at this site will increase risk to riders. If it does so, the mountain bike trail in this area must be realigned to Council’s satisfaction. Proximity of the MTB trail to this site, (represented by the orange line) is shown below:



Any temporary drainage works that extend beyond the footprint of Project must have prior approval of Council, when they are proposed to extend into land under our care, control and management. All temporary road and footpath assets need to be fit for purpose for the duration of the required life of the asset and removed prior to the area being handed back to Council.

All hardstand areas proposed for the Balgowlah or Wakehurst Parkway East construction support sites in the area are to be returned to open space or subject bush regeneration and must be demolished and removed from site. A suitable growing media brought in to support natural surfaces.

All landscaping and re-vegetation work to be handed to Council must have a three-year maintenance period provided by the TfNSW partner delivering the Project, with maintenance frequency to be determined in partnership with Council’s Environment and Climate Change and Parks Assets business units.

Northern Beaches Council requests that the Proponent establishes a working group to manage the outcomes of sediment controls and site management, to include periodic inspections throughout to ensure controls have been maintained until surfaces are stabilised at the completion of the Project.

The Depot site at Warringah Road and Wakehurst Parkway was to be rehabilitated as part of the Northern Beaches Hospital Connectivity and Enhancement Project. This site will now become a

permanent fixture and as such, the site is to be converted from a temporary site facility including silt, sediment, and spill containment systems are to be put in place, with appropriate biodiversity offsets included elsewhere.

Stakeholder and Community Engagement

Northern Beaches Council is satisfied that the Secretary's Environmental Assessment Requirements (SEARs) for stakeholder and community engagement have been appropriately met in the EIS and that effective engagement has been undertaken with the relevant community in the lead-up to the exhibition of the EIS.

The EIS shows in a transparent manner the issues raised by the community and stakeholders and the response or action taken. The Project refinements in response to feedback, was also well documented in a readable format.

The EIS identifies the potential for complaint fatigue and offers some relevant approaches. It should be highlighted that the of managing construction fatigue (Sections 7.5.2, 7.5.3 and 7.5.4) was a duplication of sorts, but with varying information across each section. This made it quite difficult to follow and should be revised into one easy-to-read section. The grammatical structure of this section is also lacking, which does not support cognitive ease for the reader (including our community). It is requested that this section be revised and provided on the Project website in an easy-to-read format.

Northern Beaches Council requests a copy of the Community Communication Strategy outlined in Section 5.1 of the EIS, once it is prepared.

In relation to monitoring, reporting and evaluation of community consultation and engagement activities, Northern Beaches Council may request updates on assessed effectiveness of the activities and tools via a regular report, notably updates on trends or hot spots for complaints across the Northern Beaches LGA.

“Community engagement activities and processes would be modified as required, based on feedback and/or issues that arise during the review process”. Could TFNSW provide us with the mechanism for informing Council of changes or modifications made to the community engagement process in these instances? Council are happy to provide a direct communication/community engagement contact that may liaise with the community liaison team directly in these cases.

The EIS identifies that *“Regular consultation would occur with State and Local Government agencies to minimise impacts associated with other roadwork activities”.* Council seeks clarification of the mechanism that will be used to provide this and more specific timeframes for notification ahead of community notification. While appreciated that the Inter-Governmental Working Group would continue, it is foreseen that changes of potential working hours (for example, nightworks) may be more sporadic a process for notification to relevant Council staff (including communications and community engagement teams) should be established.

Council requests an independent advocate be engaged to act on the community's behalf and address any problems in a timely manner (e.g. 3am noise complaints, stormwater run-off), to be located on-site and monitor compliance in real time.

Council will seek to establish a Traffic Coordination Group for the Project and suggests that given the diverse issues at each project location, it may be necessary to have location-specific group meetings. The provision of site-specific community information and complaint resolution staff is seen as a key requirement of a project of this scale in order to address the specific concerns of the adjoining community, along with multiple methods to inform and engage with the community, ideally commencing during the detailed design phase of the Project and continuing through the construction program.

Council also requests that media releases or communications materials are provided prior to release, allowing the impact to be assessed and advice provided back to the Project Team on the management of community issues.

Project briefings should also be provided to Council at regular intervals throughout the Project, along with special briefings and/or memos on high impact work program items as they occur.

Construction Traffic and Transport

Road issues

Construction of the Beaches Link Tunnel Project will generate a substantial number of vehicle movements during the stages of the Project works. One of the main community concerns raised during the previous community engagement process, was the impact of construction traffic on the road network, and more specifically, the local network around the residential and educational land uses.

The Proponent is to provide more detail to resolve the lack of information regarding additional heavy vehicle movements along Sydney Road, French's Forest Road through Seaforth Village, residential areas and past Seaforth Public School, including impacts as to noise impacts, pedestrian safety and the wellbeing of children.

The Proponent must address the concerns of the local residents and the impact of site staff parking on local roads adjoining the construction site areas. This could be achieved through the use of a suitable satellite facility and using a shuttle service between sites.

Council is supportive of the high-level vehicle management strategies proposed in the EIS documentation, with more detail to be considered as the Project progresses towards construction. As tunnelling is a 24/7 activity, the provision of adequate material and spoil storage to reduce the number of heavy vehicle movements during peak periods is essential. Substantial planning will need to be undertaken in the early delivery stages to minimise this impact on the road network, which is generally at capacity. This will include consideration of staff parking at satellite locations and providing shuttle services to the main tunnelling and construction sites, e.g. using the main Balgowlah site parking and shuttling staff to the Spit West Reserve, to reduce the impact on Manly Road.

Council is to be involved in the development and approval of vehicle movement plans for the construction phases of the Project, with conditions to be placed on the use of local roads during school hours to reduce local impacts, the location of transport vehicle layover and staging areas to minimise noise in adjoining streets away from the State road network.

The Project should commence working through the implementation of a Transport Coordination Group in tandem, to the detailed design program, to assess the delivery program and look for delay factors that may not immediately present themselves to those unaware of local issues and behaviours.

Light vehicles servicing the Project sites will also be discouraged from using the local road network, especially during the peak periods. However, it is acknowledged that they are road-registered and can use the road network to move around the area.

Consideration will need to be given to the impact of the Project on the local schools, especially during the HSC period for Balgowlah Boys High School and Mackellar Girls High School, even though the latter is outside of the immediate works area. Manly West, Balgowlah Heights, Seaforth, North Balgowlah Public, St Cecilia's (Balgowlah) and St Kieran's (Manly Vale) and Manly Vale Public Schools, along with all local preschool and childcare centres, will be affected by the Project traffic impacts during the course of the Project and they should also be considered during the program scheduling.

Management strategies and improved traffic calming should be introduced during or prior to major construction, preferably as an early works package funded by the Project and delivered by Council to reduce the impact of traffic rat-running through the local road network, attempting to bypass construction delays. By bringing this work forward from the operation requirements, it may improve community satisfaction with the Project as a whole, as they see a local benefit early in the program.

Maritime issues

Construction of the Beaches Link embedded tunnel between Northbridge and Seaforth Bluff, will have an impact on recreational boat users from Northern Beaches. Various navigational hazards and subsequent restrictions will increase transit time for recreational vessels through the work site. Marine traffic exclusion zones will be set up at various stages of construction around cofferdams, silt curtains and tube tunnel support piles, which will reduce the navigation channel width down to 100m – 220m. Temporary localised maritime speed restrictions will be introduced. On-water works will lead to an increase in boat traffic. Up to six closures (two full and four partial) will be required during the tunnel installation. 10 moorings from Seaforth Bluff will be relocated and the possibility of others west of Brady's Point. Access to some private fixed jetties will be restricted.

Many Northern Beaches residents who wish to access Sydney Harbour, use the Davidson Park boat ramp and they will have to navigate the Beaches Link Tunnel construction site if they wish to visit seaward sections of Middle Harbour or Port Jackson.

Managing and scheduling works that minimise impacts on recreational boating is key for stakeholders and Council. The only harbour boat ramp in the Northern Beaches east of Spit Bridge is located at Little Manly Beach. It is a popular swimming location close to Manly and there is not enough parking to accommodate a significant increase in public use of the boat ramp. At low tide, launching and retrieving boats can be difficult and require 4WD vehicles that can operate on the sand. Timely and extensive notification of maritime restrictions to all relevant stakeholder groups in Northern Beaches will be important.

Temporary moorings associated with the Project (for work vessels or relocation of private moorings) should be installed in soft sediments away from sensitive habitats such as seagrass. Barges used on the worksite should be moored away from seagrass beds to avoid impacts from shading. If there are no alternative locations, then "seagrass-friendly" moorings should be used as an alternative to swing

moorings. Any walkways or pontoons placed over seagrass should use materials (such as mesh) that will allow light to penetrate to the sea floor.

Council is supportive of mitigation measures relevant to recreational boating: CTT2, CTT4, CTT5 & CTT7.

Operational Traffic and Transport

One of the criticisms often levelled at new road projects is that they induce extra traffic. The Northern Beaches is largely closed catchment with little opportunity to attract through-traffic from outside the area, i.e. traffic from other areas of Sydney is unlikely to divert in large numbers to the Beaches Link Tunnel, unless it is for journeys to and from the Northern Beaches.

As a long overdue piece of infrastructure, its purpose is primarily to ease traffic congestion on existing roads out of the Northern Beaches, by providing a fourth access route, i.e. additional road space for express bus services to facilitate greater take-up of public transport, and increasing the catchment encompassed by a 30min travel time to and from the Northern Beaches and to cater for extra traffic generated by planned residential and commercial growth in areas like Frenchs Forest, Dee Why and Brookvale.

The absence of a rail line servicing the Northern Beaches and the topography and dispersed nature of the population, means that a rail line is unlikely to ever be economically feasible. There is a reliance on road-based transport to serve the Northern Beaches and the Beaches Link Tunnel will provide an extra link to reduce pressure on the 3 existing road corridors serving the Northern Beaches.

Whilst the traffic modelling undertaken as part of the Project development has been focused on the State and regional road network, there appears to have been little work done to assess the effect of the Project on the local road network. Given the current operation of the network at capacity feeding traffic through the area south in the AM peak and distributing it outwards in the PM peak, this seems to be a critical omission in the assessment. Council notes that traffic modelling is based on 2016 survey data and should be updated to account for differences in post-COVID19 working patterns and reductions in public transport patronage from both pandemic and bus timetable changes.

The following concerns have been raised by Council's Transport Team and need to be addressed either through Project approval conditions or direct engagement by the Project Team with Council:

- Light on detail, considers only major roads and does not consider minor roads on approach to the tunnel portals, which will attract additional traffic and suffer increased congestion.
- The Project would result in increased heavy vehicle use of the Pittwater Road and Condamine Street corridor, diverting such vehicles from Mona Vale Road.
- Significant reduction in congestion and delays at the Manly Road and Sydney Road intersection
- Greatest travel time and delay reduction benefits for Balgowlah and surrounds are realised with the Western Harbour Tunnel also incorporated (in the "Do Something" cumulative assessment).

- The Frenchs Forest Road and Sydney Road intersection continues to perform poorly even under the “Do Something” cumulative option, with Level of Service ‘F’ remaining in PM peak and Level of Service drop.
- The Sydney Road and Condamine Street intersection performs worse in PM peak with a minor improvement in AM peak.
- The Condamine Street and Burnt Bridge Creek Deviation has increased delays in both AM and PM peaks.
- Access Road, Sydney Road, Maretimo Street has increased delays AM and PM peak and in PM peak average delay 9 to 30 (Level of Service only goes from A to C).
- Access Road and Burnt Bridge Creek deviation has increasing delays over time, however it is still Level of Service A.
- No pedestrian phases proposed for Maretimo Street signals across Sydney Road with the existing pedestrian bridge would remain in use.
- Increased traffic on local roads between Kitchener Street and Sydney Road as traffic from North Balgowlah seeks to access tunnel (LATM on Wanganella, Rickard and West Streets to encourage use of Woodland & Condamine Streets) to be discussed with Council during detailed design.
- Significant increase in travel times on Wakehurst Parkway south-bound between Dreadnought Road and Judith Street (large travel time increases in both AM and PM peak periods). Suggests widening of Wakehurst Parkway between Dreadnought and Warringah Roads might be required.
- Wakehurst Parkway and Frenchs Forest Road and Wakehurst Parkway and Warringah Road are both predicted to operate at Level of Service E or F during the AM and PM peak periods by 2037. Wakehurst Parkway widening may alleviate conditions.
- Warringah Road and Hilmer Street Level of Service deteriorates significantly by 2037 in PM peak with Beaches Link.
- Without the Project, there are significant increases in travel times for general traffic and buses on most major travel corridors through Balgowlah and surrounds.
- Most intersections in Balgowlah and surrounds deteriorate to some extent in terms of Level of Service in both peaks, but not significantly so without the Project. This mirrors the overall impact of latent background growth across all major intersections.
- Northern Beaches Hospital road upgrades result in improved intersection performance in Frenchs Forest and surrounds until 2027, but it then deteriorates without the tunnel (although generally not to levels experienced in 2012).
- The tunnel decreases traffic demand on Spit Road, Warringah Road, Eastern Valley Way and Mona Vale Road, however, increases traffic demand into and out of the Northern Beaches by up to 9 %.
- With the Project, there are improvements in travel times for general traffic and buses on most major travel corridors through Balgowlah and surrounds.
- Most intersections in Balgowlah and surrounds would continue to operate at similar levels of service in both peaks with the Project. The roundabout at Frenchs Forest Road/Sydney

Road will continue to exceed capacity Level of Service F. Some form of capacity improvement is required to ease congestion and rat-running.

Based on the traffic modelling provided in the technical assessment undertaken to support the EIS and compared to other work being undertaken across the Transport Network, Council would like the following additional matters addressed as either part of the Project or as a stand-alone support Project, to enable improvement of travel time created by the Beaches Link Project to be realised across the road network to support freight, public transport and general traffic movements across the Northern Beaches.

Balgowlah Portal Surrounds

While there is an anticipated reduction in congestion on Condamine Street, there will be increased congestion and delays on Kenneth Road and Balgowlah Road as traffic accesses the Burnt Bridge Creek Deviation portal, avoiding Sydney Road from Manly. The Project will result in increased levels of traffic from Balgowlah/Manly Vale/Fairlight/Manly using these streets to access the Beaches Link. Council recently completed the Balgowlah/Manly Vale Traffic and Parking Review, which proposed several projects to reduce congestion in and around the Balgowlah Industrial Area including:

- Linking the two ends of Quirk Road to provide a bypass of the Balgowlah Road/Roseberry Street and Balgowlah Road/Condamine Street intersections for local trips.
- The access road from Sydney Road to the Balgowlah Portal must be grade-separated to reduce the risk of accidents or delays at the signalised intersection on the Burnt Bridge Creek Deviation.
- An upgrade to the Balgowlah Road/Condamine Street signalised intersection.
- Replacement of the roundabout at Balgowlah Road/Roseberry Street with a signalised intersection to improve intersection efficiency.
- Lane reassignment at the intersection of Kenneth Road/Condamine Street to improve efficiency and reduce queuing for traffic exiting Kenneth Road.
- Replacement of the roundabout at Kenneth Road/Roseberry Street with a signalised intersection to improve intersection efficiency.

It was noted that the Balgowlah Portal appears to only have two through lanes in each direction which may present a choke-point in the network, with buses having to merge into general traffic lanes to enter the tunnel.

Additional actions that are required to address network issues that are demonstrated to increase delays or rat-running as a result of the Project, with some additional work required to allow the optimum capacity to be achieved and prioritise public transport to access the portal as a priority:

- Dedicated Bus Lanes from Kentwell Road and Condamine Street intersection through Manly Vale to connect two sections of full-time bus lanes to increase the reliability of the express bus services.
- Traffic amelioration measures to prevent toll avoidance and/or increased traffic in streets approaching tunnel portals. i.e. traffic calming to reduce the rat-running in North Balgowlah & Balgowlah Heights, especially Manning Street, Bardoo Avenue,

Woodbine Street, Myrtle Street, Kitchener Street, Wanganella Street, and Rickard Street.

- Remove some rat-running traffic from Balgowlah Heights/Clontarf via Heaton Avenue & Kanangra Crescent and Ethel Street, however, redirecting it to Wanganella Street & Seaview Street. The community is already concerned about existing speed and volume of traffic in Wanganella Street and Seaview Street past St. Cecilia's School. Traffic calming measures in Wanganella Street & Seaview Street are requested. The ongoing anticipated poor performance of the Frenchs Forest Road and Sydney Road roundabout may mean the rat-run via Kanangra Crescent is not in fact eased.
- Maretimo Street is narrow and is the main frontage for the Balgowlah Boys campus of the Northern Beaches Secondary College. Increased traffic past Balgowlah Boys High is not acceptable, given existing congested conditions during drop-off and pick-up periods, its use by school buses and large numbers of school students crossing the road. It is noted that the EIS does not propose that north-south access between Maretimo Street and the Beaches Link access road will be possible and this is considered essential to ensure the continued safe operation of Maretimo Street. There is also a need to reduce the increased levels of rat-running via Maretimo Street, Ethel Street and adjoining side streets.

The above projects must be introduced in conjunction with the project to reduce impacts on side streets in the Balgowlah/Manly Vale area on approach to the tunnel and to assist in improving access to the Burnt Bridge Creek tunnel portal.

Seaforth Portal Surrounds

The location of the Seaforth Portal limits the impact of rat-running through local streets to access the portal, although it will impact on Kirkwood Street and Judith Street during operation, as a percentage of traffic will seek to avoid the toll and use these streets as an alternative, may need to be addressed through improved traffic calming.

The secondary concern here is with traffic heading north to access the tunnel along Wakehurst Parkway continuing to Aquatic Drive, to undertake a U-turn unsafely in the intersection to then head south into the tunnel. Directional signs need to indicate there is no access to the tunnel from Seaforth.

Brookvale and Dee Why

Council is currently finalising the Brookvale & Dee Why Transport Management and Accessibility Plan (TMAP) which proposes a number of recommendations along Pittwater Road on the south-bound approach to the tunnel. The major recommendation of the study is for grade separation of the Pittwater Road, Harbord Road and Warringah Road intersection, to cater for anticipated growth. Future case modelling in TMAP anticipates completion of the Beaches Link by 2028 and shows significant deterioration of this intersection's performance. The grade separation project needs to be completed prior to the opening of the tunnel.

Consideration is given in the longer term to the upgrade of the Pittwater Road and Condamine Street intersection to improve access to the Burnt Bridge Creek Deviation Portal, including bus priority systems, along with other works recommended in the TMAP also considered for funding, given their level of impact on performance of roads approaching the tunnel portals.

Frenchs Forest

The inflow of traffic using the Seaforth Portal will create widespread changes to travel patterns across the network, as traffic is redirected towards the Beaches Link Portal via Wakehurst Parkway. Additional capacity at key intersections is required to cater for this reallocation of flows and to manage the interaction with other routes.

- **Road widening at Frenchs Forest Road West/Naree Road from Bluegum Crescent to Forest Way:**
To provide local bus access to the linear bus interchange between the existing bus lane opposite Bluegum Crescent to Rabbett Street, in a dedicated 24hr bus lane and an additional lane between Rabbett Street and Forest Way.
- **Road widening at Forest Way between Russell Avenue and Wareham Reserve:**
To improve the through-flow of the Forest Way and Naree Road intersection, additional capacity is required to allow a dedicated left turn lane into Naree Road.
- **Upgrades to Grace Avenue and extension of Naree Road:**
To allow additional traffic capacity from the west of the Frenchs Forest area including Davidson and Forestville.
- **Traffic Signal upgrades at several intersections along the secondary access route from the north-western approach:**
 - i. Forest Way and Naree Road – to clear the pitch point intersection on the Forest Way and provide peak hour capacity along both Forest Way and Naree Road;
 - ii. Naree Road and Grace Avenue – this intersection under the Frenchs Forest Structure Plan can function as a roundabout, however, additional loading of the traffic heading to the Beaches Link will need to be actively managed and signals at this location will provide that capacity;
 - iii. Frenchs Forest Road West and Sylvia Place - Provision of signals at this location are required towards the end of Stage 1 redevelopment of Frenchs Forest Town Centre.
- **Additional bus infrastructure at Frenchs Forest Road East:**
Construction of indented bus bays along Frenchs Forest Road East, especially along the west-bound side of the carriageway, will provide better inflow along this secondary corridor.
- **Access to Frenchs Forest Road East:**
All movements are to be maintained at the intersection of Wakehurst Parkway and Frenchs Forest Road East, with additional capacity to be provided by widening the carriageway to the east if necessary.
- **Wakehurst Parkway north of Frenchs Forest Road:**
Widening of the Wakehurst Parkway north of Frenchs Forest Road is not proposed. Traffic modelling suggests this section of road will suffer from increased travel times and delays and measures to offset these impacts must be explored.

Construction Noise and Vibration

Substantial mitigation measures will be required to manage the impact of the construction noise and vibration from both the surface works, tunnelling and marine activities. A register of sensitive receiver locations will need to be compiled and where necessary mitigation measures put in place.

The Construction Noise and Vibration Guideline (Roads and Maritime Services 2016) need to be met as a minimum, along with any additional licence conditions applied to the Project as part of the future approval process.

In the Frenchs Forest area, it should also be noted that there is still substantial construction fatigue from the recent road upgrades that may need to be considered when planning the staging of the Project.

Construction Noise

The impact of construction noise is not only felt by the community immediately adjoining the Project construction sites, but more broadly based on the scale of the Project and due to the location of the surface sites. Whilst it is acknowledged that some of this noise is mitigated using acoustic sheds over the main tunnelling sites, concerns relating to the movement of heavy vehicles out of normal traffic noise peaks and movement of machinery at the surface works areas will have an impact on a much wider area.

It was especially noted that blasting had been included in the list of activities proposed, and whilst the use of blasting underground was generally foreseen as part of the program at depths where there would be limited impact, the need for blasting along the Wakehurst Parkway duplication is not supported by Council, due to both the environmental impacts and the increased community impact this would cause. Suitable alternative excavation processes exist and as such, these will need to be used for all near surface works where feasible.

Nightwork impacts have been addressed in the documentation and if normal industry practice and Standard Environmental Licencing conditions are applied (no more than 2 consecutive nights in any catchment unless a community agreement is achieved, etc.) and the use of alternate accommodation is available for those immediately affected, then Council has no general objections to the process of works being completed at night where no other alternative exists.

Construction Vibration

Construction vibration and ground borne noise need to be considered close to the residential areas of the Project, and whilst these are separated in the EIS, Council has assessed these impacts together as most residential receivers are unlikely to identify them differently. There are several types of construction vibrations expected that may cause community complaints to increase during the construction program.

The predictions for the use of rock hammers in the tunnel show the following:

- Up to 531 residential receivers could be exposed to ground-borne noise levels above 45 dB(A). The potentially affected residential receivers are mainly within Seaforth, and in particular, Noise Catchment Area 53.3 (north of Frenchs Forest Road)
- Eight other sensitive receiver buildings could be ground-borne noise affected (i.e. above ground borne noise management level)

- 16 commercial buildings could be ground-borne noise affected during rock hammer tunneling activities.

The Council has concerns regarding the number of properties that will require additional mitigation measures in the Seaforth and Clontarf areas during underground rock hammering activities.

It is also noted that underground controlled blasting may in fact reduce the amount of rock hammering activity required in these locations to complete the excavation works within the main line tunnels.

Operation Noise and Vibration

Operational noise

Council's Environmental Health team has determined that they are better suited to review operational noise as it has a longer-term cumulative impact.

Within the Northern Beaches LGA, the proposal looks to introduce 2x tunnels which begin at Wakehurst Parkway and the Burnt Bridge Creek deviation, which eventually link and cross Middle Harbour. There are also works proposed to the southern section of Wakehurst Parkway and Burnt Bridge Creek Deviation/ Sydney Road.

From an operational noise perspective, the key contributors to an amenity impact on the soundscape of the local areas will be the fixed facilities, such as ventilation outlets for the tunnel's, mechanical plant, wastewater and electrical plant, as well as entry points to the tunnels. It is noted that the proposal will have an overall positive impact on traffic noise, with only some areas receiving an increased background decibel reading. As the fixed facilities are anticipated to operate for 24 hours a day/ 7days a week, proper assessment, acoustic treatment and selection of appropriate plant is especially important to maintain residential amenity.

When deciding on the plant, ventilation fans and other fixed facilities to lower sound power level equipment should be chosen and appropriate noise mitigation measures installed to achieve a -5dBA background reading to the closest residential receivers, as per the amenity noise levels in the EPA noise policy for industry.

Noise barriers appear suitable and additional noise mitigation in the form of architectural property treatment is supported, however, this will require a framework developed to list appropriate acoustic controls to be installed and determine the significantly affected properties that may receive treatment (i.e. >2dBA increase which only accounts for a small percentage of the total properties.)

Environmental Health has no objections relating to operational noise, subject to the above recommendations being considered as part of the assessment process.

Operational vibration

The Project has been assessed against the relevant operational vibration criteria and the potential for the impact of ground borne noise and vibration has been designed out of the Project and is not expected to exceed acceptable levels, and specifically the receivers close to the surface facilities. It is noted that vehicles operating on a roadway are unlikely to cause a perceptible level of vibration unless there are significant road irregularities (e.g. potholes), particularly if the affected receiver is more than 20 metres from the roadway. In the case of the surface roads forming part of this Project, the only locations where the new construction is within 20 metres of the nearest Receiver is

in the Sydney Road interface area and several properties at Frenchs Forest between Bantry Bay Road and Wakehurst Parkway.

Air Quality

Operational air quality management is still a concern for the community in the Balgowlah and Seaforth areas. The practice of filtering the tunnel emissions has been addressed in the chapter using both an assessment of the worst case scenario emissions to determine the impact of the project on air quality adjoining the ventilation structures and the maximum permissible emissions during operation must comply with the Environmental Protection Licence conditions.

The ventilation facilities associated with the Beaches Link Project at Balgowlah and Seaforth are catering for the north-bound tunnels and the Cammeray facility caters for the emissions from the south-bound tunnel, and as such, there will be time-of-day variations at each location.

Council requests that the Proponent undertakes further data collection on ambient vehicle emissions around the local catchments prior to, during and after construction, to allow for a robust assessment of the approved ventilation systems and allow the operator to provide additional filtration measures if the need arises.

The environmental management measures during pre-construction and during construction and are consistent with Council's Standard air and odour conditions. It is recommended that a liaison/communication line is established between the Construction Contractor, Transport for NSW, Environmental Health and the appropriate regulatory authority for any for dust, air/odour and water pollution complaints. This approach is more efficient and is currently working well with other EPA regulated/licensed sites, such as Mona Vale Road works.

Human Health

The management of the human health impacts of the proposed tunnel Project and Council's responses to concerns raised largely covered in other sections of this submission.

The Proponent needs to consider management of construction impacts to human health from noise, dust, contaminated soils, and the social impacts caused by the program affecting nearby residents. The management of fine particle dust is a key concern and needs to be addressed at the source as previous projects have had issues with the management of fine particular dust and the use of road sweepers do not address this issue thoroughly.

A suite of mitigation measures is required to be implemented to address both regulatory requirements and community needs, especially around the surface work sites and along the main transport routes into the sites.

Management of health-related impacts from activities that affect social cohesion, impacts of relocation caused by property acquisition, visual amenity and the impact of construction fatigue, especially in the immediate area surrounding the tunnelling sites.

Consideration will need to be given to the impacts of the Project on the less mobile and/or older residents moving around the interface areas, and all works are to take this into account.

Non-Aboriginal Heritage

There are several non-Aboriginal heritage items identified within the study area for the Northern Beaches area of the Project. However, not all items are subject to detailed information and investigation in the main report or the associated Appendixes J and K under this Environmental Impact Statement. Council's response considers both documented items and potential items where they are impacted by the proposal, with listed heritage items addressed first, before then considering identified unlisted items, noting that there are two additional unlisted items of heritage significance that have not been considered by the proposal. Heritage can generally support the proposal as well the identified heritage conclusions and strategies, with several additional recommendations that can further help to ameliorate any negative heritage impacts.

Identified Items Impacted

Manly Dam and Surrounds Conservation Area

This conservation area covers Manly Dam, Wakehurst Golf Course and remnant bushland that is included within the Manly Warringah War Memorial Park. The significance of the item includes the retained bushland within its boundaries which contributes to its values, as well as its aesthetics and character. Heritage considers there to be two areas of impact, being the temporary construction site in the south-west corner of the conservation area and the proposed roadworks along the western boundary of the site.

The temporary construction site BL13 in the south-western corner of the conservation area is noted as being required to support the construction of the tunnel. This will involve substantial clearing of land in and around the Sydney Water facilities, as well as within the park itself. As the majority of this work is temporary and reversible, it is for the most part considered to be a tolerable temporary impact upon the heritage area and its significance, in combination with a land restoration and vegetation replanting strategy to ensure the heritage significance, of this part of the site can be restored. A detailed mitigation and restoration strategy is to be added as part of this Project to address the heritage impacts. Full restoration of the reserve and conservation area will be carried out, with plantings of locally native and endemic species compatible with the values of the conservation area before the land is returned to Northern Beaches Council.

The second area of impact is along the western boundary of the conservation area from the widening of Wakehurst Parkway to four lanes and the proposed shared user path. While this impact has less severe footprint than the land clearing within the BL13 construction site, it may result in a long-term impact through a reduction in the landscape buffer area between the roadway and the conservation area. Additional visual impact from the associated roadworks, ventilation facilities, land retention and stabilisation, noise walls, vegetation removal and signage may add to the perception of impacts, even if they are located within the dedicated road reserve.

Council's Heritage Team notes that these matters are required to support the tunnel and raises no outright objection to them. It is recommended that where possible, landscaping interventions adopt a more natural response, such as replanting of vegetation and landscaped batters over materials with a harsher man-made aesthetic such as concrete. Where retaining structures are unavoidable, the possibility of colouring or cladding in natural materials such as sandstone which better relates to the exposed sandstone rocky outcrops within this area, is to be considered. The predominant urban design approach in this area should be to minimise the visual impacts of the tunnel, rather than to accentuate them and to screen them with vegetation to preserve the existing character as much as possible.

French's Bullock Trail

The assessment of the impact on the heritage listed French's Bullock Trail is considered preliminary and at this stage, lacking in supportable conclusions. It has not confirmed the route of the trail and the location of any significant remnant features or of the proposed road alignment. It also appears to have not fully assessed the impact from changes in elevation due to new road embankments or associated roadway facilities such as detention basins. The assessment is to fully address the visual impact, which has also not been considered.

It is acknowledged that the final road alignment is still subject to further detailed design refinement and confirmation. This section of the report should be updated to confirm the actual existing trail alignment and any significant features along the alignment, as well as the proposed level of future impact once the road alignment is confirmed. Based on this deficiency, the stated potential 20% impact to the alignment of the route and the visual impact of vegetation removal and road widening has not been clearly demonstrated. Additional heritage management strategies are to be included to significantly reduce the impact of the roadworks, including measures to minimise elevation changes and roadway embankments or facilities, as well as vegetation replacement.

Bantry Bay Reservoir (WS 0008) and Bantry Bay Water Pumping Station (WPS 122)

These items are located within the same land parcel in close proximity to each other and shall be addressed together. The heritage impact statements for these items are generally acceptable, as is the conclusion that the majority of impacts are temporary and reversible, subject to replacement planting and the restoration of the majority of the curtilage. No heritage management strategy is proposed as part of the current documentation to ensure this happens. As with the Manly Dam and the surrounding conservation area above, post construction heritage strategies including the curtilage restoration and replacement plantings must be included to ensure that the heritage values of the conservation area and the items are maintained. This must happen before the land is returned to Northern Beaches Council, and the planting must be locally native and endemic species compatible with the values of this reserve.

Not listed but identified potential items impacted

Balgowlah Golf Course

Balgowlah Golf Course has been identified in the report as being of potential local significance, due to its historical (criterion A) and historical association (criterion B). It has also been identified as the site of substantial works that would significantly negatively affect those values, including the complete cessation of golf on site. The loss of significant heritage values from the proposed works is considered to be a regrettable loss, however it is acknowledged that the site is currently not listed and afforded statutory protection. It is also acknowledged that there is limited land within the area to support the tunnel. On balance, it is considered potentially supportable on the condition that recreational uses are continued on the site, including the reinstatement of the oval after construction has ceased.

A complete archival recording of the site (fairways, greens, clubhouse and any other facility) must be undertaken in accordance with Heritage NSW's *Photographic Recording of Heritage Items Using Film or Digital Capture* (2006) before works begin on the site, to ensure a record of the item is preserved. Furthermore, an individual heritage interpenetration strategy must be prepared alongside any future plans for this space, to ensure the values of the site can be understood and communicated through a range of mediums.

The option of the clubhouse remaining on its own appears, however, not to have been fully assessed within this report. It appears to assume this building will be demolished, even though it has been identified and recognised as a building designed by award-winning architect Frank L'Anson Bloomfield, as the original designer and yet has undertaken no fabric or significance assessment. This is considered to be an oversight on the part of the authors and this report should be updated to include this assessment. This assessment should be prepared before any future consultation on the site is undertaken. If the building is found to be of significance, it is recommended that a significance grading of fabric and a Conservation Management Plan be prepared to further inform future consultation on the building and its potential uses.

The suggestion of a proposed thematic history of golf courses in the northern Sydney region is strongly supported on the condition it is made publicly available. However, it is recommended that this history be prepared and published sooner rather than later. The thematic history would also benefit if it includes an assessment of the significance of the clubhouse buildings.

Burnie House – 16 Dudley Street, Balgowlah

It is noted that 'Burnie House' is to be removed to accommodate the proposed new tunnel. While it is not agreed that the house is not of local heritage significance, it is acknowledged the property is not currently listed or subject to statutory heritage protection and can be demolished. However, to ensure a record of the item, it is recommended that a photographic record of the house in accordance with Heritage NSW's *Photographic Recording of Heritage Items Using Film or Digital Capture* (2006) is to be undertaken, to preserve a record of the dwelling before it is demolished. This record should be provided to Northern Beaches Council for archival purposes.

Unidentified Items Impacted

There are two further items of potential heritage significance that have not been identified within the Northern Beaches area and considered in the report. Both of these items are located alongside the Wakehurst Parkway in Killarney Heights and Frenchs Forest:

Wakehurst Parkway Memorial

The first item is a memorial commemorating the Wakehurst Parkway. It is comprised of an inscribed brass plaque attached to a short column of sandstone blocks 6 courses high sitting on a concrete base. It is located approximately 130m north-west of the Wakehurst Parkway and Kirkwood Street intersection. It is located off to the western side of the shoulder of Wakehurst Parkway, near the crest in a small hill. The item is located near to the proposed tunnel portals and ventilation facilities and will be removed as part of the works. Heritage recommends that the heritage report be updated to include an assessment of this item. It further recommends that this item be removed during the construction works and be reinstated within the same area after works have been completed, to maintain this item and its significance. Lastly, the item and its context should also be photographically recorded before works begin and a copy of this record provided to Northern Beaches Council

'Canberra Bus Stop'

The second item is the concrete semi-circular bus stop shelter located on the eastern side of Wakehurst Parkway, approximately 520m south of the Aquatic Drive intersection. The shelter is located just after the variable message sign at the head of the bus bay and is part of the 'Wakehurst Parkway opposite Yarraman Avenue Walkway Stop' (stop ID 208655). This bus stop is a local example of the distinct 'Canberra style' bus stop that was constructed in large numbers in the 1970s throughout Canberra. This bus stop is considered to be a good example of its type and in good

condition and marks the evolution of bus stop design over time. It is not clear in the reports, but the road widening, and pedestrian underpass proposed in this area could lead to its removal. It is recommended that the heritage report be updated to include an assessment of this item. The bus stop shelter should also be retained, either in its current location or in a similar nearby area once works have been completed. Lastly, the item and its context should also be photographically recorded before works begin and a copy of this record provided to Northern Beaches Council.

Aboriginal Heritage

The Beaches Link and Gore Hill Freeway Connection has proposed development which may have an impact on significant sites in the Northern Beaches and Willoughby LGA's. Measures and mitigations proposed for the management of the sites during the construction phase of the proposed Project are to ensure the Aboriginal sites will not be harmed.

The Aboriginal Heritage Office (AHO) has assessed the Beaches Link and Gore Hill Freeway Connection Technical Working Paper: Aboriginal Assessment Report December 2020 (Appendix L) and largely agrees with the proposed Management and Mitigation Recommendations (see below).

The AHO has assessed the Secretary's Environmental Assessment Requirements (SEARs) of the Beaches Link and Gore Hill Freeway Connection (Chapter 15) and is largely satisfied that the requirements needed to achieve the desired performance outcomes have been met (see below).

Appendix L, Annexure E –'Potential submerged sites assessment' prepared by Cosmos Archaeology December 2020 for Transport NSW on page 20, identifies two sites near Clive Park that have incorrect mapping coordinates; 45-6-0645 and 45-6-2222. The AHO has previously identified the correct locations for both 45-6-0645 (WILL- 056/113) and 45-6-2222 (WILL-085). It is correctly noted in the main EIS (p.15-8) that these sites (actually 2, with duplicate cards for one location) are outside the EIS area.

Corrections and Recommendations

Two sites, a rock engraving (WILL-081, AHIMS#45-6-0271) and a rock shelter with art (WILL-055, AHIMS#45-6-2111) also at Clive Park, Northbridge, are not included in the EIS (they are mentioned in Appendix L ,but stated incorrectly as being outside the study area).

- WILL-081, AHIMS#45-6-0271: AHIMS has this site inaccurately mapped 250m to the WNW of its actual location. It is actually located adjacent Clive Park 1 (WILL-017, AHIMS#45-6-0654) (see extracts p.15-9 and 15-23 below). The rock engraving #45-6-0271 needs to be included in the EIS and assessed. As the site is immediately adjacent Clive Park 1, it may be that an assessment of risk would be similar in conclusion to that of Clive Park 1 (i.e. negligible and minor), however, cracking to the rock engraving needs to be evaluated in relation to the overall significance of the rock engraving.
- WILL-055, AHIMS#45-6-2111: AHIMS has this site inaccurately mapped 170m to the WNW of its actual location. It is actually located 60m west of Clive Park 1 (WILL-017, AHIMS#45-6-0654). The rock engraving #45-6-2111 needs to be included in the EIS and assessed. This site is in good condition and any cracking or roof collapse would be catastrophic.

In terms of the risks to Aboriginal sites associated with sandstone rock overhangs and platforms, the AHO appreciates that the risks are considered small and there appears to be limited additional steps that the Proponent could do to mitigate from any unlikely or unexpected cracking or roof collapse. However, any damage, regardless of its low probability, could lead to irreversible damage, especially to rock art or rock engraving sites. Two of the rock shelters at Clive Park, two with rock art and one adjacent a rock engraving, are both subject to ongoing coastal erosion that is exacerbated by waves from boat traffic, rising sea level and storm events, and human visitation. The AHO considers both these sites are more at risk from vibration and settlement given these additional and increasing impacts. The AHO has monitored significant recent vegetation and midden loss at Clive Park 1 (WILL-017, AHIMS#45-6-0654) in the last 12 months. The accessible foreshore across this area is narrowing and during high tides there is increasing concentration of impacts by visitors leading to further erosion. The AHO therefore proposes that the EIS consider a sea wall or coastal protection along this area as an ameliorative or compensatory approach to possible damage to the 4 recorded sites here and/or in relation to harm elsewhere. The four sites are, from west to east:

WILL-025, AHIMS#45-6-0996

WILL-017, AHIMS#45-6-0654

WILL-081, AHIMS#45-6-0271

WILL-170, AHIMS#45-6-3012

Any coastal protection would be subject to approval by Transport for NSW, Willoughby Council and all other relevant stakeholders, legislation, policies and guidelines.

A **confidential** map for in-house use (not for public access) showing the actual AHO corrected site locations and AHIMS point data was provided to the Transport for NSW Project Team to address this issue prior to the final detailed design being completed.

Geology Soils and Groundwater

This chapter outlines the geology, soils and groundwater impacts associated with the Project and identifies measures which address these impacts.

Geology and Soils

A review of the above information is consistent with Environmental Health assessments and recommendations regarding land contamination, acid sulphate soils, sediment and erosion controls.

Therefore, there are no objections subject to compliance of the recommendations/ Environmental management measures specified in the table 16.9

- The report recognises the presence of lambert soils which have a high erosion potential along the majority of the Wakehurst Parkway. The EIS makes comment on the high susceptibility of these soils within and adjacent to the construction site to have the potential to have a negative environmental impact, during an erosion event on Manly Dam, however, states that standard erosion controls would be sufficient. Council believes that high quality erosion controls are required along the entire length of the Project to ensure these highly mobile soils do not negatively impact on Manly Dam and its sensitive bushland.

Furthermore, commentary and recommendations are in the Water Quality section of this response.

- Any contamination found on any site that is under Council care, control and management during the course of the Project will be the responsibility of TfNSW and remediated in accordance the CLM Act 1997. Council will not accept transfer of the risk, as the contamination will only be of risk to human health or the environment through the actions of the Project.

Groundwater

A focused study will be carried out to confirm impact of baseflow reductions at Burnt Bridge Creek, Flat Rock Creek and Quarry Creek, due to groundwater drawdown, and whether this might have an increased effect on nearby groundwater dependent ecosystems. This will be carried out in conjunction with monitoring of groundwater levels, groundwater quality and surface water flows, as discussed in Chapter 16 (Geology, soils and groundwater) of the Environmental Impact Statement. Where unacceptable ecological impacts are predicted, feasible and reasonable mitigation measures to address the impacts will be identified, incorporated into the detailed design and implemented during construction. The mitigation measures considered will include tunnel linings. Measures will be implemented during tunnel construction to ensure that groundwater inflows during the operation phase do not exceed 1L/s/km on average over the entire tunnel length.

The classification of these risks as 'low' does not seem to be in agreement with the groundwater reports, which state what would appear to be significant levels of drawdown, lowering of the water table, impacts to creek baseflows and ground settlement.

Council recommendations

The impacts of the water table drawdown on the natural environments are critical on the water dependent ecosystem. Council is supportive of mitigation measures to maintain base flow regime into the creeks. Measures to be investigated shall include additional pumping of treated groundwater ingress to Burnt Bridge Creek upper reach, slow release of water through an adequate detention scheme, inclusive of a wetland network, into the catchment to promote slow release, implementation of WSUD strategy in the drawdown affected catchment to promote stormwater infiltration. A large wetland to maintain Burnt Bridge Creek baseflow at the golf course shall be considered, along with the investigation and implementation of measures such as groundwater injection and catchment balancing.

The implementation of measures to reduce groundwater drawdown are very selective and only deal with the absolute worst cases. For instance, there is no proposal to introduce tunnel lining to reduce the drawdown and impact on baseflows to Burnt Bridge Creek. Monitoring groundwater and developing mitigation during works may not be effective, as the best possible response to minimising drawdown is to line the tunnels, which is difficult to incorporate at a later date. Any solution developed during works will be a compromise, such as taking groundwater and pumping it directly to creek flows, and an unsatisfactory compromise if it is a completely different catchment.

All extracted and treated groundwater should in order of priority: (1). be injected to recharge the source aquifer it came from; and (2). discharged to creeks that the groundwater aquifer would have

fed. Groundwater must not be extracted from one system and discharged to another, as this would cause a significant alteration of the water balance of that system.

Discharging extracted and treated groundwater directly into creeks will increase flows and exacerbate the impacts of wet weather flows. Appropriate stabilisation of at-risk creek banks must be addressed. The possibility of the treated water to be detained to avoid discharge during peak flood flows, should be investigated to reduce downstream impacts.

Hydrodynamic and Water Quality

The Beach Link Project involves the construction of large infrastructure, which will have an effect on the surface water and hydrology of Northern Beaches local catchments.

The scale of the Project will affect surface water in quantities and quality during construction and operational phases.

Background

The key activities will directly impact on the run-off generation and water movement in the two locations, Wakehurst Parkway upgrade (tunnel portals to Warringah Road at Frenchs Forest) as well as the new access road between the Burnt Bridge Creek Deviation and Sydney Road at Balgowlah.

The proposed works will take place in three drainage basins forming part of two Northern Beaches Lagoons Catchment:

- Burnt Bridge Creek catchment – discharges to Manly Lagoon
- Manly Creek catchment – discharges to Manly Lagoon.
- Trefoil Creek catchment – discharges to Middle Creek/Narrabeen Lagoon

The receiving creeks system ecological sensitivity is high with 3 sensitive receiving environments.

- Manly Dam (high sensitivity)
- Manly Creek (high sensitivity)
- Trefoil Creek (high sensitivity)
- Burnt Bridge Creek (moderate sensitivity)

Manly Lagoon outlet is at Queenscliff Beach, Manly, and presents a high recreational value.

Temporary construction support related to water management would include the following sites:

- Balgowlah Golf Course (BL10)
- Kitchener Street (BL11)
- Wakehurst Parkway south (BL12)
- Wakehurst Parkway east (BL13)
- Wakehurst Parkway north (BL14).

The construction phase will consist of stormwater connections at the Burnt Bridge Creek Deviation, (Balgowlah) as well as the surface connection works along the upgraded Wakehurst Parkway.

During construction, the site wastewater (including run-off from the tunnel portal) will be managed through two locations with the main treatment plant located at Balgowlah Golf Course (BL10) and discharged into the local stormwater network at a rate of 428 m³/day or 4.9l/s. A secondary treatment plant will be located at the Wakehurst Parkway tunnelling site (BL13) and will discharge treated water at a rate of 10 m³/day to a new channel filling the Wakehurst Golf Course dam (for re-use).

The estimated duration of the operation is four years.

Waterways potentially impacted during construction

The waterways that are potentially impacted are:

- Burnt Bridge Creek from Balgowlah Golf Course (BL10) and Manly Dam from Wakehurst Parkway east (BL13).
- Garigal National Park drainage lines flowing towards Bantry Bay have the potential to be impacted from the realignment and upgrade of the Wakehurst Parkway. Wakehurst Golf Club drainage lines flowing towards Manly Dam have the potential to be impacted from Wakehurst Parkway south (BL12) and Wakehurst Parkway east (BL13) construction support site.
- Trefoil Creek via stormwater run-off from Wakehurst Parkway north (BL14).

Recommendations

- Sediment pollution should be listed as 'High' risk as it has been the single most consistent (and poorly managed) form of pollution from other roadworks projects in the area. It should also not be listed as 'low' or 'unlikely'. Once sediment leaves work sites and enters local creeks, the contractor has no further responsibility and Council must bear the cost of clearing sediment from the waterways – a significant expense in the hundreds of thousands of dollars for each distinct site. Contractors on previous projects have refused to rectify the damage done by allowing sediment to enter local creek systems in the Narrabeen, Warriewood and Frenchs Forest areas. The community regularly complain about sediment build-up in creeks, as it exacerbates flood risk. Northern Beaches Council would like to see an ERSED Consultant hired during the design phase, to ensure space is set aside for sediment basins and other forms of controls. It is recognised that it is noted an ERSED Consultant will be engaged during the construction phase.
- Both Warringah Road and Mona Vale Road projects included asbestos in excavations and subsequent stockpiles. Both projects highlighted challenges faced by the developers in managing stockpiles and the distribution of asbestos through the environment. Council therefore recommends that all soil stockpiles/excavations associated with the Beaches Link Project be tested immediately for asbestos, and appropriate measures are implemented to prevent contaminant movements. It is also recommended that all stockpiles in the proximity

of waterways (where stockpiling in these locations is unavoidable) be covered or spray sealed to prevent run-off pollution.

- As sediment and erosion controls are ineffective in floods or even significant storms, stockpiles must be located outside flood prone areas and waterfront land and be well-bunded and stabilised, with coverings for longer-term piles.
- Sediment Basin Discharge is stated as being consistent with Managing Urban Stormwater – Soils and Construction, Volume 1 (Landcom, 2004) which permits total suspended solids concentrations up to 50mg/L. Council requests that discharge into sensitive receiving waters (such as Manly Creek) need to meet the more stringent TSS criteria of section 120 of the NSW Protection of the Environment Operations Act 1997. In the absence of an Environment Protection Licence issued by EPA, water discharged from work site must be of the same quality, or better, than the quality of the receiving waters at the time of discharge.
- Stormwater issues during construction needs to have a community hotline and a performance based response system, to address community concerns specifically related to erosion and sediment control matters.

Waterways potentially impacted during operational phase

Operational Water Quality Management

The operational stormwater system (new/modified) will receive run-off from new or modified surface roads at Balgowlah, North Balgowlah, Seaforth and Frenchs Forest. New water quality basins would be provided at Balgowlah Golf Course and along Wakehurst Parkway.

Surface connections at Balgowlah

The system has been split into 4 sub catchments to manage flows entering the downstream catchments. Proposed water management devices: GPT, basins, swales, biofiltration vegetated swales, spills management system (PGT and 40 m³ pond).

The proposed treatment chain is mostly located on the proposed open space facilities/motorway operation facilities at the Balgowlah Golf Course area (Jacobs Technical working paper, p78).

Wakehurst Parkway

The proposed water quality controls consist of two permanent basins, 18 swales and two in-line gross pollutant traps. Trefoil Creek will not be including stormwater treatment devices.

The Project's operational water quality design targets would not be achieved at the Wakehurst Parkway. High level of constraints have been identified, mainly related to space along this part of the project, as the road runs along the ridge line between Garigal National Park and Manly Dam War Memorial Reserve. Off-Corridor solutions will need to be investigated to manage the quality of water discharged from the site into these sensitive catchments.

The Wakehurst Parkway north of Warringah Road flows into Trefoil Creek and uses existing treatment and management devices installed as part of the Northern Beaches Hospital Network

Enhancement and Connectivity works, which will need to be assessed to determine if they have capacity for any new works.

Burnt Bridge Creek realignment

The Project is including minor in-stream work with localised adjustment and bed scour protection.

Surface environmental water availability and flows have the potential to be reduced due to groundwater drawdown due to the Project. The drawdown beneath Burnt Bridge Creek is estimated to be up to five metres during construction. There would be maximum of 79 per cent reduction in baseflow at the end of construction.

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. An estimated drawdown of less than one metre is expected at Manly Dam, resulting in maximum baseflow reduction of two per cent.

Manly Creek and Trefoil Creek would be unaffected by changes to baseflow.

Recommendations

- Review of the impact of the predicted water table drawdown and impact and detailed analysis/recommendation on Burnt Bridge Creek baseflow.
The impacts of the water table drawdown on the natural environments are critical on the water dependent ecosystem. Council is supportive of mitigation measures to maintain a baseflow regime into the creeks. Measures to be investigated shall include additional pumping of treated groundwater ingress to Burnt Bridge Creek upper reach, slow release of water through adequate detention schemes, wetlands network in the catchment to promote slow release, implementation of WSUD strategy in the drawdown affected catchment to promote stormwater infiltration. A large wetland to maintain Burnt Bridge Creek baseflow at the golf course shall be considered.
- Additional Music investigation to progress the understanding of the Project's water quality requirement to meet standards. Clarifications of the Music model methodology in pre and post development scenario with clear representation of the existing conditions. A neutral or beneficial approach is recommended, if the existing/post development are not meeting the pollutant reduction targets.
- Land management to guarantee suitable water quality devices are installed, especially in relation the Wakehurst Parkway widening.
- The water quality system effectiveness should not be compromised by the proposed open space and recreation facilities footprint at Balgowlah Golf Club. There are opportunities at this location for significant benefits to be provided for creek management.
- A riparian reconstruction on Burnt Bridge Creek banks should be considered
- Water Quality treatment should be designed with Water Sensitive Urban Design principles. Treatment chains should be sized accordingly and promote infiltration in the catchment

where possible. Maintenance and access shall be integrated in the water quality structures. All swales to be vegetated and include access for maintenance.

- Council would like to be involved in the design of the permanent water quality treatment device system.
- Consideration of any environmental impacts from the proposed works should not be limited to the immediate creek environment in proximity to the works site, and should include Manly Lagoon itself, which harbours a diverse population of marine and estuarine fish species, and the final receiving waters, being Queenscliff and Manly Beach. Both beaches support large numbers of local and visiting recreational users all year round. Due to its tidal connection to the ocean, any discharges from Manly Lagoon have the potential to impact water quality on Queenscliff Beach and all the Manly Beach area, consisting of North Steyne and South Steyne beaches.
- Not only does the capacity of the stormwater system need to be considered, but also the quantity of flows. Northern Beaches Council is currently completing extensive work to consider how the quantity of run-off affects our creeks and requiring developers to manage their run-off accordingly. The overall impact of the wastewater flow on the catchment's creeks geomorphology and water quality must be considered, in addition to capacity and flood risk.
- The inter-dependencies between the stormwater system and natural assets needs assess impacts to macroinvertebrate communities in Burnt Bridge Creek, particularly as the creek is a source of food for local bat communities in Balgowlah. Pooling of the creek due to reduced baseflows will result in a change in taxa, with taxa that prefer flowing water, riffles etc. being impacted and a subsequent increase in pollutant tolerant pool-loving taxa such as worms and snails.

Flooding

Background

The NSW Department of Planning, Industry and Environment has outlined the comprehensive Secretary's Environmental Assessment Requirements (SEARs) in relation to floodplain risk management for the proposed Beaches Link. A Technical Working Paper and related Appendices have been prepared to respond to these requirements and to determine the potential flood exposure and the impact on flood regime of the project.

Council concurs with the requirements outlined in the SEARs, however, there are concerns regarding the level of detail included in the assessment of flood risk and the potential operational impacts of the Project on flooding to private properties and how this can be mitigated.

The quantitative flood impact assessment is at a preliminary concept stage. It has involved the update of available contemporary flood data and hydraulic modelling of the existing and proposed scenarios. The proposed scenario hydraulic modelling appears to be based on the operational layout of the finalised concept. With a detailed design yet to be undertaken, it is unclear whether the flood impact assessment includes detailed design elements that have the potential to impact the flood

regime, such as stormwater infrastructure upgrades, noise abatement walls, retaining structures, bulk earthworks etc.

Protection of motorway and tunnel infrastructure

Several of the SEARs and details in the Flooding Technical Working Paper relate to protection Standards of the tunnel entry portals and other motorway infrastructure. Whilst Council does not have specific requirements for this scale of infrastructure upgrade, the assessment methodology appears sound in this regard, with tunnel entry portals protected up to the Probable Maximum Flood level. Council would recommend that appropriate blockage parameters, as per the requirements of AR&R2019, have been included in the assessment of the flood regime, to ensure a degree of conservatism has been applied due to the potential risk to life of tunnel inundation.

Construction impacts

Due to the construction timeframes and scale of the project, there is the likelihood of a significant rainfall event occurring during the construction timeframe. The assessment of the construction activities on the flood regime is of a qualitative nature, with the report noting that the works at Balgowlah Golf Course have the greatest potential for adverse impacts on flood behaviour and further notes *“Without mitigation the construction of the Project has the potential to result in changes in flood behaviour that may result in social and economic cost impacts to the community by exacerbating the impact of flooding to property and infrastructure as well as disruption to the community.”*

Whilst Council notes that detailed design elements and construction staging and layouts are yet to be determined, the current degree of assessment is inadequate. At a minimum, quantitative assessment of at least the 10% AEP during major construction stages should be undertaken to identify the potential impact on flooding for private properties and how this can be effectively mitigated.

The Balgowlah construction sites and associated facilities are located within the floodplain and are exposed to a degree of flood hazard. To ensure the safety of construction personnel and other associated infrastructure, detailed flood emergency response plans should be prepared for each site as part of the Construction Environmental Management Plan process and where possible, the risk mitigated or reduced to ensure an acceptable level of flood risk.

Operational impacts

The flood modelling indicates that the operational phase of the project will have detrimental impacts on the flood regime in both the 10% and PMF events at Burnt Bridge Creek.

Transport for NSW need to confirm the extent of property acquisition in Dudley Street, Balgowlah, as the works result in significant potential increases in flood levels for current private properties in this area. Remaining properties not acquired will require any adverse flooding impacts as a result of the Project to be eliminated through effective mitigation.

The report identifies that along the main arm of Burnt Bridge Creek downstream of the Kitchener Street bridge, peak 10% flood levels would be increased at six residential properties in the range 10-50 millimetres.

The report also notes that the project has the potential to increase the depth of flooding by up to 600mm to residential properties in a PMF event, with no mitigation proposed to manage the increased residual risk above the 1% AEP flood level.

Council is not supportive of the current operational impact on the flood regime. Any increase in flooding in the 10% AEP to private property is not acceptable and should be mitigated prior to finalising the concept design. In relation to the impacts in the PMF event, Council has adopted an adverse impact threshold of increasing flood depths by more than 50mm for private property. The current impacts far exceed this threshold.

Although the PMF is not used for setting design floor levels, the level is used by Council for setting and designing shelter in place refuges for private property, and for flood emergency response planning. The current flood depth increases are significant and pose an unacceptable increased flood risk to life.

Council requests that Transport for NSW undertake further modelling with flood mitigation infrastructure or amended reference designs to ensure that there is no more than 50mm increase in flood depths in a PMF event for private property.

Flood Emergency Response

The project has the potential to impact the flood regime during the PMF event with increased depths of flooding for both private properties and other infrastructure, such as local roads. Council requests that additional investigation is undertaken to determine the impact of the project on flood emergency response arrangements. This is to include an investigation of the potential impact on evacuation potential, the flood immunity of local roads, any increase in duration of inundation and the flood emergency response classification of the floodplain.

Biodiversity

Wildlife Corridors and Fauna Movement

Background

The proposed widening of Wakehurst Parkway to four-lanes (two-lanes each way) between Killarney Heights and Frenchs Forest, has been identified within the Biodiversity Development Assessment Report (BDAR; Arcadis 2020) as a prescribed impact on habitat connectivity, the movement of threatened species and vehicle strike. The realignment and upgrade of the Wakehurst Parkway will increase habitat fragmentation (i.e. would widen an existing gap in otherwise contiguous fauna habitat), which could create a further barrier to fauna movement between habitat to the east and west of the Wakehurst Parkway.

Wakehurst Parkway is the primary and sole-remaining fauna corridor, linking the Manly Dam War Memorial Reserve (hereafter called Manly Dam) on the east to Garigal National Park in the west via the existing Wakehurst Parkway Wildlife Corridor. Wildlife corridors, even those existing of canopy connectivity, can play a role in maintaining connections between fauna populations, even the movement of just one or two animals between populations can be critical (Smith and Smith 2005).

It is noted that Transport for New South Wales (TfNSW) are securing the opportunity to include fauna crossings, (e.g. fauna underpasses) within the design given the extremely high costs associated with retrofitting a structure. Northern Beaches Council consider the ongoing viability of the Wakehurst Parkway Wildlife Corridor to be critical to a number of locally significant and regionally threatened species that occur within both Manly Dam and Garigal National Park.

Recommendations

Underpass Design

Northern Beaches Council would like the opportunity to be involved in the design planning for underpasses, to ensure that wildlife movement and genetic flow of non-flying fauna are maintained. Underpass design should service future connectivity for threatened and locally significant fauna, as well as ecosystem engineers (e.g. Swamp Wallaby) i.e. an approximate minimum height of 1.5 metres, and appropriate underpass 'habitat furniture' to encourage use and minimise predation.

Addition of a vegetated fauna overpass or 'land bridge'

Northern Beaches Council suggests that the Project considers the inclusion of a vegetated fauna overpass or 'land-bridge' incorporated into the design of Wakehurst Parkway, in addition to the proposed fauna underpasses, to maintain the flora and fauna connectivity between the Manly Warringah War Memorial State Park and the Garigal National Park to ensure the continuing biodiversity of both areas. Studies of fauna crossing structures on arterial roads (Bond 2008, Jones 2010), have shown the functional importance of fauna overpasses to medium-large mammals and small woodland bird species recorded using overpasses in preferences to underpasses, or to flying over the road in the case of woodland birds.

Monitoring Usage

Given the relative uncertainty on impacts to genetic flow, Council requests a Post Completion Monitoring Study to determine the effectiveness of the fauna underpasses in allowing migration of fauna across the corridor. This study should run for a period of not less than 2 years from practical completion, and capture data through video and visual assessment of the movement through the structures and overhead corridors. All stakeholders, including Council and NPWS, are to be consulted on the formation of the study working group and the parameters for the investigative processes.

Street Lighting Impacts on Fauna

The proponent needs to address the negative impact on fauna due the required upgrading of both street and pedestrian lighting along the Wakehurst Parkway Corridor, with consideration given to smart lighting systems and time-of-night lighting solutions.

Roadkill Mitigation - Fauna Exclusion Fencing

Background

In a previous study commissioned by TfNSW (formerly NSW Roads and Traffic Authority), Wakehurst Parkway was identified as a *Wildlife Roadkill Hotspot* (SMEC 2011), impacting upon Swamp Wallaby bandicoots, birds, possums, lizards and snakes. Habitat for threatened fauna including the Heath Monitor and Eastern Pygmy-Possum were also identified within the study, suggesting these species may be victims of roadkill. Habitat modelling of these threatened species (species polygons) provided within the BDAR (Arcadis 2020) also supports this.

Efforts to minimise fauna roadkill are supported by Council, in particular fauna exclusion fencing along the entire alignment of the Wakehurst Parkway Wildlife Corridor, as proposed within the Environmental Impact Statement (EIS).

Recommendations

At present, the EIS does not detail the design, location of the proposed fencing or the interaction between fencing and the underpass structure. It is assumed this information will become available at the detailed design stage of the Project for Northern Beaches Council to provide a commentary on.

Given the significance of the Wakehurst Parkway Wildlife Corridor, Northern Beaches Council requests the opportunity to be involved in the strategic planning and design of fencing.

Design of Culverts & Bridges - Microbat Habitat

Background

Built structures, including culverts and bridges have been identified as potential microbat roosting habitat within the BDAR (Arcadis 2020). The impact of the reconstruction of these man-made structures has been identified as 'negligible' within section 5.4.2 of the BDAR, based on the re-establishment of this habitat following completion of construction works.

Recommendations

It is Council's preference that appropriate, newly constructed structures incorporate in-built microbat roosting habitat, targeting cave-dwelling microbats as implemented on other TfNSW projects.

Biodiversity Offsets – Securing Offsets within Northern Beaches LGA

Background

There are substantial land clearing impacts (approximately 15ha) most of which are associated with the construction footprint along Wakehurst Parkway. These will lead to increased habitat fragmentation and have indirect impacts to native vegetation adjoining the new Wakehurst Parkway roadside edge.

Offsetting obligations for the Beaches Link and Gore Hill Freeway Project are primarily due to proposed vegetation and habitat credits, both ecosystem and species, to be removed within the existing Northern Beaches Local Government Area. This includes ecosystem credits endemic to the Northern Beaches e.g. Duffy's Forest Ecological Community.

Recommendations

Where impacts cannot be avoided and minimised in accordance with the Biodiversity Assessment Methodology (BAM 2017), offsets are to be secured for the Project.

Northern Beaches Council believes that the offsets should be secured locally (i.e. within Northern Beaches), such that the management of these species and vegetation communities are allocated to the same or equivalent threatened entities, and their ongoing conservation is funded. Northern Beaches Council requests that TfNSW undertakes significant investigation to secure offsets locally, instead of paying into the Biodiversity Conservation Trust fund. It is the understanding of Northern Beaches Council that offset credits for several Plant Community Types (PCTs) and species credits

required by the Beaches Link Project are available within Biobanking/Stewardship Sites that are located within the Northern Beaches Council area.

Alternatively, additional credits required by the project could be retired by TfNSW establishing a new Stewardship Site within the Northern Beaches LGA.

Offsetting for Indirect Impacts - Exclusion Zone at Burnt Creek Bridge

Background

Council notes that an 'exclusion zone' has been established at Burnt Creek Bridge in Balgowlah, which contains two threatened flora species, *Callistemon linearifolius* and *Syzygium paniculatum*.

Recommendations

Council supports the establishment of the proposed exclusion zone for the purpose of minimising impacts and retaining native vegetation (including known occurrences of threatened flora), however, given the high level of fragmentation and edge effects that the exclusion zone will be subject to, it is the preference that this area is offset using the same indirect impact methodology applied in the BDAR (Arcadis 2020) and that additional mitigation measures are applied inclusive of supplementary planting.

Construction and Operational Mitigation Measures – Habitat Re-use

Recommendations

In accordance with RTA Biodiversity Guidelines (2011), Northern Beaches Council requests that the Project identify opportunities for habitat re-use and augmentation, including:

- Re-use of timber for habitat enhancement and rehabilitation work. Retained timber should be for habitat augmentation within reserves in the Northern Beaches LGA.
- Reuse of suitable root balls for environmental rehabilitation projects. The Proponent should consult with relevant stakeholders (National Parks, DPI Fisheries, Northern Beaches Council) to identify opportunities to re-use significant root balls for re-snagging creeks or other waterways prior to pursuing other disposal options.
- The Proponent should explore donation of canopy leaves to conservation groups such as Taronga Zoo for Koala feed to supplement the loss of feed trees in the wake of the 2019/20 bush fires.
- Any hollows removed within the Northern Beaches LGA should be salvaged and reinstalled in preference to using nest boxes. If habitat cannot be salvaged, nest boxes should be used incorporating a suitable number designed for Eastern Pygmy-Possum.

Freshwater Ecology

There was no field survey to characterise freshwater ecology in the study area, only a desktop assessment using descriptions was made by Beaches Link EIS Surface Water Quality & Hydrology Study.

Burnt Bridge Creek – Construction & Operations Impacts on Hydrology & Ecology

Groundwater drawdown impacts on Burnt Bridge Creek: (i) construction; 79% reduction baseflow (ii) operation: 96% reduction in baseflow

“While these reductions could be considered significant, in particular for Burnt Bridge Creek and Quarry Creek, they are unlikely to result in complete loss of aquatic habitat. Pools would be retained and there would still be high flows within the waterways immediately after rainfall events.” [Chp 17 p57]

EIS trivialises what would be significant hydrological and ecological impacts to Burnt Bridge Creek. Up to 96% reduction in baseflow would result in permanent loss of (bedrock) run habitat and associated biotic communities would also disappear. The creek would essentially function as a stormwater channel only discharging after larger rainfall events. The waterway would become a series of disconnected pools with poor water quality and an impoverished macroinvertebrate community comprised entirely of taxa tolerant to low flows, pollution and flying adult stage able to recolonise ephemeral pool habitat. During dry periods, there is the potential for these pools to dry entirely and therefore, would not function as refugia. Other possible impacts include effects of groundwater drawdown/reduced baseflow on riparian vegetation and other terrestrial flora and fauna reliant to some degree on available freshwater or aquatic communities (e.g. possibly microbats, insectivorous birds etc).

Inadequate assessment of two Key Threatening Processes listed under NSW Fisheries Management Act 1994.

- *Degradation of native riparian vegetation along NSW water courses.* Assessment only considers direct removal of riparian vegetation and not potential impacts due to hydrological changes (groundwater drawdown and near complete loss of baseflow).
- *Installation and operation of instream structures and **other mechanisms** that alter natural flow regimes of rivers and streams.* Assessment only addressed effects of culvert extension works and/or scour protection at Burnt Bridge Creek and has not considered impacts of groundwater drawdown which will significantly affect natural flow regime in reducing baseflow by 96%.

EIS does not assess impacts of reduced baseline flows in Burnt Bridge Creek on hydrology and ecology of downstream Manly Lagoon estuary and its associated/fringing terrestrial vegetation communities (which include EECs).

Inadequate offset package for loss of aquatic habitat in Burnt Bridge Creek. EIS only considers offset for 15m section of Burnt Bridge Creek directly affected by culvert extension and/or scour protection. According to Policy and Guidelines for Fish Habitat Conservation and Management (NSW DPI 2013) if freshwater habitat is to be removed or irreparably damaged, then a minimum 2:1 offset is required to help re-dress direct and indirect impacts. In the absence of acceptable mitigation measures, Council would also seek an offset for the entire reach of Burnt Bridge Creek affected by permanent 96% reduction in baseflow

Manly Creek (a.k.a Curl Curl Creek) – Construction Impacts on Water Quality

*“In [Wakehurst Parkway] catchments where the annual nitrogen and phosphorus loading would exhibit a minor increase, the impact to freshwater ecology is considered minor. This includes the population of climbing galaxias (*Galaxias brevipinnis*) in Manly Creek and Manly Dam given the elevated concentrations of nitrogen already recorded in both Manly Creek and Manly Dam.”* [App S – Ann D: pp D-38]

Council would have significant concerns about any decrease to water quality in Manly Creek. Manly Creek is considered Type 1 highly sensitive Key Fish Habitat due to potential fish refuge. As noted in

the EIS report, the reach of Manly Creek upstream of Manly Dam supports a population of climbing galaxias which have been able to complete their lifecycle entirely within the freshwater habitat above Manly Dam. Whilst the species is not threatened under State or Commonwealth legislation, it has declined in NSW and in 2001 was included in a NSW Fisheries report “Threatened and Potentially Threatened Freshwater Fishes of Coastal New South Wales and the Murray-Darling Basin”. The population in Manly Creek represent the northernmost extent of the species and its loss would represent a range contraction. The species is susceptible to declines in water quality caused by increased sedimentation, contaminants and nutrients.

The impact assessment in Beaches Link EIS determined that taxa in these sections of Wakehurst Parkway catchment are pollution tolerant and therefore, should not be significantly impacted by a further increase in nutrients or suspended solids. It fails to consider cumulative impacts of declining water quality and assess against relevant tolerance limits/thresholds of climbing galaxias.

EIS Freshwater Ecology Environmental Management Measures [pp D-41/2]

- *FE1 – Permanent Loss of Freshwater Habitat.* FE1 does not address permanent loss of freshwater habitat in Burnt Bridge Creek that will occur due to 96% reduction in baseflow.
- *FE2 – Increased Erosion and Sedimentation Input into Watercourses.* Council has significant reservations about efficacy of erosion and sediment control plan (ESCP) given numerous problems and complaints regarding sediment control that have occurred as a result of Transport for NSW’s Mona Vale Road upgrade.
- *FE3 – Alternations to geomorphology and natural flow regimes.* FE3 does not address changes to natural flow regime of Burnt Bridge Creek as a result of the Project works.
- *FE6 – Loss of Riparian Vegetation.* If subsequent analysis determines that loss of surface flow and groundwater drawdown will impact on riparian vegetation, then FE6 should reflect any mitigation measures adopted (if possible).

Marine Ecology and Marine Water Quality

Council considers that the current monitoring program in Middle Harbour for the adaptive dredge management plan is inadequate. During the construction period, a monitoring scope should be expanded to include:

- Sensitive marine habitats and biota
- Contaminants in marine waters

Observed impacts on marine ecology or presence of contaminants in water samples above identified thresholds, should trigger appropriate management responses to construction works.

Marine Ecology

The vicinity of the planned tunnel crossing of Middle Harbour between Northbridge and Seaforth and Spit West support site, is home to a wide range of marine habitats and biota. Some of these are listed as threatened under State and Commonwealth legislation and/or are sensitive to the potential hazards associated with the construction phase of the Project, such as increased turbidity, sedimentation and contamination. Local seagrass beds are highly sensitive key fish habitat and include the endangered seagrass *Posidonia australis* which is found in close proximity to worksite off Northbridge headland, Seaforth Bluff, Beauty Point and past the Spit in Sandy Bay. *Posidonia australis* is also habitat for the endangered White’s Seahorse (*Hippocampus whitei*) which is particularly susceptible to localised impacts, due to life history characteristics and extremely limited mobility and home range. There is a known population of White’s Seahorse on the tidal pool at Clontarf Beach. Subtidal rocky reefs are also present in the area and they support a range of

sponges, macroalgae, invertebrates and fish, including the threatened black rockcod (*Epinephelus daemeli*).

The monitoring program for Middle Harbour Tunnel construction does not include marine ecology. At present, monitoring of dredge operations is limited to water quality parameters such as turbidity and suspended solids, which represent the main stressors to marine ecology (e.g. reduced light and increased sedimentation). The potential impact of these hazards to marine ecology was assessed by modelling dredge plume dispersion and then mapping areas of ecological impact and “influence” based on tolerance limits to turbidity and sedimentation calculated for the aquatic biota. Due to lack of data, these tolerance limits are not based on experimental studies and observations but are based on arbitrary 95th percentile thresholds taken from historical and simulated water quality data over arbitrary time periods/frequencies (5% and 10%). Turbidity (light attenuation) and total suspended solids (TSS - sedimentation) would then be monitored during 37-week dredging program as a cheap (but untested) proxy for ecological stress. Should water quality parameters exceed certain thresholds at locations of sensitive habitats and biota, then this would trigger further management action as part of the adaptive response (e.g. deployment of sediment curtains around sensitive habitat).

Given the sensitivity and importance of marine habitats and biota in proximity to the work site – and the uncertainty and assumptions involved in plume modelling, calculation of tolerance thresholds, the efficacy of mitigation measures (e.g. sediment curtains) and environmental conditions during dredge operations – Council believes it would be sensible and precautionary to monitor the actual marine ecology on site rather, than rely entirely on the accuracy and precision of the turbidity and TSS triggers as a proxy for ecological stress.

Equally, it is important that such ecological monitoring would also inform the adaptive dredge management plan. Relevant ecological thresholds should be used to trigger management action to modify dredging operation to mitigate environmental impacts.

Contaminants

A variety of contaminants occur in the upper one metre of soft sediment that will be removed from the seafloor during dredging. Construction activities have the potential to mobilise these contaminants. The EIS found that risk to aquatic biota and human health posed by the mobilisation of contaminants was not significant because:

- A 2015 laboratory study found that similar contaminants to those in Middle Harbour would likely remain bound to sediment particles and were unlikely to dissociate and release into the water column;
- Mitigation measures could be employed to prevent liberation and dispersal of contaminated sediments (e.g. backhoe with closed ‘environmental’ bucket and silt curtains).

Again, given the proximity of the dredge site to significant marine biota that is sensitive to pollution and popular locations for water-based recreation (Clontarf Beach and sailing around the Spit) Council believes it would be precautionary to verify the EIS predictions that Project works would not contaminate surrounding waters and samples for relevant contaminants as part of the water quality monitoring program. Sampling locations should include sensitive marine habitats and popular recreational sites (e.g. Clontarf Tidal Pool). Contaminant thresholds should also inform the adaptive dredge management plan. Sampling should be planned to include periods (e.g. ebb tides or periods of high rainfall) when water from work zones could move down to popular recreational locations or sensitive marine habitats.

Tunnel Sill and Low Dissolved Oxygen (DO)

The sill created by the immersed tube tunnels (up to 9.2m above seabed at its highest) will increase residence time (i.e. reduce tidal flushing) of near bed waters (-22m to -32m AHD) by ~50% (from 1.6 to 2.4 days) for a distance of 2 km upstream of the sill. Periods of naturally occurring low dissolved oxygen (following significant rainfall) would be more severe and longer duration than prior to tunnel construction. Generally, rapid vertical mixing ensures that low DO conditions do not extend far above the seabed. When DO in bottom layers is depleted, there can be mortality to benthic fauna. Low DO can also lead to nutrient release from sediments and vertical mixing into the photic zone can stimulate algal growth at surface. There are two natural sills located in Middle Harbour at Grotto Point and The Spit.

The EIS found that although duration of depleted DO events may increase upstream of the tunnel sill, these areas are able to be re-colonised from planktonic larvae and by fauna from shallower unaffected sediments.

Council is concerned by potential effects of an additional sill in Middle Harbour. It is possible that the worsening of seabed DO conditions upstream of the tunnel, may reduce the capacity of Middle Harbour as a whole to recover from significant low DO events. It is conceivable (but ultimately unknown) that the increased residence time and severity of low DO events may reach a threshold that could significantly increase mortality of benthic fauna.

Biodiversity – Environmental Management Measures

Council is strongly supportive of mitigation measures relevant to marine ecology outlined in EIS Table 19-18, including B5, B9, B28, B29, B31 – B38.

B5 - Pre-construction diving surveys of potentially impacted marine habitat for threatened White's Seahorse and protected Syngnathiformes. Relocation requires suitably qualified and experienced marine ecologists as different taxa can have different relocation requirements regarding distance and habitat. It is not enough to briefly "train" commercial divers regardless of their experience doing construction work.

All workers on site should be trained about the sensitive marine habitats and biota in the vicinity of the worksite as part of their induction, as well as preventing the spread marine pest species.

Land Use and Property

Council acknowledges the efforts undertaken to minimise property acquisitions and the prioritisation of Transport for NSW land where possible.

Council provides the following information for consideration as the Project progresses:

- 1) support is provided for the initiatives identified for acquired land post construction.
- 2) opportunity exists to leverage off the Beaches Link to fast track property acquisition in Frenchs Forest.
- 3) consideration of the environmental values and natural environment adjoining BL13 (Wakehurst Parkway east construction support site).

Support is provided for the initiatives identified for acquired land post construction

Council supports the initiatives proposed for acquired land post construction in the Northern Beaches. Council requests that a working group or consultation group comprised of the community, sporting and current user groups to be formed to work with the Proponent and Council, including the future use of open space and recreation facilities at Balgowlah Golf Course and new shared user paths and reconstruction of the pedestrian overpass at Wakehurst Parkway in Frenchs Forest.

Council notes that preliminary work has been completed by Council for the pedestrian overpass at Wakehurst Parkway in Frenchs Forest to improve pedestrian accessibility from Brick Pit Reserve to Aquatic Reserve. This work has been shared with Transport for NSW.

Liaison with Council staff to develop a dedicated consultation process for all activities post acquisition is supported.

Opportunity exists to leverage off the Beaches Link to fast track property acquisition in Frenchs Forest

Council welcomes an opportunity to leverage off the Beaches Link by including funding towards upgrades to periphery roads and property acquisitions identified in Council's Hospital Precinct Structure Plan and the Department of Planning, Industry and Environment's Frenchs Forest Planned Precinct Project. If this funding is included, this would assist with unlocking Phases Two and Three, whilst also contributing towards an infrastructure led economic recovery for NSW.

Council has identified six regionally significant transport infrastructure items that would require funding, ideally as part of the Beaches Link Project. These items are largely located on the periphery roads surrounding the Beaches Link in Frenchs Forest, which will see an increase in usage as the surrounding roads will function as the main access point.

The six regionally significant transport infrastructure items are:

- **Implementation of a linear bus interchange across Warringah Road at Frenchs Forest:**
To assist in the facilitation of the delivery of a future east-west bus rapid transit system from Chatswood to Dee Why and provide a cohesive connection point between local services, rapid bus services, and the potential for redirected services using the Beaches Link and Gore Hill Connection to connect the Northern Beaches with the CBD, North Sydney, and Macquarie Park.
- **Road widening at Frenchs Forest Road West/Naree Road from Bluegum Crescent to Forest Way:**
To provide local bus access to the linear bus interchange between the existing bus lane opposite Bluegum Crescent, and Rabbett Street in a dedicated 24hr bus lane and an additional lane between Rabbett Street and Forest Way, to create additional traffic storage capacity for traffic waiting to head north along Forest Way coming out of the Beaches Link via Wakehurst Parkway and Frenchs Forest Road (West).
- **Road widening at Forest Way between Russell Avenue and Wareham Reserve:**
To improve the through flow of the Forest Way and Naree Road intersection, additional capacity is required to allow a dedicated left turn lane into Naree Road, and increase

capacity for the right turn from Forest Way into Naree Road as the current arrangement only has storage for 12 vehicles prior to it affecting lane 3 northbound on Forest Way.

- **Upgrades to Grace Avenue and extension of Naree Road:**
To allow additional traffic capacity from the west of the Frenchs Forest area including Davidson and Forestville, and to allow the full potential of the upgraded road network to be realised by allowing traffic to move efficiently through both the primary and secondary road network.
- **Traffic Signal upgrades at several intersections along the secondary access route from the North-western approach:**
 - i. Forest Way and Naree Road – to clear the pitch point intersection on Forest Way and provide peak hour capacity along both Forest Way and Naree Road;
 - ii. Naree Road and Grace Avenue – this intersection under the Frenchs Forest Structure Plan can function as a roundabout, however, with additional loading of the traffic heading to the Beaches Link, it will need to be actively managed and signals at this location will provide that capacity;
 - iii. Frenchs Forest Road West and Sylvia Place – provision of signals at this location are required towards the end of Stage 1 redevelopment of Frenchs Forest Town Centre and definitely prior to any redevelopment in either Stage 2 or 3. By bringing this work forward, it will allow the network to be in the end state and not affect the traffic flow via the Beaches Link when construction is underway.
- **Additional bus infrastructure at Frenchs Forest Road East:**
Construction of indented bus bays along Frenchs Forest Road East, especially along the westbound side of the carriageway, will provide better inflow along this secondary corridor, providing the opportunity for express buses to clear all stop services using the intermediate stops.

It is noted that land acquisition may be required to facilitate the above works. Council welcomes the opportunity to work with Transport for NSW to provide further details on the above projects.

Consideration of the environmental values and natural environment adjoining the Wakehurst Parkway East construction support site (BL13)

The Wakehurst Parkway East construction support site (BL13) adjoins the Manly Warringah War Memorial State Park with Council noting that a Planning Proposal has been submitted to the Department of Planning, Industry and Environment for three parcels of Crown land (with Council as Reserve Trust Manager) surrounding BL13.

The proposal is to rezone Lot 76 DP 504237, Lot 77 DP 504237 and Lot 2 DP 710023 from R2 Low Density Residential to RE1 Public recreation and remove the residential development standards under *Warringah Local Environmental Plan 2011* (LEP). The purpose of the rezoning is to correct an anomaly in the LEP and to ensure that the future land use is consistent with the protection and management of the Manly Warringah War Memorial State Park.

Council notes that as BL13 is zoned R2 Low Density Residential under the LEP and that previous attempts in 2015 were made by Sydney Water to sell this site for development. This was put on hold

due to community objections. Whilst BL13 comprises a residential zone, Council notes that this land plays an important function in protecting the natural environment of the adjoining State Park. Council continues to advocate that the use of this land considers the adjoining natural environment as a key priority.

Consideration of future use and zoning in relation to public open space after project completion

The land acquisition map for Balgowlah shows the owner of the land that is proposed to be acquired for the access road and tunnel operations facility as being owned by the State of NSW. While it is Crown Land, Northern Beaches Council is the trustee and the negotiations for land acquisition will be with Council.

This will need to be progressed with input from several business units within Council and the process will need to commence in parallel with the detailed design if the project proceeds after ministerial approval is granted.

A new Plan of Management for the remnant parts of the Balgowlah site will be required and the Manly Dam Plan of Management will need to be amended to include the new parcel. TfNSW needs to fund development and documentation of the updated plans. The Balgowlah Park Plan of Management is recommended to go on exhibition at the same time as the concept plan is exhibited.

Socioeconomics Impacts

Business impacts

- Business centres in the Northern Beaches LGA are subject to less impact as no compulsory acquisitions or loss of parking or reduced traffic exposure that 'western precinct centres' may experience (i.e. Military Road).
- Short-term construction impacts, perceived or real, are of concern for some local centres, such as Seaforth (26% concerned about the negative impact on amenity during construction). Given construction is potentially 5 years, for businesses, this is probably not considered 'short-term'.
- Short-term impacts are mainly amenity impacts (noise, congestion) in Seaforth should be addressed especially for outdoor dining. In addition, traffic congestion/delays at Manly Vale Condamine Street, which is already a busy intersection with large format retail and supermarkets, maybe an issue for businesses in that precinct (including urban services/light manufacturing that is not really acknowledged in the report).
- For long-term operational impacts, Council agrees these are an overall positive with greater access to a wider workforce, especially Frenchs Forest and Brookvale which may benefit from access to hospital staff and logistic workers outside the Northern Beaches LGA (secondary trade-catchment). They should really refer to Brookvale centre rather than Warringah Mall as it has a much wider employment/economic role. There could be more information on current Journey to Work to these centres from outside the Northern Beaches LGA.
- As per the draft Employment Study, it is important to note Frenchs Forest has an increasingly logistic role, as well as potential for greater employment in Office Park, which

currently has high vacancy. BIA identifies potential delays (north-bound) in deliveries and commuter traffic short and longer-term, which may have implications to job growth.

- The BIA talks recommends consultation with businesses to manage localised impacts, is this NSW Government and/or Council’s Place Coordinator and Jacob studies mentions implementing a business support hotline. Council requests this be implemented early in the detailed design and construction phase of the Project to assist local business.

Urban Design and Visual Amenity

The overall Precinct Concept Masterplans have progressed well, and the big-picture outcomes are well founded, justified and supported. The future detailed planning and development of the Project should consider the following the guidelines and policy documents listed below, and should be incorporated into the preparation of the Urban Design and Landscape Plan:

- Northern Beaches Public Space Vision & Design Guidelines (Draft Local Government Policy).
- Local Strategic Planning Statement ‘TOWARDS 2040’ (Local Government Policy).
- Move Northern Beaches Transport Strategy 2038 (Local Government Policy).
- Community Strategic Plan SHAPE 2028.
- PROTECT. CREATE. LIVE. Northern Beaches Environment and Climate Change Strategy 2040.

Future detailed design development should deliver a project that is physically and visually integrated within its surrounding environment, enhances community connectivity and engages the road user with the unique and defining characteristics of the local context of the Northern Beaches. The key infrastructure elements should be an integrated approach and informed by reference to the landscape typology. The objectives for the infrastructure elements should include:

- Reinforcing the landscape typologies
- Creating access and circulation
- Providing a gateway element to the Northern Beaches
- Providing safe, legible access across the corridor
- Providing road users with a safe, engaging and enjoyable driving experience

The new transport infrastructure should continue developing the successful design concept of Northern Beaches Hospital Connectivity and Network Enhancement Project of which the underpinning design theme is derived from reference to the local landscape concept of ‘the northern beaches’ and ‘from the sea’ – “sweep, curves and forms of the shared path bridges, the portal at Wakehurst Parkway interchange and the pattern on the slot walls reflect the biorhythms of the ocean – Swell period along the slot structure crescendo with cresting waves in the form of the shared path bridges and portals” (excerpt from the design concept).

The Project should incorporate public art in major public spaces, to identify a neighbourhood gateway. On a pedestrian scale it should assist in way-finding and provide visual interest for those

passing by. It should also present beauty and symbolic meaning as both independent installations and into functional objects such as seats, grates, railings, to create a sense of place and identity.

The concept plan and visual and landscape assessment of the impacts at Balgowlah Oval need to be further refined to be supported, however it is also noted that Council will work with TfNSW to refine these designs to mitigate the landscape and visual impact.

All assets being handed back to Council must comply with Council's urban design guidelines. The shared path along Wakehurst Parkway will require protection from vehicle incursion, with the preferred option of an escholz kerb with a Brifen cable barrier as a vertical separator, rather than guardrails or jersey kerb to minimise the visual impact. Consideration should be given to using a coloured concrete for the shared path, to minimise the visual impact through this bushland area.

Hazards and Risks

This chapter assesses potential hazards arising from possible incidents during the Project construction and operation that could pose a risk to public safety, the surrounding community or the environment, and summarises the approaches taken to manage these risks. An Incident/Impact Report Register is to be developed for on-site workers and/or local community through disturbance and mobilisation of contaminated material during construction and operation.

In regard to storage of dangerous goods and hazardous substances during construction and operation, it is recommended that a register (including accurate estimation of quantities) is kept and supplied to the appropriate regulatory authorities on a regular basis and/or upon request.

The detailed design must consider an emergency response design factor and to incorporate measures to prevent water and land pollution. Where stormwater detention basins are constructed, they are to include a 25,000 litre first flush area that can be isolated in the event of a significant fuel or chemical incident prior to the flows entering the sensitive downstream catchments. Standard exclusion of flammable/hazardous goods within the tunnel can potentially manage this issue through the majority of the Project, however, this should be considered in all surface sections of the project. Detailed environmental emergency and spill response capabilities or equipment must be located to quickly address any incidents throughout the project.

Resource Use and Waste Management

To support the move to a more circular economy in Australia, Governments should be demonstrating and encouraging the use of recovered materials when specifying purchase of products and materials.

There appears to be a significant opportunity for use of high-quality recycled glass in proven applications in these resources, (Page 25 -4 table 24-2)

- 124,400 tonnes asphalt
- 322,100 cubic metres ready mixed concrete
- 25,400 cubic metres Aggregates – sand/gravel

The detailed design and procurement phase of the Project should set targets for resource management and waste minimisation. It is noted that the provision of on-site concrete batching allows improved quality management, with a potential to reduce the wastage and transport related non-conformance.

Where there is a suitable certified recycled product alternative, it should be considered for use within the Project. Concrete, asphalt, brick and tile recycling through on-site processing should be considered where temporary project requirements allow for this reuse or if possible, included in permanent works, e.g. crushed concrete drainage aggregate.

The Project should where possible, source separate waste material to allow for those products to be recycled and diverted from landfill. This includes the 30 cubic metres plastic sheeting that will be generated as waste during the Project.

All waste material is to be contained within all the Project sites, to limit windblown spread or mobilisation into creeks and waterways.

The Project is encouraged to engage with Council regarding the significant volume of sandstone spoil. It is recommended that the Proponent and the Department of Planning, Industry and Environment work with Northern Beaches Council to assess the suitability of this spoil being used for purpose of beach nourishment. The cost of additional processing for this purpose could be offset against the transport and disposal cost, when the volume of material and number of truck movements are factored in.

Sustainability

This chapter discusses high level vision and objectives and leaves much of the detail to the Sustainability Management Plan (SMP). In order to ensure that appropriate detail is included in the SMP, a review by Council prior to finalisation is requested. The detail in the SMP is also relevant to the GHG emission reductions discussed in Section 26-7.

Further target themes are suggested for inclusion in Table 25-4:

- Minimise energy use and greenhouse emissions – include a target theme on Ventilation
- Optimise resource efficiency and waste management – resource recovery for demolition materials – buildings etc.

Concrete, and more specifically, the Portland cement content within concrete mixes, is the most greenhouse gas intense component of the material. Steps to reduce Portland cement content will achieve a lower embodied carbon outcome. This can be achieved through either reduced amount of concrete on the Project, or through supplementary cementitious materials (SCM's) such as fly ash or slag, as well as many others. A target, such as reducing 30% reduction in Portland cement content measured by mass across the project compared to a base case, could be suggested in the response.

Asphalt pavement material is typically 95% mineral aggregates (such as sand or gravel) mixed with 5% petroleum-based bitumen - with bitumen functioning as the glue binding the aggregates in a cohesive mix. Traditionally, asphalt is produced at temperatures around 160-180°C to optimise the coating of aggregate with bitumen and its laying manageability. Many innovations that attempt to lower the environmental impact of asphalt production centre on reducing the production

temperature which reduces the energy (and consequently fuel) that is traditionally required to heat both the binder and the aggregates. Where practicable, use:

- Alternative processes to traditional ‘hot mix asphalt’, such as warm or cool mix asphalts which have reduced energy requirements and reduced greenhouse gas emissions
- Recycled/reclaimed aggregates, such as recycled asphalt pavement, glass and/or concrete.

Streetlighting upgrades across the Project are requested to use the recommended 4000k colour temperature LED lights for main roads and 3000k for residential roads. Delivering the LED streetlighting with the inbuilt smart control technology will allow for reduced energy costs, less light spill into the environment, reduce impact on the fauna in the area and allow for the future proofing of the installed infrastructure.

Climate Change Risk and Adaptation

Council has reviewed the Climate Change Risk and Adaptation and would like the following issues addressed as part of the approval conditions:

Table 26-3 Climate Change Risk Assessment

- This table does not cover heat or storm impacts (i.e. increased wind speeds with increased intensity of storm events). i.e. increased bitumen and decreased green space in particular.
- This table should also reference *Chapter 18: Flood Study* and the risks identified in the vicinity of the tunnel resulting from the Project that are outlined in Appendix R, Annexes B under section 6.5.1.
- This table should also reference *Chapter 23: Hazards and risks* and the risk associated with the Bushfire impacts, in particular of smoke on the ventilation outlets as listed under the Operations section 23.3.5.

Under the heading 26.1.5 Adaptation for Climate Change – replace the word “mitigate” with ‘manage’ or something similar because the term ‘mitigate’ is associated with reducing carbon emissions.

Section 26.2 details the GHG emissions from the Project. While it notes that this is a small proportion of the NSW State emissions in 2027 and 2037; it would be expected that there would be consideration of driving towards net zero emissions, in line with the State Governments Net Zero Plans. As discussed above, there is little detail regarding how the GHG emissions will be reduced, other than that it will be addressed in SMP and that energy efficiency will be considered where reasonable and practicable.

Table 26-4 Environmental management measures – climate change risks

The risk relating to flooding should be re-worded, as it does not currently make sense. A suggestion is: The impacts demonstrated from flood modelling projections that incorporate climate change.

An Environmental management measure is: “The following actions will be carried out during further design development to ensure climate change is adequately addressed: a) Flood modelling will continue to use sea level rise projections and future climate change rainfall projections.” This should

cross reference the Flood Study, Chapter 18 and Appendix R and Annexe B which uses the approach of more extreme flood events to simulate the impacts that are projected as the climate changes. Specifically, as the SEARS set out in the recommended methodology, to use the 1 in 200 year and 1 in 500 year flood events as proxies to assess the sensitivity to an increase in rainfall intensity of flood producing rainfall events to climate change (10% and 30% increase in 1% AEP rainfall intensities i.e. 0.5% AEP and 0.2% AEP storms).

Cumulative Impacts

Based on approved projects in the Northern Beaches, construction of the Beaches Link is unlikely to produce cumulative impacts for the Northern Beaches. Notwithstanding this, the EIS notes the potential for cumulative impacts associated with future development in the Frenchs Forest Hospital precinct. Council also notes this outcome.

Once there is certainty on the delivery of the Frenchs Forest Planned Precinct and Phases Two and Three of Council's Hospital Precinct Structure Plan, a review of the Stakeholder and Community Engagement framework is suggested to ensure any impacts are appropriately managed.

Consideration will need to be given to the future Project impacts along the Mona Vale Road Corridor during the construction of the Mona Vale Road West Project, as well as future development potential in Ingleside and/or Brookvale and Dee Why.

Consideration should be given to the construction impacts of both portals and transport using the Wakehurst Parkway Corridor to facilitate both sites, and the potential for works to be programmed to consider this matter.