



Beaches Link and Gore Hill Freeway Connection

Response to DPIE - Independent reviewer comments:
Traffic and transport



TO: Department of Planning, Industry and Environment
FROM: Transport for NSW
DATE: 13 April 2021
REV: Rev.2

Introduction

This memorandum addresses comments and provides responses to questions raised by the Department of Planning, Industry and Environment (DPIE) independent reviewer regarding the Beaches Link and Gore Hill Freeway project (the project) environmental impact statement (EIS) with respect to traffic and transport issues.

Comments from the DPIE traffic and transport independent reviewer were presented to Transport for NSW (TfNSW) in a report dated 15 February 2021 prepared by Bitzios Consulting for DPIE.

Table 1 summarises the issues raised by Bitzios Consulting and provides TfNSW responses to these issues.

Table 1 – Response to DPIE independent reviewer comments on the Beaches Link and Gore Hill Freeway Connection EIS

Row #	Issue location	Issue raised by DPIE independent reviewer	Transport for NSW response
1	1. Introduction		
2	1.1 Background	None	N/A
3	1.2 Scope and limitations	None	N/A
4	1.3 SEARs	None	N/A
5	2. Project need and alternatives		
6	2.1 Review of the project need	None	N/A
7	2.2 Review of the Options Analysis	None	N/A
8	3. Project description detail		
9	3.1 General	None	N/A
10	3.2 Interface Area: Warringah Freeway and Surrounds	<p>The interface area design is clearly presented and well explained. However, there is no detail showing the bus priority works proposed at the interface area to join into the southbound bus lane included in the WHT-WFU project. This should be marked or at least noted on Figure 5-1 or provided separately to show how this transition is proposed to occur.</p> <p>Figure 5-1 should be updated in the RtS to show how bus priority works with the</p>	<p>As outlined in Table 5-9 of Chapter 5 (Project description) of the EIS, buses travelling southbound in the Beaches Link tunnel would be provided with direct access to a new southbound bus lane on the Warringah Freeway.</p> <p>Figure 5-1 of Chapter 5 (Project description) has been updated to show the bus lane included in the Warringah Freeway Upgrade (refer to Attachment A) and will be included as a clarification in the submissions report. The transition for buses moving from the Beaches Link tunnel southbound general traffic lanes into the bus lane would occur on the surface of the Warringah Freeway, roughly in the area between Ernest Street and Falcon Street.</p>

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		southbound bus lane included in the WHT-WFU project.	
11	3.3 Interface Area: Gore Hill Freeway and Artarmon	<p>This area is generally well presented and clear. However, it is not clear in Chapter 5 of the EIS if Dickson Avenue is proposed to be converted to one-way westbound which is what Figure 5-2 suggests. This figure also suggests that Dickson Avenue will be reduced to a single traffic lane with parking lanes either side between Clarendon Street and Reserve Road. The figure also suggests that Curry Lane is converted from one-way westbound to one-way eastbound.</p> <p>The RtS should clarify the configuration changes associated with Dickson Avenue, Curry Lane and Carlotta Street and describe the impacts of these changes.</p>	<p>Surface road works associated with the Gore Hill Freeway Connection component are summarised in Table 5-12 and shown in Figure 5-2 and Figure 5-29. In terms of changes to Dickson Avenue, this includes:</p> <ul style="list-style-type: none"> • Removal of the connection between Dickson Avenue east and Reserve Road, Artarmon, with conversion of Dickson Avenue to the east of Reserve Road to a cul-de-sac • Modifications to the Dickson Avenue west/Reserve Road intersection to accommodate the new Beaches Link off ramp • Upgrade and inclusion of traffic lights at the Dickson Avenue/Pacific Highway intersection and centre linemarking along Dickson Avenue west of Reserve Road. <p>To confirm, changes to Dickson Avenue will not include reducing Dickson Avenue to a single lane/ one way traffic.</p> <p>No configuration changes are proposed for Curry Lane and Carlotta Street.</p> <p>Figure 5-2 of the EIS has been updated accordingly to better represent line marking on Dickson Avenue (refer to Attachment B) and will be included as a clarification in the submissions report.</p>
12	3.4 Interface Area: Balgowlah and Surrounds	None	N/A
13	3.5 Interface Area: Frenchs Forest and Surrounds	None	N/A

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14	4. Methodologies & assumptions review		
15	4.1 Traffic modelling methods	See below	N/A
16	4.1.1 Models and process	<p>The SMPM was validated to traffic surveys in 2014 and based on value of time sensitivities in 2012 - 2013. There is a reasonable probability that value of time while travelling has changed significantly since that year, particularly given recent influences. There is also likely to be some short-medium term effects on modal choice as individual's mode choice considerations have also been influenced significantly over the past 12 months. In terms of the strategic route choice modelling, value of time changes affects all trips and so would have minimal effects on route choice. In terms of modal choice, the long term effects are unknown as there is little evidence to suggest a permanent shift in modal choice sensitivities. On this basis, the strategic models used for the EIS (i.e. the STM and SMPM) are still considered to be the most appropriate set of models available for this purpose.</p> <p>However, there appears to be a pressing need for TfNSW to re-base its strategic models to a more recent year, particularly given that the preference surveys upon which they are based are nearly 10 years old and that the rate of change in travel behaviours continues to increase.</p>	<p>The traffic modelling for the environmental impact statement commenced in November 2017 using Sydney Motorway Planning Model (SMPM) v1.0. This was the best model available at the time and incorporated the relevant available inputs. SMPM v1.0 has been reviewed and is considered fit for purpose by traffic and transport industry subject matter experts. The same approach was used for the Western Harbour Tunnel and Warringah Freeway Upgrade project, which is part of the same program of works and is considered in this project's modelling.</p> <p>It is agreed that the full long-term effects of the COVID-19 pandemic on travel demand and choice is unknown. As such, it is agreed that the modelling approach used is considered to be the most appropriate methodology based on the models available in Sydney at the time of the assessment, and was completed in accordance with appropriate standards and guidelines.</p> <p>The recalibration of traffic models of this scale is a time-consuming and expensive process which is carried out periodically by TfNSW. TfNSW is actively monitoring and assessing the existing and potential future effects of the COVID-19 pandemic on transport demands and behaviours. Future updates to TfNSW's strategic transport modelling framework will consider the anticipated long-term effects of COVID-19 as they become more certain, as well as the many other factors which influence travel behaviour.</p>

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17	4.1.1 Models and process	<p>The VISSIM models took their growth in traffic volumes from the SMPM. The EIS states that where the strategic model forecasts exceeded network capacity (in the SMPM) that the demands input into the microsimulation model were adjusted such that they do <i>'not substantially exceed nominal capacity'</i>.</p> <p>While this approach is considered appropriate in principle, the degree to which peak period demand has been suppressed is important to understand to enable judgements to be made regarding if the input demographic assumptions made are completely out of alignment with traffic capacity, even after accounting for potential peak spreading and modal shift. This is important to understand so that it can be fed into future updates to Local Environment Plans (LEPs) within specific council areas.</p> <p>The RtS should document the volume and percentage of suppressed strategic model traffic demand compared to what was used in the future year microsimulation models.</p>	<p>It is agreed that the modelling approach used is considered to be the most appropriate methodology based on the models available in Sydney at the time of the assessment, and was completed in accordance with appropriate standards and guidelines, as summarised in Section 3.1 of Appendix F. The approach and assumptions used in the adjustment of input demand have been internally documented, and have been reviewed and endorsed by internal and external traffic and transport industry subject matter experts.</p> <p>There are a wide range of land use, demographic, economic, and multi-modal transport variables which determine the forecast demands produced by SMPM. Due to this - as well as a range of other factors – it is not recommended that SMPM adjustments, which were developed and endorsed for the purpose of design and planning of the Western Harbour Tunnel and Beaches Link program of works, are used for purposes such as adjusting local area LEPs.</p> <p>The microsimulation modelling undertaken for the EIS adopts the standard practice of using forecast growth (rather than absolute values) from strategic traffic models to inform assumptions regarding future traffic patterns and volumes. Consequently the documentation of suppressed strategic model traffic demand compared to the microsimulation models is not possible.</p> <p>TfNSW is happy to discuss details of the adopted methodology with DPIE and its reviewers, including why this methodology has been adopted and the magnitude of resultant adjustments.</p>
18	4.1.1 Models and process	<p>SIDRA intersection models were prepared for key intersections in each interface area, taking their input volumes from the microsimulation models. This methodology is considered appropriate, given that the capacity-capped demand input from the SMPM into the microsimulation models would reduce the likelihood of excessive congestion limiting what traffic arrives to specific intersections in peak hours. Also, when</p>	<p>Due to the complex urban nature of the road network in the project area the planning and design of the Beaches Link and Gore Hill Freeway Connection project has adopted a holistic network approach, rather than focussing on isolated intersection performance which – as noted by the reviewer – has limitations when compared to microsimulation network modelling in these environments.</p> <p>Due to this the traffic and transport assessment has adopted a network modelling approach (VISSIM) for critical concurrent construction operations at the Warringah Freeway and surrounds area only and end state (operational) scenarios to ensure that the performance of individual intersections on adjacent</p>

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		<p>intersections approach capacity microsimulation much more sensitively accounts for the fluctuations in approach flows from cycle to cycle at traffic signals compared to the 'averaging calculation' used in SIDRA. Due to this SIDRA will usually output longer delays than what is revealed through microsimulation in these situations.</p> <p>For these reasons, it is relevant to review the microsimulation model outputs in parallel with the SIDRA outputs considering delays, queue lengths and Levels of Service (LoS). The EIS has not published microsimulation outputs in this detail at intersections and would benefit from doing so.</p> <p>The RtS should provide microsimulation model outputs for intersection delays, queue lengths and LoS for comparison to SIDRA results where SIDRA results 'cut out' at maximum values (e.g. 'DoS >1', or 'queue >500m').</p>	<p>areas and critical overall network operations (eg network speeds and journey times) is holistically illustrated. The delays incurred directly at individual intersections and effects of queuing on adjacent network elements are represented in the network speeds and corridor journey times presented throughout the environmental impact statement.</p> <p>Supplementary SIDRA intersection modelling was undertaken to examine the potential relative impacts of construction activities (excluding concurrent construction at the Warringah Freeway and surrounds area) at key intersections along construction routes at all four study areas. SIDRA model demands were derived from SMPM and traffic counts rather than VISSIM microsimulation models, and hence the outputs from the SIDRA and VISSIM models are not directly comparable.</p> <p>Nevertheless, maximum queue length by directional approach, average delay and DoS data under construction scenarios is included in Section 5.2.4 (Table 5-6), Section 5.3.4 (Table 5-10), Section 5.4.4 (Table 5-14) and Section 5.5.4 (Table 5-18) in Appendix F (Technical working paper: Traffic and transport) of the environmental impact statement.</p> <p>As noted above, the impacts of queuing and pinch points – namely impacts on network capacity and performance, are illustrated holistically throughout the environmental impact statement by microsimulation network modelling illustrating network speeds, corridor travel times, and also intersection performance on a location by location basis. This level of detail is considered to be sufficient for the purposes of the environmental impact statement.</p> <p>TfNSW is happy to discuss details of the adopted methodology with DPIE and its independent reviewer, including why this methodology has been adopted and its limitations.</p>
19	4.1.2 Calibration and Validation of Models	The EIS (Appendix F, Section 3.4.3) infers that the micro-simulation models were calibrated and validated to the requirements of the Roads and Maritime Traffic Modelling Guidelines and that the models were independently peer reviewed. There is no	Section 3.5 of Appendix F (Technical working paper: Traffic and transport) presents a summary of the construction modelling approach. As outlined in Section 3.5, base year construction models were developed using a combination of VISSIM microsimulation and SIDRA intersection modelling and were calibrated in accordance with the Traffic Modelling Guidelines (Roads and Maritime, 2013).

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		<p>mention of the SIDRA intersection models being calibrated and validated. These models were used for near term construction period impacts assessment and should have been calibrated to back of queue or average delay data for this purpose.</p> <p>The RtS should identify if the SIDRA intersection models have been suitably calibrated and validated, and if not, why not.</p>	
20	4.1.3 Construction Period Modelling Approach	None	N/A
21	4.2 Assessment Criteria and Methods	<p>The metrics used for assessment are generally considered to be adequate and aligned with methods used in recent road project EIS's. The assessment of queue lengths and pinch point patterns from the microsimulation modelling would have allowed the identification of where pinch points were created or exacerbated by the project in order to more sensitively target any mitigation works.</p> <p>The RtS should publish typical queue length screen captures in future years under each scenario for midway through each peak period.</p>	<p>Operational modelling has been used as a visualisation and analysis tool throughout the development of the Western Harbour Tunnel and Beaches Link program of works to understand traffic queuing patterns and pinch points, and consequently refine the design to address potential operational issues.</p> <p>It is noted that it would be unprecedented to provide screen captures in public-facing assessments of this type. They are not typically provided due to a wide range of factors, including the need for an appreciation of the inputs, assumptions, and mechanics which underpin these models, and their consequent limitations.</p> <p>The impacts of queuing and pinch points – namely impacts on network capacity and performance – are illustrated holistically throughout the environmental impact statement by network speeds, corridor travel times, and also intersection performance on a location by location basis. This level of detail is considered to be sufficient for the purposes of the environmental impact statement.</p>
22	5. Construction period impacts		
23	5.1 General	Impacts of changed conditions such as construction access driveways and lane narrowing on walking and cycling movements	Construction traffic and transport impacts have been assessed as outlined in Section 3 of Appendix F (Technical working paper: Traffic and transport). This included qualitative assessment of impacts on the road, public transport,

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		<p>were not assessed and were deferred to the Construction Traffic Management Plan (CTMP) for each work site. Similarly, overflow parking impacts on local streets was not covered nor was access to nearby bus stops for the construction workforce to the extent that bus usage was noted as a means of site access for some construction staff. It is highly unlikely that a large proportion of workers would use buses or walk or cycle to site given their equipment needs. Public transport should not be relied upon as a parking impacts mitigation strategy.</p>	<p>pedestrian and bicycle networks, through the analysis of proposed changes to parking, public transport routes, public transport stops, shared user paths, cycleways, footpaths and pedestrian crossings.</p> <p>The active transport network, including pedestrian and cyclist routes, are identified for each study area in Section 4 of Appendix F (Technical working paper: Traffic and transport). The design of construction support site accesses will conform to relevant standards and guidelines and be subject to rigorous detailed review and approval processes. As required by environmental management measure CTT9, vehicle movements to and from construction sites will be managed to ensure pedestrian, cyclist and motorist safety and amenity. Depending on the location, this may require manual supervision, physical barriers, temporary traffic signals and modifications to existing signals or, on occasion, police presence. Further, and in accordance with CTT15, direct impacts to existing pedestrian and cycling facilities will be minimised where reasonable and feasible. Any detours and adjustments will be designed with consideration of user safety and convenience.</p> <p>Locating construction support sites to support large scale infrastructure projects in urban environments is a complex issue, and requires consideration of a variety of factors, including:</p> <ul style="list-style-type: none"> • Minimising property acquisitions, especially private residential dwellings • Connectivity of the site with arterial roads to minimise haulage and heavy vehicle movements through local streets • Ensuring the sites are of a size to accommodate all of the work requirements, including parking. <p>In urban environments, it is difficult to achieve all of these requirements. Where possible, construction support sites have been located to accommodate provision for parking, and the project has sized construction support sites balancing the different constraints in each location, with a particular emphasis on minimising property acquisitions. As a result of this, for some sites, not all workforce parking is able to be accommodated within the construction support</p>

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			<p>sites and/or additional supply and demand management measures may be required.</p> <p>The traffic and transport assessment undertaken for the environmental impact statement (including construction parking assessment) is based on a plausible construction methodology and level of design appropriate for this project stage, which would be refined based on detailed construction planning. As such, construction site layouts and requirements at this stage are indicative and would be further defined during subsequent design and construction planning phases. The number of car parking spaces and tailored complementary demand management strategies at each construction support site would be determined during detailed construction planning, when the contractor has been engaged.</p> <p>TfNSW proposes to amend CTT11 to better reflect the intention to, as far as reasonably practical, minimise parking in local streets where local existing demands are high through a range of complementary solutions which don't solely rely on use of public transport. These solutions would be tailored to suit the requirements and geographical spread of the workforce to ensure maximum take up, once the contractor has been engaged.</p> <p>The revised environmental management measure CTT11 is as follows:</p> <p>Impacts resulting from on- and off-street parking changes during construction will be minimised where reasonable and feasible. Depending on the location, options to manage construction staff and worker parking and manage impacts to stakeholders may include;</p> <ul style="list-style-type: none"> • proactively encouraging usage of public transport for workers though site induction information sessions • provision of shuttle buses from public transport hubs where appropriate • staged removal and replacement of parking • provision of alternative parking arrangements such as off-site contractor managed parking lots

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			<ul style="list-style-type: none"> • managed staff parking arrangements • working with relevant council(s) to introduce appropriate parking restrictions adjacent to construction sites and support sites or appropriate residential parking schemes. <p>Where provision of construction on-site parking cannot accommodate the full construction workforce, construction worker parking will be actively managed to minimise impacts on parking on local roads. Depending on the location, this will include encouraging the use of public transport and may include provision of shuttle buses for workforce transport where appropriate.</p> <p>It is also noted that, in consultation with DPIE, TfNSW has carried out a parking study to better understand existing parking supply and demand in the vicinity of construction support sites. DPIE will be briefed on the results of the parking study when available, and the report will be included in the submissions report.</p>
24	5.1 General	<p>The EIS essentially defers key traffic and parking needs to the future CTMP. This provides no certainty that the impacts can and will be mitigated. To address this, and in order to sufficiently address the SEARs requirement under Traffic and Transport Item 1(e) 'access constraints and impacts on public transport, pedestrians and cyclists', it would be reasonable to publish guiding principles, criteria and/ or metrics to inform the writing of each CTMP and to provide the community some assurance of the minimum objectives that will need to be met.</p> <p>As for traffic and parking impacts, key principles/minimum requirements to develop and publish in the RtS could include (for example only):</p>	<p>As noted in row #23 above, the traffic and transport assessment in the environmental impact statement is based on a plausible construction methodology and level of design appropriate for this project stage, which would be refined based on detailed construction planning. As such, it is appropriate that key issues will be addressed in the traffic management plan once detailed design aspects have been developed, and tailored strategies have been employed.</p> <p>Key issues that will be addressed in the traffic management plan, along with relevant guidelines and requirements which must be considered in the development of the traffic management plan, will be outlined in Part D of the submissions report. Key issues to be addressed in the traffic management plan include:</p> <ul style="list-style-type: none"> • Construction traffic, transport and access management objectives • Construction traffic, transport and access management documentation including: <ul style="list-style-type: none"> ○ Traffic staging plans

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		<ul style="list-style-type: none"> • Measures are to be put in place to ensure that no on street parking is used by construction workers in residential streets • Where barriers are installed, lane widths are to be sufficient to allow a minimum 1m clearance to on road cyclists • The relocation of bus stops as temporary facilities must ensure the same level of pedestrian access along and across the road to and from the temporary facility as was available for the permanent facility • Traffic control must be used to manage pedestrian crossings at construction site access driveways where pedestrian volumes exceed 20 pedestrians per hour (two-way). <p>The RtS should publish exactly what metrics and principles will be used to form the basis of the CTMPs.</p>	<ul style="list-style-type: none"> ○ Traffic control plans and identification of truck marshalling areas ○ Pedestrian management plans ○ Parking management plans ○ Heavy vehicle hauling routes • Construction traffic, transport and access mitigation including: <ul style="list-style-type: none"> ○ Workforce induction and regular Toolbox Talks ○ Demand management ○ Monitoring and inspection requirements ○ Compliance records ○ Driver certification requirements. <p>Further, as indicated in Chapter 28 of the EIS, the construction environmental management plan (including subplans, such as the traffic management plan) must incorporate relevant environmental management measures for applicable activities during construction. Environmental management measures which are included in the environmental impact statement would provide the required guidance. Relevant environmental management measures which cover the key principles/ minimum requirements suggested by the independent reviewer include the following:</p> <ul style="list-style-type: none"> • CTT11 (revised as outlined in row #23 above): Impacts resulting from on- and off-street parking changes during construction will be minimised where reasonable and feasible. Depending on the location, options to manage construction staff and worker parking and manage impacts to stakeholders may include; <ul style="list-style-type: none"> ○ proactively encouraging usage of public transport for workers though site induction information sessions ○ provision of shuttle buses from public transport hubs where appropriate ○ staged removal and replacement of parking

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			<ul style="list-style-type: none"> ○ provision of alternative parking arrangements such as off-site contractor managed parking lots ○ managed staff parking arrangements ○ working with relevant council(s) to introduce appropriate parking restrictions adjacent to construction sites and support sites or appropriate residential parking schemes. ● CTT9: Vehicle movements to and from construction sites will be managed to ensure pedestrian, cyclist and road user safety. Depending on the location, this may require manual supervision, physical barriers, temporary traffic signals and modifications to existing signals or, on occasion, police presence. ● CTT12: Any adjustments to existing bus stops will be determined in consultation with relevant stakeholders including other divisions of Transport for NSW and advanced notification would be provided to affected bus customers. Relocations will be as close to their existing position where feasible and reasonable. ● CTT15: Direct impacts to existing pedestrian and cycling facilities will be minimised where reasonable and feasible. Any detours and adjustments will be designed with consideration of user safety and convenience. ● CTT20: Directional signage, barriers and/or linemarking will be used as required to direct and guide motorists, cyclists and pedestrians past construction sites and on the surrounding network. This will be supplemented by Variable Message Signs to advise all road users of potential delays, traffic diversions, speed restrictions or alternative routes. ● BU3: Based on consultation with businesses, specific feasible and reasonable measures to maintain business access, visibility, parking and address other potential impacts as they arise through the construction phase will be identified and implemented. A phone hotline that enables businesses to find out about the project or register any issues will be maintained.

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			All measures will be designed and deployed in accordance with relevant standards and guidelines (including Austroads, Australian Standards and applicable TfNSW standards), and review and approval of detailed traffic management plans would be undertaken by relevant stakeholders and subject matter experts.
25	5.2 Warringah Freeway and Surrounds	See below	N/A
26	5.2.1 BL1: Cammeray Golf Course	None	N/A
27	5.2.2 BL2: Flat Rock Drive	<p>The site is forecast to generate 165 light vehicle movements in the AM period (6am - 10am), many of which will want to park on site. There is only a very small parking area shown for this site and it is likely that it will be insufficient.</p> <p>The RtS should specify exactly how light vehicle parking will be accommodated or managed on site to prevent overflow into the adjacent public car park.</p>	<p>At this stage of the project, it is planned that some parking would be provided at the Flat Rock Drive construction support site (BL2) for site supervision staff. Notwithstanding, construction site layouts and requirements at this stage are indicative and would be further defined during subsequent design and construction planning phases. The number of car parking spaces and tailored complementary demand management strategies at the construction support sites would be determined during construction planning, when the contractor has been engaged.</p> <p>TfNSW has carried out a parking study to better understand current parking demand/ availability in the area. Findings from the parking study will be included in the submissions report. Site specific mitigations strategies will be determined once the contractor is engaged. Also refer to response #23 above.</p>
28	5.2.3 Local Network Intersection Impacts	Construction vehicles are forecast to add a relatively small volume of traffic to key intersections such as at the Warringah Freeway / Falcon Street interchange, which is forecast to operate at capacity in 2024. The EIS does not distinguish what delay or queue length impacts this generates but 'caps' outputs at DOS >1 and queue length of	<p>VISSIM microsimulation network modelling of the Warringah Freeway and surrounds study area was undertaken for the cumulative construction scenario, where construction traffic activities in the area are expected to be most intensive.</p> <p>The results of this VISSIM modelling are presented in Section 5.7 of Appendix F, and demonstrate no material change to average delays at this particular intersection, if considered in isolation.</p>

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		<p>>500m. The intersection results should report changes in average delay to allow the impacts to be understood. If these results are unable to be extracted from SIDRA (because of over-capacity operations), then they should be extracted from VISSIM.</p> <p>The RtS should present VISSIM results where SIDRA produces DoS >1 or queues > 500m.</p>	<p>However – as noted above - the planning and design of the Beaches Link and Gore Hill Connection project has adopted a holistic network approach, rather than focussing on isolated intersection/interchange performance. When considering network operations holistically the VISSIM modelling indicates a reduction in average network speeds of around four percent, including travel time impacts on particular corridors between one and three minutes.</p>
29	5.3 Gore Hill Freeway and Artarmon	See below	N/A
30	5.3.1 BL3: Punch Street	<p>The RtS should confirm the retention of on-street parking along the northern side of Punch Street and identify if a road link between Punch Street and Cleg Street can be maintained with a smaller BL3.</p> <p>The method of replacement of the 'lost' 25 bays along Lambs Road and the 20 bays along Hampden Road should also be identified as this is critically needed parking.</p>	<p>Cut and cover/ utility works in Punch Street (separate works to the tunnelling works supported by the Punch Street construction support site (BL3)) would be extensive. These works would need to be staged accordingly, and would impact parking as a result. The exact number of parking spaces that would be permanently lost would be determined during further design development and detailed construction planning, when the contractor is engaged. The suggestion to further minimise the footprint of BL3 contradicts the previously stated need to maximise the amount of available parking on construction sites and therefore cannot be accommodated as suggested. The road link between Punch Street and Cleg Street will be removed as shown in the EIS.</p> <p>As outlined in response #27 above, TfNSW has carried out a parking study to better understand current parking demand/ availability in the area, and consequently what options are required/ available to mitigate the loss of parking. The parking study found that loss of parking in this area could be mitigated by redistribution of users to spare capacity on nearby streets, however acknowledges that there is high parking occupancy on these streets. TfNSW also notes that twelve commercial properties are being acquired for the project in this locale. Whilst some of these properties have onsite parking, the acquisition of the properties would reduce demand in the area from former employees, customers, students and visitors that were parking on the street.</p>

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			<p>Tailored complementary demand management strategies at the BL3 site would be determined during construction planning, when the contractor has been engaged. Findings from the parking study will be included in the submissions report. Also refer to response #23 above.</p> <p>TfNSW will minimise parking in local streets in accordance with revised environmental management measure CTT11:</p> <p>Impacts resulting from on- and off-street parking changes during construction will be minimised where reasonable and feasible. Depending on the location, options to manage construction staff and worker parking and manage impacts to stakeholders may include;</p> <ul style="list-style-type: none"> • proactively encouraging usage of public transport for workers through site induction information sessions • provision of shuttle buses from public transport hubs where appropriate • staged removal and replacement of parking • provision of alternative parking arrangements such as off-site contractor managed parking lots • managed staff parking arrangements • working with relevant council(s) to introduce appropriate parking restrictions adjacent to construction sites and support sites or appropriate residential parking schemes.
31	5.3.2 BL4: Dickson Avenue	None	N/A
32	5.3.3 BL5: Barton Road	The impacts of removal of this parking for site access are not covered in the EIS and should be specifically addressed in the RtS (i.e. not deferred to the CTMP later). The issues of street parking loss around this site would be exacerbated if overflow parking from construction-related traffic used the	As outlined in response #27 above, TfNSW has carried out a parking study to better understand current parking demand/ availability in the area. The study found that there is some limited availability of unrestricted parking spaces in the local roads around the Barton Road construction support site, and that the relatively small impact to existing parking capacity will be manageable.

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		<p>remaining areas and this specific impact should be highlighted in the RtS so that the CTMP can address it.</p> <p>The RtS should address how the removal of parking along Barton Road and Butchers Lane will be mitigated as it is a significant impact.</p>	<p>For further details, refer to the parking study, which will be included in the submissions report. Site specific mitigations strategies will be determined once the contractor is engaged. Also refer to response #23 above.</p> <p>TfNSW will minimise parking in local streets in accordance with revised environmental management measure CTT11:</p> <p>Impacts resulting from on- and off-street parking changes during construction will be minimised where reasonable and feasible. Depending on the location, options to manage construction staff and worker parking and manage impacts to stakeholders may include;</p> <ul style="list-style-type: none"> • proactively encouraging usage of public transport for workers through site induction information sessions • provision of shuttle buses from public transport hubs where appropriate • staged removal and replacement of parking • provision of alternative parking arrangements such as off-site contractor managed parking lots • managed staff parking arrangements • working with relevant council(s) to introduce appropriate parking restrictions adjacent to construction sites and support sites or appropriate residential parking schemes.
33	5.3.4 BL6: Gore Hill Freeway Median	<p>The EIS makes no mention of the potential safety issues with the left shoulder merge from the site into the Gore Hill Freeway eastbound, which is likely to have sight-line constraints and limited acceleration lane length.</p> <p>The left shoulder merge sight lines and limited acceleration lane length issues when leaving the site eastbound should be</p>	<p>The level of detail presented within Chapter 6 (Construction work) and other chapters and technical working papers is considered appropriate for the level of design and construction planning the EIS is based on.</p> <p>An indicative layout of the Gore Hill Freeway median construction support site (BL6) is shown in Figure 6-35. Vehicle access to and from construction support sites, including the Gore Hill Freeway median construction support site (BL6), would continue to be developed during further design development and construction planning, and be designed in accordance with relevant Austroads guidelines, TfNSW standards and Australian Standards.</p>

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		acknowledged in the RtS for further consideration in the CTMP.	Potential impacts from construction traffic including proposed access arrangements from construction support sites would be managed through proposed environmental management measures (eg CTT9) ensuring appropriate traffic management and safety measures are in place.
34	5.3.5 Local Network Intersection Impacts	<p>Construction traffic adds about 10% more traffic to the Gore Hill Freeway / Reserve Road interchange and pushes it from LoS E to F in the 2024 AM peak. Consideration could be given to building the Reserve Road bridge modification and approach works upgrades early in the construction process to provide some additional early capacity to absorb some of the impacts of construction traffic.</p> <p>The RtS should determine if the Reserve Road bridge modification can be built as early works to cater for subsequent construction traffic.</p>	<p>TfNSW is continuing to develop the design and construction planning in the Gore Hill Freeway area, including detailed staging of works. Feeding into this work is further details being gathered on complex utility adjustments on Reserve Road required for pavement widening works.</p> <p>The contractor will finalise and complete plans for staging these works during the detailed design phase and will confirm appropriate sequencing of the works in the Gore Hill Freeway area including the Reserve Road widening works.</p> <p>Notwithstanding, DPIE's suggestion wouldn't be precluded if confirmed that it is appropriate.</p>
35	5.4 Balgowlah and Surrounds	See below	N/A
36	5.4.1 BL9: Spit West Reserve	This site is expected to generate about 35 vehicle trips per hour in each peak period, which is not significant. The EIS suggests a reasonable LoS for the intersection of Spit Road / Parriwi Road / Spit West Reserve Access in 2024 however site observations suggest that due to the combination of the bridge merge arrangements, the steep grades either side and the signal phasing arrangements, this intersection is already at capacity in 2020. It may be that the SIDRA analysis, using constrained demand volumes	<p>The approach adopted for VISSIM network modelling and SIDRA intersection modelling carried out to examine the potential relative impacts of construction activities is addressed in the response provided to the issue raised in row #18.</p> <p>The input volumes at the Spit Road / Parriwi Road / Spit West Reserve access intersection are considered representative as they have been calibrated and validated based on traffic counts undertaken in 2017.</p> <p>The construction traffic modelling found that the level of service at this intersection in 2024 would be satisfactory, as level of service is calculated based on a weighted average of delay across all movements at the intersection. The vast majority of traffic travels from the north and south approaches through the intersection, with very low volumes of traffic on the east/west approaches and very low volumes turning right from the north/south approaches. As such, signal</p>

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		from VISSIM, is not realistically capturing actual arrival flows at the intersection.	phase times are optimised for the north-south through movements, which subsequently experience low delay. This results in a relatively low weighted average delay and satisfactory intersection level of service.
37	5.4.1 BL9: Spit West Reserve	<p>The key risk with this site is construction worker parking in the highly demanded public parking within the reserve. Although the EIS states that construction worker parking will be at BL10, with shuttle buses back to BL9, it is highly probable that workers will simply park in the 10P parking area adjacent to the site unless this is strictly managed.</p> <p>There are no local road impacts associated with this site.</p> <p>The RtS should identify how the 10P parking area adjacent to this site will be managed to ensure that construction workers do not park in this area.</p>	<p>As outlined in response #27 above, TfNSW has carried out a parking study to better understand current parking demand/ availability in the area. The parking study has found that during the week, there is currently a very low level of occupancy both in the local streets surrounding Spit West Reserve (39%) and the Spit West Car Park (21%). For further details, refer to the parking study, which will be included in the submissions report. Site specific mitigation strategies will be determined once the contractor is engaged. Also refer to response #23 above.</p> <p>TfNSW will minimise parking in local streets in accordance with revised environmental management measure CTT11:</p> <p>Impacts resulting from on- and off-street parking changes during construction will be minimised where reasonable and feasible. Depending on the location, options to manage construction staff and worker parking and manage impacts to stakeholders may include;</p> <ul style="list-style-type: none"> • proactively encouraging usage of public transport for workers through site induction information sessions • provision of shuttle buses from public transport hubs where appropriate • staged removal and replacement of parking • provision of alternative parking arrangements such as off-site contractor managed parking lots • managed staff parking arrangements • working with relevant council(s) to introduce appropriate parking restrictions adjacent to construction sites and support sites or appropriate residential parking schemes. <p>TfNSW will engage with Mosman Council to determine how to best to manage construction worker parking impacts in this area, including potentially leveraging</p>

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			opportunities to utilise underutilised parking capacity to minimise project impacts, such as at Spit West carpark.
38	5.4.2 BL10: Balgowlah Golf Course	<p>The new signals at the BL10 access off the Burnt Bridge Creek Deviation has not been assessed in the EIS and needs to be assessed as part of the RtS. In any case, if the intersection upgrade works proposed at this location are constructed before the major tunnel construction movements are generated, it is expected that this intersection would operate within its capacity.</p> <p><i>The RtS should assess the new signalised intersection of the BL10 access and the Burnt Bridge Creek Deviation.</i></p>	<p>The intersection performance results for the road network under the ‘base’ (without construction vehicles) and ‘construction’ (with construction vehicles and proposed intersection modifications during construction) scenarios are summarised in Table 5-14 of Appendix F (Technical working paper: Traffic and Transport) for the morning and evening peak hours. Table 5-14 has been updated to summarise the modelled intersection performance of the Burnt Bridge Creek Deviation/BL10 construction support site access (refer to relevant component of updated Table 5-14 at Attachment C). This will be included as a clarification in the submissions report. Note that performance is not provided for the ‘2024 base’ scenario as the intersection would only exist in the ‘2024 construction’ scenario.</p> <p>The Burnt Bridge Creek Deviation/BL10 construction support site access intersection is expected to operate at a satisfactory Level of Service (A) during construction in 2024.</p>
39	5.4.2 BL10: Balgowlah Golf Course	<p>Site BL10 is expected to accommodate most of the construction worker parking for BL9, BL10 and BL11. No estimates have been made on parking demand versus possible parking supply at BL10.</p> <p><i>The RtS should calculate peak construction worker parking demand at BL9, BL10 and BL10 [*N.B TfNSW acknowledges this should read as BL11] and determine if it can be accommodated in the areas marked for parking in BL10. If it can’t, specific and pragmatic mitigation measures should be recommended for carriage through to the CTMP.</i></p>	<p>As outlined in response #27 above, TfNSW has carried out a parking study to better understand parking demand/ availability in the area. Findings from the parking study will be included in the submissions report.</p> <p>It is noted that construction site layouts and requirements at this stage are indicative and would be further defined during subsequent design and construction planning phases. The number of car parking spaces and tailored complementary supply and demand management strategies at the construction support sites would be determined during construction planning, when the contractor has been engaged (also refer to response #23 above).</p>
40	5.4.3 BL11: Kitchener Street	The Kitchener Street construction access is proposed for light vehicles only and is expected to generate about 7-8 trips per hour	The Kitchener Street construction support site (BL11) is only 5400 m2 and based on its intended use provides a limited parking for supervision staff. The construction work force at BL11 would park at the Balgowlah Golf Course

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		<p>in the peak periods. Most of this access is expected via left in/out movements off Burnt Bridge Creek Deviation which will have negligible impacts. There is no on-street parking on Kitchener Street and the local street impacts would be negligible.</p> <p>There may be sight-line issues turning out of the site access onto Kitchener Street and these would need to be addressed in the CTMP.</p> <p>The RtS should show an on-site parking area for site BL11 which is sufficient to accommodate workforce demands.</p>	<p>construction support site (BL10) and be transported to the site by shuttle bus (where required).</p> <p>Notwithstanding, as outlined in previous responses, construction site layouts and requirements at this stage are indicative and would be further defined during subsequent design and construction planning phases. The number of car parking spaces and tailored complementary demand management strategies at the construction support sites would be determined during construction planning, when the contractor has been engaged.</p>
41	5.5 Frenchs Forest and Surrounds	See below	N/A
42	5.5.1 BL12: Wakehurst Parkway South	<p>The southern access is off Judith Street via the Judith Street/Wakehurst Parkway intersection. Given the closure of Kirkwood Street north and the diversion of its traffic to the Judith Street/Wakehurst Parkway intersection plus the size of the Judith Street catchment, an assessment of construction period impacts at the intersection and its proximate site access points is warranted.</p> <p>The RtS should analyse the intersection of Judith Street/Wakehurst Parkway and the safety of the short distance from it to the BL12 site access points.</p>	<p>An assessment of the traffic performance of the Wakehurst Parkway / Judith Street intersection including the potential impacts of diverted traffic and construction traffic is provided in Table 5-18 of Appendix F.</p> <p>Access points for construction support sites will be designed to operate safely and efficiently, in accordance with relevant Austroads guidelines, Transport for NSW standards, and Australian Standards. Review and approval of detailed traffic management plans would be undertaken by relevant stakeholders and subject matter experts.</p>
43	5.5.2 BL13: Wakehurst Parkway East	None	N/A

Row #	Issue location	Issue raised by DPIE independent reviewer	Transport for NSW response
44	5.5.3 BL14: Wakehurst Parkway North	None	N/A
45	5.6 Public Transport and Active Transport Impacts	<p>A key active transport impact is the closure of the shared use path south of the Gore Hill Freeway between Station Street and Reserve Road. The alternative route proposed in the EIS is far more indirect/contorted and would require significant signposting and consultation on it as the alternative.</p> <p>The RtS should recommend that an objective for the construction staging strategy is to reinstate the Station Street to Reserve Road shared path south of the Gore Hill Freeway as soon as possible.</p>	<p>It is noted that Figure 8-12 of the EIS and Figure 5-32 of Appendix F incorrectly shows the proposed detour (due to the closure of the footpath adjacent to Gore Hill Freeway between Reserve Road and Station Street) following the following route: Station Street, Francis Road, Lambs Road, Cleg Street, Waltham Street, Dickson Avenue and Reserve Road. However, the alternative route would be as per the text provided on page 202 of Appendix F (ie the alternative route would involve diverting users via Station Street, Francis Road, Lambs Road, Cleg Street and Reserve Road (ie would not go down Waltham St and Dickson Avenue). This would make the route less indirect and more straight forward for users. The project is continuing to engage with key stakeholders within TfNSW and external interested parties such as bike groups with respect to this proposed detour. This will be included as a clarification in the submissions report.</p> <p>TfNSW is continuing to develop the design and construction planning in the Gore Hill Freeway area, including detailed staging of works.</p> <p>The contractor would finalise and complete plans for staging these works during the detailed design phase. At this time appropriate sequencing of the works in the Gore Hill Freeway area would be confirmed, including cut and cover works and water quality basin upgrade works in and around Punch Street which impact the existing shared path along the westbound Gore Hill Freeway. The intention is to plan these works so as to minimise and reduce the distance currently shown for the detour in Figure 5-32 of Appendix F.</p>
46	5.7 Maritime Impacts	<p>A key impact is on the Mosman Rowing Club given the number of members it has and the safety issues with constrictions in the bay, particularly with early morning rowers (before sunrise). A specific management plan should be considered to manage the impacts on rowers in this location.</p>	<p>The EIS acknowledges that project marine works are likely to interfere and require alteration of training routes for Mosman Rowing Club. As shown in Figure 6-37 of the EIS, Mosman Rowing club access will be maintained to the south of the Spit West Reserve construction support site (BL9), beyond the Marine traffic control zone. Notwithstanding, Mosman Rowing Club would be consulted during construction planning of the project to address any additional concerns and develop additional mitigation measures as may be deemed</p>

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		<p>The RtS should specify the management measures that will be put in place to ensure the safety of Mosman Rowing Club rowers near BL9.</p>	<p>necessary. This is outlined in environmental management measure CTT16 as follows (to be revised as shown in bold):</p> <ul style="list-style-type: none"> CTT16: <i>Consultation will be carried out with surrounding water based users of Middle Harbour including Mosman Rowing Club and Northbridge Sailing Club to develop reasonable and feasible management measures to minimise construction impacts.</i> <p>It is noted that TfNSW is scheduled to meet with Mosman Rowers Club mid-April 2021 to discuss their submission to the environmental impact statement. As noted above, consultation will continue during construction planning.</p>
47	5.8 Cumulative Construction Impacts on Traffic	<p>Traffic modelling for the Warringah Freeway and surrounds area has identified that peak travel times would reduce by 4% on average due to the impacts of additional construction vehicles. This is not significant in aggregate. There are specific localised impacts at the Willoughby Road/Gore Hill Freeway interchange, at Brook/Merrenburn and at Brook/Warringah Freeway; all due to the scale of increased movements at the Cammeray Golf Course Construction Site. No mitigation measures are nominated for these construction impacts and they should be considering the extended life of this construction site. This could include targeted upgrades to these locations such as additional side street approach capacity to enable additional through phase green time.</p>	<p>The EIS acknowledges that the most significant impact of cumulative construction activities in the Warringah Freeway and surrounds study area is on Warringah Freeway in the southbound direction. This is the route via which the majority of construction traffic is expected to leave the area (to minimise impacts on local roads). As a result there is the potential for increased congestion on this route during peak periods, which could flow back onto connecting routes such as Willoughby Road and Brook Street – as demonstrated by the microsimulation network modelling undertaken.</p> <p>The EIS acknowledges this particular impact and recommends the following targeted measure (Section 8.4.6 of Chapter 8 (Construction traffic and transport) of the EIS):</p> <p>“The most substantial potential impact is on southbound travel times via the Warringah Freeway. For Warringah Freeway routes, increased traffic demand including potential additional traffic movements across the southbound bus lane south of Falcon Street, could increase congestion, which could impact bus travel times [and general traffic travel times]. This issue could be mitigated by considered and tailored construction traffic planning based on actual traffic conditions and confirmed cumulative activities at the time of construction.”</p> <p>In summary, once there is greater certainty of actual concurrent construction activities and intensities in the area, tailored construction traffic planning measures including the timing and routing of traffic on common access routes will be developed to mitigate this potential impact. This would be addressed in future traffic management plans.</p>

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48	5.8 Cumulative Construction Impacts on Traffic	<p>The greatest impacts on bus travel times are southbound in the AM peak on the Warringah Freeway.</p> <p>These are considered to be significant enough at eight minutes per bus on a highly patronised corridor to be investigated now, rather than deferred to the construction phase. For example, consideration could be given to how the WHT-WFU bus lane could possibly be extended to the north during early phases of the construction program to mitigate this impact during the majority of the construction period.</p> <p>The RtS should further consider measures to mitigate southbound AM peak impacts to bus travel times when entering the Warringah Freeway, including the possible extension of the WHT-WFU bus lane further to the north.</p>	<p>See row #47 response above.</p> <p>It is also noted / agreed that the potential to deliver the upgraded Warringah Freeway bus lane (as part of the Warringah Freeway Upgrade project) as early as possible in the construction program could be investigated as a mitigation for this potential impact. It is noted that the Warringah Freeway Upgrade is part of the Western Harbour Tunnel and Warringah Freeway Upgrade project, and therefore would be managed under that project.</p>
49	5.9 Cumulative Parking Impacts	<p>Overall, the EIS does not detail expected on-site construction worker parking demands by site versus available parking areas, nor does it contemplate truck access, manoeuvring and storage capacity. Rather, it defers these considerations to later CTMPs.</p> <p>While it is understood that site configurations will change based on specific construction contractor methodologies, the EIS should at least demonstrate configurations that could operate without excessive impact as a 'Reference Case' or minimum requirement of what levels of impact management needs to be achieved.</p> <p>The RtS should define, for each site, peak construction worker parking demand, parking</p>	<p>The site layouts/ configurations and associated traffic and transport assessment in the environmental impact statement is based on a plausible construction methodology appropriate for this project stage, which would be refined based on detailed construction planning. As such, construction site layouts and requirements at this stage are indicative and would be further defined during subsequent design and construction planning phases. As noted by the DPIE peer reviewer, configurations will change based on specific contractor methodologies.</p> <p>The design of construction support sites, including accesses, and the development of all management measures will be in accordance with relevant standards and guidelines and be subject to rigorous detailed review and approval processes. This includes the following environmental management measures:</p> <ul style="list-style-type: none"> • CTT8 Construction road traffic will be managed to minimise impacts of movements during peak periods where feasible and reasonable.

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		<p>supply, truck queuing demand and storage areas, and truck manoeuvring areas in order to demonstrate a 'Reference Case' that does not generate external impacts.</p>	<ul style="list-style-type: none"> • CTT9: Vehicle movements to and from construction sites will be managed to ensure pedestrian, cyclist and road user safety. Depending on the location, this may require manual supervision, physical barriers, temporary traffic signals and modifications to existing signals or, on occasion, police presence. • CTT10: Directional signage, barriers and/or linemarking will be used as required to direct and guide motorists, cyclists and pedestrians past construction sites and on the surrounding network. This will be supplemented by Variable Message Signs to advise all road users of potential delays, traffic diversions, speed restrictions or alternative routes. • CTT11 (revised as outlined in row #23 above): Impacts resulting from on- and off-street parking changes during construction will be minimised where reasonable and feasible. Depending on the location, options to manage construction staff and worker parking and manage impacts to stakeholders may include; <ul style="list-style-type: none"> ○ proactively encouraging usage of public transport for workers though site induction information sessions ○ provision of shuttle buses from public transport hubs where appropriate ○ staged removal and replacement of parking ○ provision of alternative parking arrangements such as off-site contractor managed parking lots ○ managed staff parking arrangements ○ working with relevant council(s) to introduce appropriate parking restrictions adjacent to construction sites and support sites or appropriate residential parking schemes. • CTT13: Truck marshalling areas will be identified and used where feasible and reasonable, to minimise potential queuing and traffic and access disruptions in the vicinity of construction support sites.

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			<p>As outlined in response #30 above, TfNSW has carried out a parking study to better understand current parking demand/ availability in the area, and consequently what options are required/ available to mitigate the loss of and worker use of parking. Findings from the parking study will be included in the submissions report.</p> <p>The number of car parking spaces and tailored complementary supply and demand management strategies at the construction support sites would be determined during construction planning, when the contractor has been engaged</p>
50	5.10 Environmental Management Measures	<p>The measures in the EIS for construction period traffic and transport impacts mitigation are generic.</p> <p>They provide no principles or guidance on addressing site/location-specific issues identified in the EIS. They should preferably consider a suite of minimum requirements, or guiding principles for the construction issue areas identified in the EIS, and as detailed in the preceding sections of this report.</p>	<p>The assessments carried out for the environmental impact statement are based on a plausible construction methodology appropriate for this project stage, which would be refined based on detailed construction planning. As such, specific details would be refined during subsequent design and construction planning phases.</p> <p>The construction environmental management framework referenced in Chapter 28 of the EIS, which will also be described in Part D of the submissions report, includes the preparation of a construction traffic management plan as a sub-plan to the overarching construction environmental management plan for the project. The construction traffic management plan would address issues and include construction traffic and access management implementation requirements as outlined in row #24 above. The construction traffic management plan would be prepared in accordance with relevant TfNSW guidelines and requirements, and will take into account relevant environmental management measures as detailed above. This is a standard procedure for the construction of major infrastructure projects. Further explanation in the environmental impact statement / Submission report at this stage of the project lifecycle is not warranted nor possible until more detailed construction planning has been undertaken.</p>
51	6. Operational period impacts		
52	6.1 Broader Transport Network	The project case includes the WFU project but does not include the WHT project. The EIS identifies when using the SMPM, there is only a marginal benefit of the project to	The Beaches Link and Gore Hill Freeway Connection project is part of the broader Western Harbour Tunnel and Beaches Link program of works. Notwithstanding, the Beaches Link would still provide significant benefit to the North Shore and Northern Beaches in the absence of the Western Harbour

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		<p>Sydney region VHT. This is most likely because the benefits of the Beaches Link are magnified only if it is connected to the WHT project via the WFU upgrade, as reflected in the cumulative scenario results.</p> <p>In practical terms, just building Beaches Link and WFU, without the WHT project will simply create a severe southbound bottleneck at the Harbour crossing whilst also undermining the northbound benefits of both projects. It is logical that the Beaches Link project should not be separated from the WFU, WHT or the M4-M5 link projects and should not proceed without these other projects. The EIS does not highlight this.</p> <p>The RtS should clearly state that the Beaches Link project should not proceed before the WFU-WHT and M4-M5 Link projects.</p>	<p>Tunnel project. This is outlined in Section 3.6 of the EIS. As noted in Section 5.1 of the EIS the Warringah Freeway Upgrade would need to be constructed and operational to facilitate Beaches Link connections to the Warringah Freeway at Cammeray.</p> <p>In terms of traffic and transport modelling presented in Appendix F, the 'Do something' scenario has included the Warringah Freeway Upgrade component, on the basis that the project requires this to safely and efficiently integrate with the Warringah Freeway. The Western Harbour Tunnel component was included in the 'Do something cumulative' scenario. As such, the benefits of the project in the absence of the Western Harbour Tunnel are clearly demonstrated by the operational traffic and transport assessment (Section 7 of Appendix F, 'Do something' scenario). The additional benefits of Western Harbour Tunnel are demonstrated in Section 8 of Appendix F, 'Do something cumulative' scenario.</p> <p>As outlined in Table 3-1, both the 'Do minimum' and 'Do something' scenarios assume the completion of the WestConnex projects, which includes the M4-M5 project (both mainline tunnels and Rozelle interchange). It is noted that the M4-M5 project has been approved and is under construction, and therefore has already commenced and will be complete ahead of any potential Beaches Link works. Further, the Western Harbour Tunnel and Warringah Freeway Upgrade project has been approved and is subject to current procurement activities, and as such the Beaches Link and Gore Hill Freeway Connection project is unlikely to be proceeding without or in advance of these projects.</p> <p>It has been assumed that the Western Harbour Tunnel and Warringah Freeway Upgrade project would commence construction before the Beaches Link and Gore Hill Freeway Connection project, as stated in Section 5.1.1 of Appendix F. Notwithstanding this, should timeframes for the Beaches Link component of the project be advanced, some surface works would be carried out to safeguard delivery of either surface connections or tunnel-to-tunnel connections between the two projects. Should the Beaches Link and Gore Hill Freeway Connection project be constructed before the Western Harbour Tunnel, the project would construct stub tunnels at Cammeray to connect to the Western Harbour Tunnel component in the future.</p>

Row #	Issue location	Issue raised by DPIE independent reviewer	Transport for NSW response
53	6.2 Beaches Link and Gore Hill Freeway Connection	<p>The EIS claims that the Gore Hill Freeway diverge is at LoS E. It is unclear exactly which diverge this relates to because there are multiple diverge points in the Gore Hill Freeway Connection. Outputs from the VISSIM modelling could be provided to better describe this effect in the RtS. Also, if the performance further to the west is similarly at a LoS E or F in 2027, then the issues associated with the LoS E performance is not as important. If the issue relates to the diverge from the Gore Hill Freeway directly to Beaches Link eastbound, then the only reason that this would be at LoS E is the short preceding weave, which could be addressed in the design (unless there is a specific need to restrain tunnel entries at this location for flow management purposes).</p> <p>The RtS should use VISSIM model outputs to show the issues in the Gore Hill Freeway diverge area and their impacts, including for areas further to the west.</p>	<p>Table 7-9 of Appendix F indicates that the southbound diverge from the Beaches Link mainline to the Gore Hill Freeway connection ramps would operate at LoS E in the morning peak, based on traffic density. A more holistic description of tunnel performance demonstrated by the microsimulation modelling undertaken is provided in the accompanying text, provided above Table 7-9 of Appendix F:</p> <p>“It is estimated that the Gore Hill Freeway Connection southbound carriageway would operate around 10 kilometres per hour lower than the 80 kilometres per hour posted speed limit if forecast peak demands are realised.”</p> <p>The microsimulation modelling undertaken and presented in the EIS demonstrates that northbound / eastbound tunnel operation LoS would be D or better for all locations, with traffic expected to travel at posted speeds during peak periods.</p> <p>An analysis of the effects of tunnel operations to the west to the tunnel is presented in Section 7.5 (Gore Hill Freeway and Artarmon) of Appendix F, which demonstrates that “localised works associated with the Beaches Link and Gore Hill Freeway Connection would facilitate additional traffic travelling through the corridor at a generally similar or reduced level of delay.”</p>
54	6.3 Interface Area: Warringah Freeway and Surrounds	<p>It is expected that the AM peak traffic performance in this area worsens with the project both at a network level and consequentially at an intersection level. The key issue is that unless the greater arrival flow rate of traffic southbound towards the Harbour can be released into additional capacity (i.e. the WHT project), then there is little benefit of the Beaches Link project, except possibly for additional queue storage. That is, the Harbour crossing pinch point will be worsened without WHT.</p>	<p>Refer to row #52 above regarding the benefits of Beaches Link in the absence of Western Harbour Tunnel.</p> <p>In particular, for the Warringah Freeway and surrounds area it is agreed that localised AM peak traffic performance is expected to reduce in the ‘Do something’ scenario. However, the reverse is true for the PM peak, where Beaches Link would provide an alternative route for northbound traffic travelling towards the Northern Beaches, reducing demand and congestion at locations such as the Falcon Street interchange and alleviating the broader network congestion issues across the Lower North Shore that existing pinch points such as this create.</p>

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		<p>In the northbound/evening peak, the traffic arriving into Beaches Link is constrained by the capacity of the Harbour crossing and the benefits of the project are therefore understated compared to if the WHT was included in the project case. This assertion is reinforced by the 2037 Cumulative Scenario results which see the total number of stops almost halve in 2037 and average speeds increasing by 20% in the AM peak when WHT is included.</p> <p>In consideration of the above, it is difficult to contemplate a scenario where the Beaches Link exists without the WHT. This means that the published 'Do something' intersection results are academic.</p>	<p>The presentation of traffic performance metrics for the 'Do something' project case provide an understanding of the relative performance / benefits / impacts of the Beaches Link and the Warringah Freeway Upgrade compared to the 'Do minimum' and 'Do something cumulative' scenarios.</p> <p>Notwithstanding this, it is agreed and demonstrated by the EIS 'Do something cumulative' analysis that the introduction of Western Harbour Tunnel would amplify and complement the benefits of the Beaches Link and Gore Hill Freeway Connection project.</p>
55	6.3 Interface Area: Warringah Freeway and Surrounds	<p>The intersection modelling results for the morning peak infer that the intersections on the alternative routes to the Warringah Freeway, such as Miller Street and the Pacific Highway are impacted, as are feeder roads such as Amherst Street.</p> <p>The RtS should acknowledge the scale of impact at the intersections of Amherst Street with Miller Street and with West Street and recommend mitigation works to be included as part of the project.</p>	<p>Transport for NSW response provided 6 April 2021</p> <p>In investigating the issue raised, TfNSW has discovered reporting errors in some of the localised intersection performance results reported for the Warringah Freeway and surrounds area. It is noted that although there are some errors in the localised intersection performance results, at this stage it appears that the primary network and travel time metrics as reported in the EIS are correct, and therefore the key outcomes of the traffic and transport assessment are unlikely to be affected. TfNSW is currently investigating the issue, including confirmation as to materiality on the assessment provided in the EIS; any required updates or clarifications will be provided in the submissions report.</p> <p>TfNSW will provide an updated response to this issue (including details on any updated values) as soon as possible ahead of the submissions report.</p> <p>Supplementary Transport for NSW response: 13 April 2021</p> <p>TfNSW can confirm that the reporting errors of localised intersection performance results are generally isolated and/or relatively immaterial. The 2037 'Do something' (AM) and 2037 'Do something cumulative' (AM) scenario results</p>

Row #	Issue location	Issue raised by DPIE independent reviewer	Transport for NSW response
			<p>presented in the EIS are wholly incorrect - they are the results of an earlier model iteration – however, the differences in metrics / outcomes due to this error are immaterial to the core findings of the traffic and transport assessment.</p> <p>Regarding the specific intersections in question on Amherst Street, it is noted that the corrected results show an improvement to performance compared to the results presented in the EIS. However, the corrected microsimulation model results do still indicate a potential localised performance impact due to the project in the PM peak in this area, particularly at the intersection of Amherst Street with West Street.</p> <p>Strategic transport forecasting presented in the EIS indicates that existing roads north/east of the Warringah Freeway would be expected to experience a reduction in demand as a result of the Beaches Link project. Consequently, the increasing localised delays shown in the EIS in this area in the ‘Do something’ scenario are believed to be partly due to technical limitations of the traffic forecasting and modelling process rather than purely Beaches Link project impacts. It is also noted that in many cases intersections in the network are expected to experience improved performance, reinforcing the need to consider traffic performance holistically rather than in an isolated fashion.</p> <p>It is also noted that the project is expected to release existing network pinch points, and can therefore increase throughput through particular parts of the network. As an example, it is noted that congestion on the Brook Street southbound on-ramp can at times impede traffic throughput onto Amherst Street eastbound. The 2037 ‘Do minimum’ (AM) scenario experiences higher levels of congestion than the 2037 ‘Do something’ (AM) scenario on the Brook Street on-ramp resulting in more traffic being held upstream and unable to continue efficiently to the Amherst Street intersections, with less traffic demand/throughput on Amherst Street but travelling at a higher performance level.</p> <p>The submissions report will discuss the reasons for the demonstrated reduction in modelled isolated intersection LoS at this location, and acknowledge the potential risks / impacts / mitigations at this location. Proposed management measures include EMM OT1 and OT2 which would ensure that any further mitigations would be developed in collaboration with relevant stakeholders</p>

Row #	Issue location	Issue raised by DPIE independent reviewer	Transport for NSW response
			<p>including local councils. If the potential performance impacts at the intersection of Amherst Street and West Street were realised, an option could be an upgrade of this intersection from roundabout control to traffic signals to improve safety and efficiency to manage changes to traffic flow in this area.</p> <p>A further current and ongoing mitigation to resolve potential isolated intersection performance issues is traffic signal coordination and optimisation. The provision of traffic signals across the network enables TfNSW to control demand and manage network performance through operational traffic signal coordination and optimisation, based on real-time traffic conditions; this will be included as a further recommended mitigation in the submissions report. It is noted that the traffic modelling presented in the EIS has scope for further traffic signal optimisation which was not undertaken due to time constraints and the value for money that it presents.</p>
56	6.3 Interface Area: Warringah Freeway and Surrounds	In terms of bus travel time impacts, there are substantial impacts northbound in the morning and evening peaks, probably due to excessive congestion in the VISSIM models as traffic manoeuvres on local streets to avoid accessing the heavily congested Warringah Freeway until as far south as possible. This cannot be verified without viewing of the VISSIM models or at least production of screen captures from the models which demonstrate these issues.	<p>The EIS acknowledges that the ‘Do something’ scenario has the potential to increase delays for buses travelling through the North Sydney CBD. It also states the following, which contextualises this outcome:</p> <p>“The proposed road network integration works and resultant traffic performance in the North Sydney area have been developed in the context of the growing North Sydney CBD environment. The works in the area proposed by the project seek to maintain an appropriate level of traffic movement while also preserving capacity and connectivity for other customers whose needs conflict with road traffic – particularly pedestrians. Options to further increase traffic performance at intersections throughout the area have been investigated. However, these alternative options would result in further impacts on other customers. The proposed works are considered to provide an equitable and balanced outcome from the perspective of maintaining a balanced and integrated transport network through North Sydney. Further refinements and changes to network operations within the North Sydney CBD may occur as part of the agreed scope of the North Sydney Integrated Transport Program works.”</p> <p>TfNSW is happy to discuss details of the traffic modelling operations and outcomes with DPIE and its reviewer, including a demonstration of modelled</p>

Row #	Issue location	Issue raised by DPIE independent reviewer	Transport for NSW response
			<p>traffic operations on local streets surrounding the Warringah Freeway, if desired. The modelling process for the project has been developed and implemented by Transport for NSW and broader industry subject matter experts, and has been independently reviewed by internal subject matter experts and external independent peer reviewers, and is considered appropriate.</p>
57	6.3 Interface Area: Warringah Freeway and Surrounds	<p>The RtS should confirm that the Do Something results are now superseded by the approval of the WHT-WFU project and the evaluation of impacts should rely on the Cumulative Scenario, or, the Do Something scenario assessment should be re-run and re-written with WHT-WFU and M4-M5 Link as part of that scenario.</p>	<p>TfNSW considers that modelling for the EIS, including modelling results provided in Appendix F, are still of relevance, and appropriate discussion has been provided regarding the interface between this project and the Western Harbour Tunnel and Warringah Freeway Upgrade, including modelling assumptions and construction staging assumptions.</p> <p>Refer above to responses in rows #52 and #54 regarding the demonstration of benefits of the Beaches Link and Gore Hill Freeway Connection project. As stated in row #52, Table 3-1 of Appendix F, which outlines the operational modelling scenarios considered, states that the WestConnex projects (which includes the M4-M5 Link) have been assumed to be completed in the 'Do minimum' and 'Do something' scenarios already.</p> <p>With respect to the Western Harbour Tunnel component of the project, although the project has been approved, the main works are not yet under contract and construction has not yet commenced – as such, it is considered that it would be premature to include this in the 'Do something' scenario due to some residual delivery risk.</p>
58	6.4 Interface Area: Gore Hill Freeway and Artarmon	<p>The upgrades in this area allow more traffic demand to be realised within the area while average speeds also increase, suggesting network benefits associated with the project. Major route travel times do not change substantially, and it is difficult to reveal from the EIS documentation what happens westbound at the western end of the modelled area where the 'released' demand flows into the existing two lanes of the Lane Cove tunnel at a higher flow rate.</p>	<p>The strategic traffic modelling (SMPM) undertaken complements and informs the operational traffic modelling undertaken.</p> <p>SMPM indicates that the Beaches Link and Gore Hill Freeway Connection would not materially increase peak hour westbound traffic demands in the Lane Cove Tunnel. 2037 forecast demands (including the effects of the project) in the Lane Cove Tunnel westbound indicate between 1300-1550 vehicles/lane/hour at the two-lane main tunnel entrance, and between 1100-1300 vehicles/lane/hour in the three-lane mainline tunnel.</p> <p>These demands are expected to be within the efficient operating capacity of the Lane Cove Tunnel. Due to this – and the relatively minor effects of Beaches Link</p>

Row #	Issue location	Issue raised by DPIE independent reviewer	Transport for NSW response
			and Gore Hill Freeway Connection at this location – further detailed operational traffic analyses were not considered to be required.
59	6.4 Interface Area: Gore Hill Freeway and Artarmon	<p>When WHT is considered in the cumulative scenario, the additional attractiveness of the corridor significantly increases congestion in the PM peak with extra traffic ‘flooding’ this end of the project area and its connecting streets. For example, the total number of stops increases by 30%, average speeds drop, and the number of unreleased vehicles increases. Travel times on Longueville Road to Gore Hill Freeway also increase significantly and a number of intersections get pushed to LoS F. The PM peak impacts on the local road system under the cumulative scenario are unresolved in this area and should be considered further in the RtS to determine what mitigation works are possible.</p> <p>The RtS should specify exactly what measures will be put in place to mitigate the major congestion increases at local roads at the western end of the project under the Cumulative Scenario.</p>	<p>The EIS generally demonstrates that local traffic conditions around the northern end of Lane Cove and Artarmon are expected to improve as a result of Beaches Link. Section 8 of Appendix F provides an assessment of cumulative impacts, noting that Western Harbour Tunnel has the potential to increase demand and consequently create relatively small localised impacts to performance in this area. It is also noted that the ‘Do something cumulative’ scenario generally demonstrates maintained or improved localised network performance when compared against the ‘Do minimum scenario’ (i.e. the impacts quoted by the peer reviewer are comparing the cumulative scenario have been compared against the ‘Do something’ Beaches Link scenario, rather than the ‘Do minimum’ baseline / benchmark conditions).</p> <p>Nevertheless, the significant broader network benefits of Western Harbour Tunnel (and Beaches Link) are considered to substantially offset relatively minor and potential localised impacts.</p> <p>In addition, integration of these works are cognisant of existing constraints and NSW Government’s movement and place philosophy; maintaining an appropriate level of road traffic movement whilst also preserving capacity and connectivity for other customers whose needs conflict with traffic.</p> <p>Notwithstanding these challenges, EMM OT2 reflects TfNSW’s commitment to investigate options to mitigate potential localised network issues. Where required, TfNSW will investigate local area traffic management measures to minimise the impact of the project on the surrounding local road network. Such measures should be determined in consultation with relevant councils and implemented where feasible and reasonable.</p>
60	6.4 Interface Area: Gore Hill Freeway and Artarmon	The changes to Dickson Avenue west of Reserve Road are unclear but it seems that the eastern end of Dickson Avenue at Reserve Road is to be converted to one-way westbound (which should be confirmed). Presumably, this has been done to remove	Refer to response to row #11 – changes to Dickson Avenue will not include reducing Dickson Avenue to single lane/ one way traffic or any configuration changes for Curry Land and Carlotta Street. Figure 5-2 of the EIS has been updated to provide additional clarity with respect to this configuration (refer to Attachment B) and will be included as a clarification in the submissions report.

Row #	Issue location	Issue raised by DPIE independent reviewer	Transport for NSW response
		<p>one signal phase at this intersection given that it will be operating at capacity. The implications of this are more right turns out of Carlotta Street, which is not expected to be a significant issue, and the reversal of Curry Lane to one way eastbound.</p> <p>The RtS should confirm if Dickson Avenue is to be converted to one-way westbound, and if so, to present the assessment of the traffic diversion impacts of this change.</p>	
61	6.4 Interface Area: Gore Hill Freeway and Artarmon	<p>Parking loss impacts are focussed on Lambs Road and Punch Street which appears to be overflow parking from the adjacent industrial businesses that traditionally have insufficient on-site parking and rely on street parking. These parking areas are practically 100% occupied. The EIS simply states that this parking can be undertaken elsewhere however there is no available parking in proximity to the removed parking.</p> <p>The RtS should identify surplus land to its requirements from the project to provide the parking lost or mitigate the lost parking some other way.</p>	<p>TfNSW has carried out a parking study that has analysed current parking demand/ availability in the area. Findings from the parking study show that while Lambs Road and Punch Street parking is of high demand, there are other streets nearby with moderate or high capacity which could help to mitigate the lost parking on Lambs Road and Punch Street. Further, it is noted that twelve commercial properties are being acquired for the project in this locale. Whilst some of these properties have onsite parking, the acquisition of the properties would reduce demand in the area from former employees, customers, students and visitors that were parking on the street. As such, this is anticipated to decrease parking demand in the area.</p> <p>The parking study results will be included in the submissions report.</p>
62	6.5 Interface Area: Balgowlah and Surrounds	<p>Public transport and active transport are not impacted significantly. Some of the bus travel time improvements under the cumulative scenario compared to the Do Something scenario are difficult to rationalise given no additional bus priority measures are being introduced on the travel time routes assessed.</p> <p>The RtS should explain how the significant additional bus travel time benefits that are</p>	<p>The differences between modelled travel times for buses in the 'Do something' and 'Do something cumulative' scenarios are generally not considered material; the majority of variations are within approximately one minute. It is also noted that in some cases bus travel times worsen, while in others they improve when comparing the 'Do something' and 'Do something cumulative' scenarios.</p> <p>The reason for these variations is the sensitivity of network performance between the Sydney Road / Frenchs Forest Road roundabout and Manly Road / Spit Road, which operates at capacity during peak periods. The performance of</p>

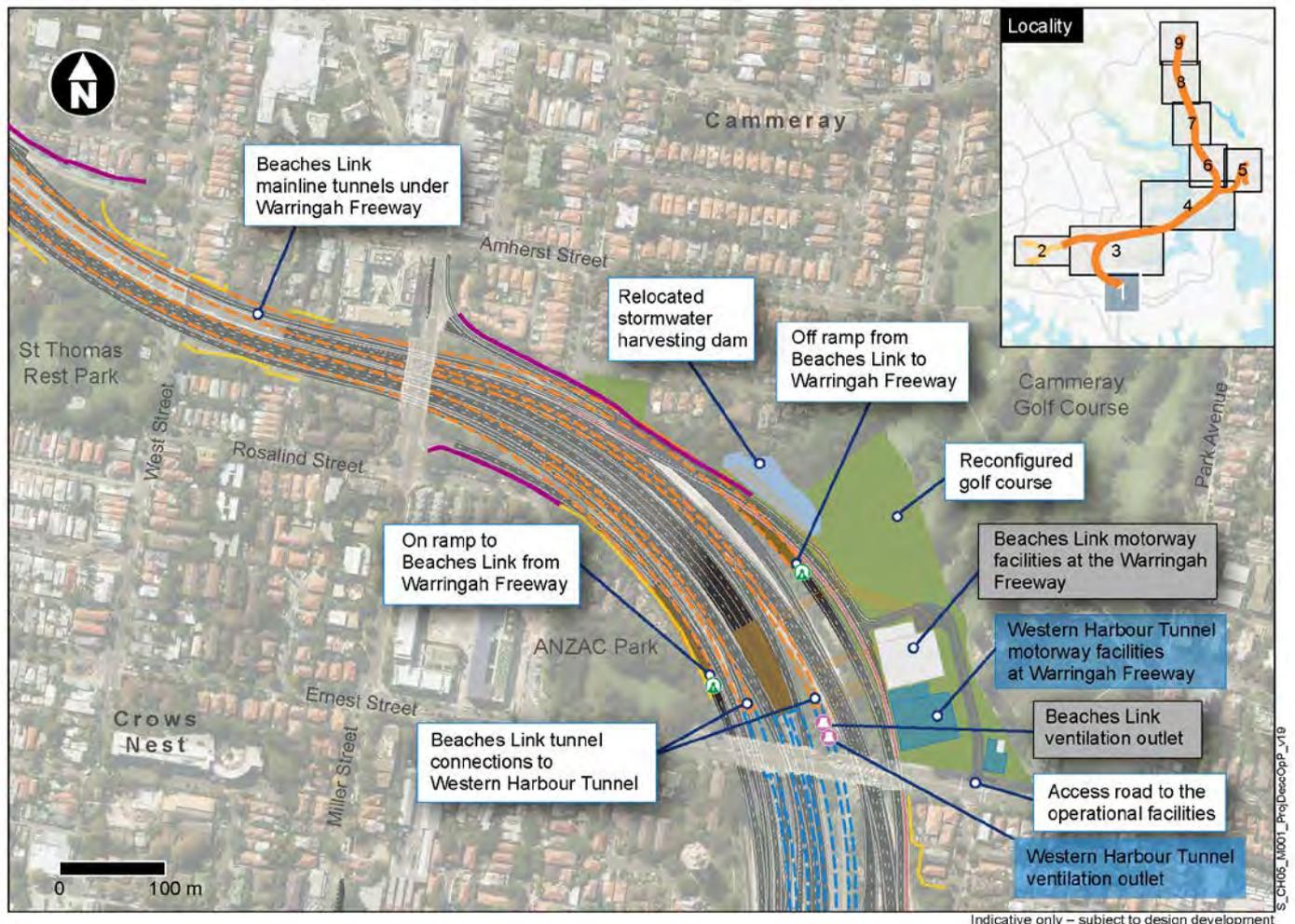
Row #	Issue location	Issue raised by DPIE independent reviewer	Transport for NSW response
		<p>claimed are realised on the routes assessed under the Cumulative Scenario compared to the Do Something Scenario.</p>	<p>the road network in this area is highly sensitive to changes in both traffic volumes and patterns.</p> <p>Where differences between bus travel times exceed one minute, the traffic analysis indicates that the 'Do something cumulative' scenarios would improve bus travel times when compared to the 'Do something' scenario. In the 'Do something cumulative' scenario additional traffic is expected to favour the use of Beaches Link over the Military Road-Spit Road corridor. This would reduce demand travelling to and from Spit Road, and the consequent level of network congestion created by this traffic stream.</p> <p>TfNSW is happy to discuss the specific details of how traffic volumes, patterns, and consequent traffic performance differs between the 'Do something' and 'Do something cumulative' scenarios. TfNSW is also happy to add further technical information in the submissions report to explain these results, if DPIE advises that this is considered necessary.</p>
63	6.6 Interface Area: Frenchs Forest and Surrounds	<p>Morning peak southbound travel times on Wakehurst Parkway will increase substantially as traffic draws into the corridor to access the tunnel. A more substantial upgrade to the Wakehurst Parkway / Warringah Freeway intersection should be considered to separate out movements to/from the south from other movements in order to minimise these impacts to 'non-project' traffic. This could include longer double right turn lanes from south to east and a longer free left turn lane (or a double left turn) from east to south. Under the cumulative scenario, the WHT attracts even more traffic demand to Wakehurst Parkway exacerbating these issues to the point where travel speeds are more than 20% slower compared to Do Minimum.</p>	<p>The EIS acknowledges that increased localised delays could be experienced in this area due to changes in travel patterns (rather than increased demand). It also identifies that the substantial broader network benefits of Beaches Link would offset these localised delays for the majority of road users.</p> <p>However, the EIS also acknowledges the following (Section 7.7.7 of Appendix F):</p> <p>"Transport for NSW is continuing to investigate options to mitigate potential localised network performance issues in the area, and further leverage the overall benefits and opportunities of the project. This work is cognisant of and reliant on the Northern Beaches Hospital Precinct Structure Plan (Northern Beaches Council, 2017) implementation, which highlights that future precinct development is dependent on further delivery of improved transport infrastructure and a continued modal shift from private to public transport.</p> <p>The Northern Beaches Hospital Precinct Structure Plan defines the desired future land uses and consequent multi-modal transport operation and infrastructure requirements to, from, and through the area. It also acknowledges that a suite of regional transport network upgrades including both public</p>

Row #	Issue location	Issue raised by DPIE independent reviewer	Transport for NSW response
			<p>transport and road upgrades would be required to maintain effective transport connections to, from, and through the area in the medium to long-term.”</p> <p>In summary, TfNSW believes that an integrated land use and transport plan is required for the area to improve public transport patronage and reduce the reliance on private vehicle use (which was assumed for the purpose of the Beaches Link and Gore Hill Freeway Connection project EIS), prior to investigating and investing in further road capacity upgrades beyond the Northern Beaches Hospital Road Upgrade and Beaches Link.</p> <p>As per environmental management measure OT1, TfNSW will undertake a review of operational network performance 12 months and five years from the opening of the project to confirm the operational impacts of the project on surrounding arterial roads and major intersections. Where required, additional feasible and reasonable mitigation measures will be identified in consultation with Department of Planning, Industry and Environment and the relevant council to manage any additional traffic performance impacts identified during the review of operational network performance.</p> <p>Furthermore, environmental management measure OT2 reflects TfNSW's commitment to investigate options to mitigate potential localised network issues. Where required, TfNSW will investigate local area traffic management measures to minimise the impact of the project on the surrounding local road network. Such measures should be determined in consultation with relevant councils and implemented where feasible and reasonable.</p>
64	6.6 Interface Area: Frenchs Forest and Surrounds	More broadly in 2037, there are two full lanes-worth of traffic entering the tunnel southbound from Wakehurst Parkway and a further two lanes worth of traffic entering southbound at Balgowlah. It is inevitable, based on the modelling, that a three lane tunnel (southbound) at the Seaforth junction will be at capacity. This has not been contemplated in the EIS. These issues would be exacerbated under the 'cumulative' scenario because there would be even more	<p>Sections 7.3 and 8.3 of Appendix F present the results of microsimulation modelling of tunnel operations under the 'Do something' and 'Do something cumulative' scenarios respectively. This modelling shows the expected performance of the merge during 2037 peak periods is LoS E or better (based on density), with operating speeds expected to be maintained within 10km/h of posted speeds.</p> <p>It is noted that it would be unprecedented to provide screen captures in public-facing assessments of this type; they are not typically provided due to a wide range of factors, including the need for an appreciation of the inputs,</p>

Row #	Issue location	Issue raised by DPIE independent reviewer	Transport for NSW response
		<p>demand using Beaches Link. The VISSIM models may demonstrate these issues and how they could be managed but no evidence of this has been provided in the EIS.</p> <p>The RtS should demonstrate how in the 2037 AM peak, the Seaforth tunnel junction southbound operates without congestion or flow breakdown. The VISSIM model screenshots should be used to demonstrate this.</p>	<p>assumptions, and mechanics which underpin these models, and their consequent limitations.</p>
65	6.6 Interface Area: Frenchs Forest and Surrounds	<p>There are significant congestion issues by 2037 at the northern end of the project which are shown to affect movements unrelated to the project. Further consideration should be given on how to mitigate traffic impacts on these movement markets.</p> <p>The RtS should identify what additional upgrades are required at the Wakehurst Parkway/Warringah Road intersection to ensure that under the Cumulative Scenario in 2037 what additional works are required so that there is no worsening of queues or delays to any movements unrelated to access to/from the project, compared to the 2037 Do Minimum Scenario.</p>	<p>Refer to row #63 regarding the multi-modal integrated land use and transport planning approach endorsed by TfNSW and NSW Government more broadly.</p> <p>As per environmental management measure OT1, TfNSW will undertake a review of operational network performance 12 months and five years from the opening of the project to confirm the operational impacts of the project on surrounding arterial roads and major intersections. Where required, additional feasible and reasonable mitigation measures will be identified in consultation with Department of Planning, Industry and Environment and the relevant council to manage any additional traffic performance impacts identified during the review of operational network performance.</p> <p>Furthermore, environmental management measure OT2 reflects TfNSW's commitment to investigate options to mitigate potential localised network issues. Where required, TfNSW will investigate local area traffic management measures to minimise the impact of the project on the surrounding local road network. Such measures should be determined in consultation with relevant councils and implemented where feasible and reasonable.</p>
66	6.7 Environmental Management Measures	<p>The measures in the EIS to address operational impacts are minimal and generic. They provide no principles or guidance in addressing the localised congestion issues on local government roads and intersections identified in the EIS. There would be benefit in doing so to provide some certainty to the</p>	<p>TfNSW have committed to two key operational traffic and transport management measures within Chapter 9 (Operational traffic and transport) of the environmental impact statement:</p> <ul style="list-style-type: none"> • Environmental management measure OT1 – reflects TfNSW's proposed network performance monitoring and review strategy, which recommends that it is based upon analysis of similar scope

Row #	Issue location	Issue raised by DPIE independent reviewer	Transport for NSW response
		<p>community and stakeholders on what minimum commitments will be put in place.</p> <p>The RtS should present a traffic congestion monitoring program and clear process for local government roads within (say) 2-3km of the project's connection points to the existing network. The monitoring program and process should clearly articulate the mechanisms for identifying and addressing excessive local congestion due to the project which would then be mitigated in consultation with the relevant local government.</p>	<p>and type to that presented in the EIS, and the development of mitigation measures in consultation with DPIE and relevant councils.</p> <ul style="list-style-type: none"> • Environmental management measure OT2 – reflects TfNSW's commitment to investigate options to mitigate potential localised network issues. Where required, TfNSW will investigate local area traffic management measures to minimise the impact of the project on the surrounding local road network. Such measures should be determined in consultation with relevant councils and implemented where feasible and reasonable. <p>Given the scope of the above management measures, a traffic congestion monitoring program is not considered required.</p>

Attachment A – Revised Figure 5-1 of Chapter 5 (Project description) of the EIS



Indicative only – subject to design development

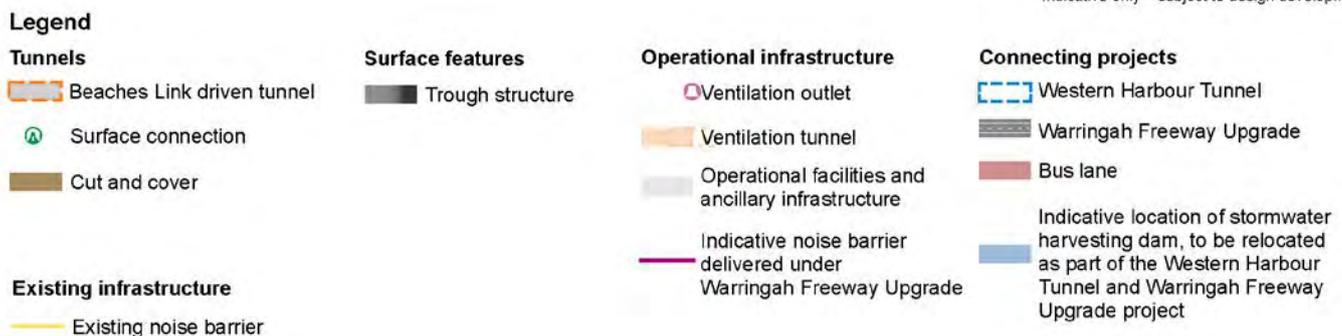


Figure 5-1 Overview of the Beaches Link and Gore Hill Freeway Connection project (map 1)

*Further detail added to depict southbound bus lane on the Warringah Freeway

Attachment B – Revised Figure 5-2 of Chapter 5 (Project description) of the EIS

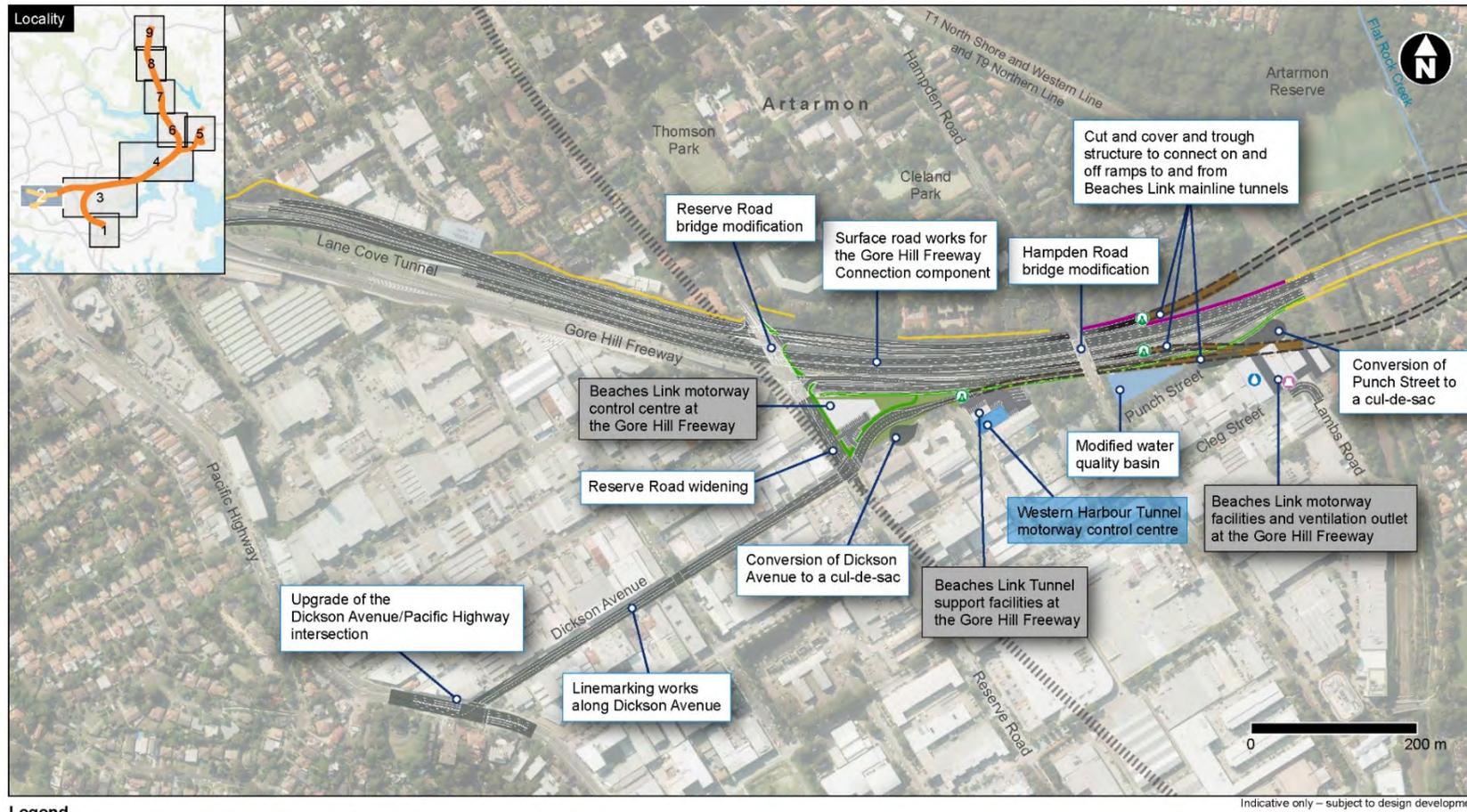


Figure 5-2 Overview of the Beaches Link and Gore Hill Freeway Connection project (map 2)

*Further detail added to depict eastbound and westbound traffic lanes on Dickson Avenue, west of Reserve Road.

Attachment C – Addition to Table 5-14 of Appendix F (Technical working paper: Traffic and Transport) of the EIS

Table 5-14 Modelled base and construction year morning and evening peak hour intersection performance - Balgowlah and surrounds

Intersection/peak period	2024 base					2024 construction						
	Demand flow (vehicles per hour)	Average delay (seconds per vehicle)	LoS	Degree of saturation	Maximum queue length by directional approach (metres)	Demand flow (vehicles per hour)	Average delay (seconds per vehicle)	LoS	Degree of saturation	Maximum queue length by directional approach (metres)		
Burnt Bridge Creek Deviation/BL10 construction support site access												
Morning peak	-	-	-	-	Northbound	-	2,530	7	A	0.54	Northbound	50
					Eastbound	-					Eastbound	-
					Southbound	-					Southbound	140
					Westbound	-					Westbound	25
Evening peak	-	-	-	-	Northbound	-	3,130	7	A	0.62	Northbound	115
					Eastbound	-					Eastbound	-
					Southbound	-					Southbound	80
					Westbound	-					Westbound	25

*Extract of update to Table 5-14 of Appendix F