

Sutherland to Cronulla Active Transport Link Stage 1 Sutherland to Kirrawee Determination Report



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Glossary and abbreviations

Term	Meaning
CEMP	Construction Environmental Management Plan
Determination Report	This document – a report prepared by Transport for NSW to assess and address certain matters to allow for a determination of the Proposal under, and in accordance with, Division 5.1 of the EP&A Act.
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i> (NSW)
EPA	NSW Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
LGA	Local government area
NES	National environmental significance
REF	Review of Environmental Factors
SCATL	Sutherland to Cronulla Active Transport Link
TMP	Traffic Management Plan

Definitions

Term	Meaning
concept design	The concept design is the preliminary design presented in the REF, which would be refined by the Construction Contractor (should the Project proceed) to a design suitable for construction (subject to Transport for NSW acceptance).
detailed design	Detailed design broadly refers to the process that the Construction Contractor undertakes (should the Project proceed) to refine the concept design to a design suitable for construction (subject to Transport for NSW acceptance).
determination	Transport for NSW is a determining authority for projects which require assessment under Division 5.1 of the EP&A Act and must undertake this role in accordance with section 5.5. To make a determination, Transport for NSW will prepare a report to document the consideration of the relevant legislative requirements and the potential environmental impacts of the project, and determine whether these impacts are likely to be significant. Transport for NSW may also impose conditions of approval, as part of the determination.
out of hours works	Defined as works <i>outside</i> standard construction hours (i.e. outside of 7am to 6pm Monday to Friday, 8am to 1pm Saturday and no work on Sundays/public holidays).
the proponent	A person or body proposing to carry out an activity under Part 5, Division 5.1 of the EP&A Act – in this instance, Transport for NSW.
the proposal	The construction and operation of the SCATL.
sensitive receivers	Land uses which are sensitive to potential noise, air and visual impacts, such as residential dwellings, schools and hospitals.

Executive summary

Overview of proposal

The Sutherland to Cronulla Active Transport Link (SCATL) is a pedestrian and bicycle path between Sutherland and Cronulla to help make walking and bike riding a more convenient, safer and enjoyable transport option.

Transport for NSW is the government agency responsible for the delivery of major transport infrastructure projects in NSW and is the proponent for the Sutherland to Cronulla Active Transport Link (SCATL) Stage 1 – Sutherland to Kirrawee (the proposal).

In order to deliver value to the community while we work through the complexities of building infrastructure in and around the rail corridor, SCATL will be delivered in stages:

- **Stage 1 Sutherland to Kirrawee** will connect key destinations such as transport interchanges, schools, residential areas and business precincts outside the rail corridor
- **Future stage Kirrawee to Cronulla** will make greater use of the rail corridor while connecting key destinations like transport interchanges, Sutherland Hospital, beaches, parks and recreation areas, and shopping precincts.

The SCATL would deliver an active transport link that would be a more convenient, safer and enjoyable transport option for local trips to transport interchanges, schools, hospitals, beaches, and residential and retail precincts.

The active transport link would contribute to improved public safety, reduced dependence on cars for local trips, and improved community health and wellbeing and also complement the growing demand from the community for the provision of safe and enjoyable active transport opportunities that are fully accessible.

Eco Logical Australia Pty Ltd, on behalf of Transport for NSW (as the proponent for the proposal) prepared a Review of Environmental Factors (REF) which detailed the scope of works and environmental impacts associated with the proposal.

The key features of the proposal as identified in the REF are generally summarised as follows:

- Construction of an active transport link between Sutherland and Kirrawee Stations, comprising:
 - a 100 metre shared laneway
 - a 1 kilometre cycle path 2.5 metre wide, adjacent to an existing or new 1.5 metre wide pedestrian walkway
 - 1 kilometre of shared cycling and pedestrian path 3.5 metres wide
 - 500 metres of 1.5 metre wide pedestrian footpath
 - 400 metres of bidirectional cycle path
- Improvements to the signalised intersection at Acacia Road and President Avenue
- Improvements to four non-signalised intersections
- Construction of car parking spaces on President Avenue
- Relocation of the 'kiss and ride' parking from Eton Street to Flora Street, adjacent to Sutherland Public School
- Civil work including:
 - removal of existing infrastructure

- removal of trees and tree pruning
- utility work including relocation of existing traffic signals and street lightings
- earthworks excavation and material disposal
- concrete path construction
- planting of new trees and landscaping
- installation of way finding and regulatory signage, line markings and delineation.

Subject to approval, construction is expected to commence in early 2019 and take around 12 months to complete.

Public display of the REF

Project stakeholders and the community were invited to provide feedback on the REF from Monday 15 October 2018 to Sunday 4 November 2018. Before the public display period closed, the project team hosted drop-in sessions in the Sutherland Shire to provide information about the Proposal, distributed newsletters along the route and provided online opportunities for feedback.

A total of 110 written submissions were received by Transport for NSW in response to the public display of the REF.

Modifications to the proposal

As a result of ongoing design development and multiple submissions regarding proposed tree removal, the design has progressed to determine how the potential impact on trees could be reduced by innovative pavement treatments and design amendments. Consequently, the number of trees that are likely to require removal for SCATL Stage 1 has been reduced as outlined below:

- 22 trees would be removed
- 19 trees may need to be removed subject to further site investigations
- 4 trees would be retained
- 23 trees would be retained with root protection.

During construction an arborist will also supervise the works to identify trees that could be preserved.

Should additional design modifications be required as a result of the detailed design process, these modifications would be assessed to determine consistency with the Approved Project, including the potential significance of impacts on the environment. Additional mitigation measures and/or consultation would be undertaken where necessary.

Purpose of this report

Prior to proceeding with the proposal, Transport for NSW must make a determination in accordance with Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The purpose of this Determination Report is to address the following to allow for a determination of the proposal:

- Assess the environmental impacts with respect to the Proposal, which were identified in the environmental impact assessment (and any proposed modifications, as detailed and assessed in this Determination Report)
- Identify mitigation measures to minimise potential environmental impacts
- Determine whether potential environmental impacts are likely to be significant

- Respond to the issues raised in submissions
- Address whether the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) apply to the proposal.

This report includes a summary of the issues raised in the submissions received by Transport for NSW during the public display period. The most common aspects raised in the submissions received were as follows:

- Support for the proposal
- Removal of trees
- Loss of parking in Sutherland shopping centre during construction and longer term
- Construction noise
- Safety and access
- Connectivity with regional cycling routes and other destinations
- Design features e.g. storage facilities and material used to construct the path
- Route location e.g. rail corridor or Flora Street
- Cost
- Future stages timing and alignment.

As part of the determination, the local community will be notified of Transport for NSW's decision to approve the proposal by way of a community newsletter and the Transport for NSW website (www.transport.nsw.gov.au/projects). Transport for NSW will also provide a letter to each of the respondents who made a submission during the display period where contact details have been provided. This correspondence will include an individual submission reference number for each respondent, and contact details to obtain further information regarding the ongoing progress of the Proposal.

Conclusion

Based on the assessments in the REF and a review of the submissions received from the community and stakeholders, it is recommended that the proposal be approved, subject to the mitigation measures included in the REF and the proposed Conditions of Approval. Transport for NSW will continue to liaise with the community and other stakeholders as the proposal progresses through detailed design and into the construction phase.

1 Introduction

1.1 Background

Transport for NSW is the NSW Government's lead public transport agency with responsibility for ensuring that planning and policy are fully integrated across all modes of transport in NSW. Transport for NSW is the proponent for the Sutherland to Cronulla Active Transport Link (SCATL) Stage 1 - Sutherland to Kirrawee (the proposal).

The SCATL would deliver an active transport link that would be a more convenient, safer and enjoyable transport option for local trips to transport interchanges, schools, hospitals, beaches, and residential and retail precincts.

A connected network of bicycle and pedestrian paths is an important part of Sydney's integrated transport system. Sutherland Shire Council maintains an extensive network of pedestrian paths and a limited number of cycleways or shared paths through the Shire. However, the current pedestrian and cycleway network throughout the Shire lacks a connected, off-road east-west route that is suitable for a wide range of users. This proposal offers the opportunity for increased active transport within the Sutherland Shire Local Government Area (LGA). 'Active transport' refers to transport that is human powered, such as walking and cycling.

The objectives of the SCATL project are to:

- Connect people walking and cycling between Sutherland and Cronulla public transport interchanges as well as to surrounding land use activities such as educational facilities, residential areas and business centres
- Provide adequate separation between pedestrians, bicycle riders and vehicle movements
- Provide a safe environment for all people using the active transport link
- Ensure accessibility is achieved for all pedestrians and bicycle riders.

Due to the complexities of planning and constructing in and around the rail corridor, SCATL will be delivered in several stages, with the design shaped by feedback from the community and other stakeholders:

- Stage 1 Sutherland to Kirrawee
- Future stages for Kirrawee to Cronulla.

1.2 Review of Environmental Factors

A Review of Environmental Factors (REF) (Eco Logical Australia Pty Ltd, 2018) was prepared for the proposal in accordance with section 5.5 of the *Environmental Planning and Assessment 1979* (EP&A Act), and clause 228 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation). The REF takes into account to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the proposal. The REF is included in Appendix B.

The SCATL Stage 1 REF was placed on public display from Monday 15 October 2018 to Sunday 4 November 2018, with 110 submissions received. The issues raised in these submissions are summarised and addressed in Chapter 2 of this report.

1.3 Determination Report

Prior to proceeding with the proposal, Transport for NSW must make a determination in accordance with Division 5.1 of the EP&A Act. Refer to Figure 1-1 for an outline of the planning approval process.

The purpose of this Determination Report is to address the following to allow for a determination of the proposal:

- Assess the environmental impacts with respect to the proposal, which were identified in the environmental impact assessment (and any proposed modifications, as detailed and assessed in this Determination Report)
- Identify mitigation measures to minimise potential environmental impacts
- Determine whether potential environmental impacts are likely to be significant
- Respond to the issues raised in submissions
- Address whether the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) apply to the proposal.

This report has been prepared having regard to, among other things, the objectives of Transport for NSW under the *Transport Administration Act 1988*:

- (a) to plan for a transport system that meets the needs and expectations of the public
- (b) to promote economic development and investment
- (c) to provide integration at the decision-making level across all public transport modes
- (d) to promote greater efficiency in the delivery of transport infrastructure projects
- (e) to promote the safe and reliable delivery of public transport and freight services.



Figure 1-1 Planning approval process

1.4 Description of the proposal in the REF

The SCATL Stage 1 design proposes a pedestrian and bicycle facility to connect public transport interchanges, residential and employment areas, and education facilities, increasing the connectivity within the area through active transport. The proposal presents the opportunity to connect into the existing cycling and walking network in the area. Refer to Appendix A for maps of the alignment.

The proposal would commence at McCubbens Lane in a 10 kilometre per hour shared zone. It would then become a split cycle and pedestrian route, with a pedestrian crossing adjacent to an on-road cycle crossing on Eton Street, and then continue southwards on the eastern side of Eton Street as an on-road bidirectional cycle path split from the pedestrian path.

The route would turn eastwards onto President Avenue, continuing as a split cycle / pedestrian path with a concrete cycle path. Priority crossings would be provided across the smaller north-south roadways. A split cycle and pedestrian path would be provided between Merton Street and Belmont Street to minimise impact on existing trees along this section. Stairs would be constructed to connect the bicycle path to the footpath outside of St Patricks College between Merton and Belmont Street.

The route would continue as a shared path at a section between Belmont and Glencoe Street, and at the Glencoe Street intersection but would be separated elsewhere. The signalised intersection across Acacia Road would be modified to accommodate the proposal. The route would cross over the railway line just to the east of Fauna Place and continue alongside Pollard Park. Stage 1 ends at the corner of President Avenue and Oak Rd. Pedestrians and bicycle riders can access Kirrawee Station along the existing footpaths along Oak Rd.

Tree removal would be avoided where possible and new landscaping would be implemented.

The proposed route is shown in Figure 1-2 and would generally comprise the following:

- Construction of an active transport link between Sutherland and Kirrawee Stations, comprising:
 - a 100 metre shared laneway
 - a 1 kilometre cycle path 2.5 metre wide, adjacent to an existing or new 1.5 metre wide pedestrian walkway
 - 1 kilometre of shared cycling and pedestrian path 3.5 metres wide
 - 500 metres of 1.5 metre wide pedestrian footpath
 - 400 metres of bidirectional cycle path
- Improvements to the signalised intersection at Acacia Road and President Avenue
- Improvements to four non-signalised intersections
- Construction of car parking spaces on President Avenue
- Relocation of the 'kiss and ride' parking from Eton Street to Flora Street, adjacent to Sutherland Public School
- Civil work including:
 - removal of existing infrastructure
 - removal of trees and tree pruning
 - utility work including relocation of existing traffic signals and street lightings
 - earthworks excavation and material disposal
 - concrete path construction
 - planting of new trees and landscaping
 - installation of way finding and regulatory signage, line markings and delineation.

Subject to approval, construction is expected to commence in early 2019 and take around 12 months to complete. A detailed description of the proposal is provided in Chapter 3 of the REF. The need for, and benefits of the proposal are outlined in Chapter 2 of the REF.



Figure 1-2 Proposed route for SCATL Stage 1 Sutherland to Kirrawee

1.4.1 Working hours

The majority of works required for the proposal would be undertaken during standard NSW Environment Protection Authority (EPA) construction hours, which are as follows:

- 7:00am to 6:00pm Monday to Friday
- 8:00am to 1:00pm Saturdays
- No work on Sundays or public holidays.

Work outside of the above hours is required in some cases to minimise disruptions to pedestrians, motorists and nearby sensitive receivers. It is anticipated that some out of hours works would be required for work within the road pavement and to the road traffic signals.

Approval from Transport for NSW would be required for any out of hours work and the affected community would be notified as outlined in the Transport for NSW *Construction Noise and Vibration Strategy* (2018b)¹.

¹ <https://www.transport.nsw.gov.au/system/files/media/documents/2018/construction-noise%20-vibration-strategy-7TP-ST-157.pdf>

2 Consultation and assessment of submissions

The following chapter outlines the consultation activities undertaken for the SCATL. Consultation activities conducted during the initial concept design of the proposal in 2015/2016 have been included in this section to demonstrate the consideration of community feedback and planning and assessment process for the present proposal.

The objectives of the consultation activities were to:

- Provide information to relevant stakeholders and the community about the proposed route and concept design
- Provide opportunities for stakeholders and the community to express their views about the proposal
- Understand and access valuable local knowledge from the community and stakeholders
- Facilitate positive interactions with interested community stakeholders.

2.1 Consultation activities and outcomes for the previous concept design

2.1.1 Consultation activities

Community consultation on the previous concept design between Sutherland and Cronulla was undertaken from 30 November 2015 to 12 February 2016. Consultation activities included:

- The public display of an REF
- A project newsletter distributed to properties along an 11 kilometre study area
- Three drop-in sessions (at Sutherland Library, Kirrawee Station and the Shire Farmers Market) so the community could meet with the project team to ask questions and provide feedback
- Meetings held with key stakeholders including Sutherland Shire Council and community groups
- An interactive online map which allowed people to view the route and to provide feedback
- Community infoline, enquiries email and mailing address
- Project webpage with a summary of the project and information on how to provide feedback
- Advertisements were placed in St George & Sutherland Shire Leader
- Broader community information was also provided via a dedicated page on Transport for NSW projects website at transport.nsw.gov.au/projects/current-projects/sutherland-to-cronulla-active-transport-link.

2.1.2 Consultation outcomes and feedback

Feedback was received from 362 stakeholders during the previous consultation period in 2015/2016, including:

- 352 individual stakeholders
- Eight submissions from organisations
- Two submissions from Sutherland Shire Council.

The feedback indicated that while people supported the active transport link, there were concerns about the alignment of some sections of the route, the appearance of the SCATL and how it would interact with the existing landscape. Feedback received during the consultation process has been utilised to:

- Review the overall SCATL route to make better use of the rail corridor, where possible
- Reduce the number of interfaces with driveways and road intersections
- Minimise tree and vegetation impacts
- Minimise impact to on-street parking
- Minimise visual impact on neighbouring properties.

Feedback received during the 2016 public display of the previous REF was used in refining the scope and alignment of the project, which has led to the development of the concept for Stage 1, which is the subject to the current REF. Section 2.2 outlines the consultation undertaken for Stage 1.

2.2 Consultation activities for the current (Stage 1) proposal

2.2.1 Consultation activities

Consultation activities for the SCATL Stage 1 Project included:

Public display of the SCATL Stage 1 REF from Monday 15 October to Sunday 4 November 2018 at the following locations:

- Online at transport.nsw.gov.au/projects
- Online at yoursay.transport.nsw.gov.au
- Sutherland Library, 30/36 Belmont Street, Sutherland
- Miranda Library, 31 Wandella Road, Miranda
- Cronulla Library, Cronulla Central, 38-36 Croydon Street, Cronulla.
- Community information sessions held on:
 - Saturday 20 October 2018 between 8:00am and 1:00pm at the Shire Farmers Market – 131 Flora Street, Sutherland
 - Saturday 27 October between 9:30am and 11:30am at Sutherland Library – 30/36 Belmont Street, Sutherland
 - Thursday 1 November 2018 between 3pm and 7pm at Kirrawee Station – Oak Road, Kirrawee.
- Signage and newsletters distributed at Sutherland Station and Kirrawee Station, as well as information provided to stakeholders and businesses at Sutherland and Kirrawee.
- Meetings held with key stakeholders including:
 - Sutherland Shire Council
 - St Patricks College
 - Sutherland Business Chamber
 - Bicycle NSW
- An interactive online map which allowed people to view the route and provide feedback
- Community infoline, enquiries email and mailing address

- Project page on the Transport for NSW website with a summary of the project and information on how to provide feedback (transport.nsw.gov.au/projects and yoursay.transport.nsw.gov.au)
- Hardcopies of the REF were put on display at Sutherland Shire Council, Sutherland Library, Miranda Library and Cronulla Central
- Project page on the Sutherland Shire Council website with a link to the Transport for NSW website
- A project newsletter distributed to properties along the railway line between Sutherland and Cronulla.
- Advertisements were placed in St George & Sutherland Shire Leader.

2.2.2 SCATL Stage 1 REF submissions

Approximately 400 people attended drop-in sessions during the consultation process for SCATL Stage 1. A total of 110 submissions were received by Transport for NSW in response to the public display of the REF in 2018, including three organisations (Sutherland Shire Council, Bicycle NSW and the Central and North Miranda Precinct Residents Association). Submissions included feedback on a range of issues in relation to the Proposal. The key issues raised in submissions were:

- Support for the proposal
- Removal of trees
- Loss of parking construction and longer term
- Construction noise
- Safety and access
- Connectivity with regional cycling routes and other destinations
- Design features e.g. storage facilities and material used to construct the path
- Route location e.g. rail corridor or Flora Street
- Cost
- Future stages timing and alignment.

Overall levels of support by the respondents in written submissions were as follows:

- 61 responses supported the Stage 1 proposal without any changes
- 11 responses supported the Stage 1 proposal but wanted some modifications
- 13 responses did not support the Stage 1 proposal
- 25 responses did not indicate if they support the Stage 1 proposal or not, but had queries or comments about the project.

Respondents who were fully supportive cited the following potential benefits of the Stage 1 SCATL:

- Healthy lifestyle
- Reduced traffic
- Safer for pedestrians and cyclists
- Increase in trade for local business.

2.3 Future Stage 1 consultation

Should Transport for NSW proceed with the proposal, consultation activities would continue, including consultation with Sutherland Shire Council, the community and other key stakeholders. In addition, Transport for NSW would notify residents, businesses and community members in the lead up to and during construction. The consultation activities would help to ensure that:

- The community and stakeholders are notified in advance of any upcoming works, including changes to pedestrian or traffic access arrangements and out of hours construction activities
- Accurate and accessible information is made available
- A timely response is given to issues and concerns raised by the community
- Feedback from the community is encouraged.

The [Transport for NSW email address](mailto:projects@transport.nsw.gov.au)² and Infoline (1800 684 490) would continue to be available during the construction phase, along with a 24-hour construction complaints number. Targeted consultation methods, such as use of letters, notifications, signage and verbal communications, would continue to occur. The [Transport for NSW website](https://www.transport.nsw.gov.au/projects/current-projects/sutherland-to-cronulla-active-transport-link)³ would also include updates on the progress of construction.

² projects@transport.nsw.gov.au

³ <https://www.transport.nsw.gov.au/projects/current-projects/sutherland-to-cronulla-active-transport-link>

3 Responses to feedback

The following information is provided in response to questions and comments raised in written submissions. Feedback in the written submissions was consistent with the range of issues discussed with attendees at the drop-in consultation sessions. Appendix B lists each submission and unique submission number and where issues raised have been addressed in this report.

3.1 Delivery timeframes

3.1.1 Stage 1

Construction of Stage 1 is scheduled to commence in January 2019 and be complete by December 2019.

The timing of construction of some sections of Stage 1 would be affected by adjacent residential development. In these cases, the residential developer would be responsible for SCATL construction, in accordance with Sutherland Shire Council's conditions of consent. This would affect:

- Adjacent 511-513 President Avenue where there is a development in progress
- Adjacent 473-489 President Avenue where a temporary asphalt path would be constructed by Transport for NSW. Following residential redevelopment, the temporary path would be replaced by the private developer to match the SCATL design.

3.1.2 Future stages

Most of the respondents supportive of the SCATL Stage 1 also indicated that they would like to see the entire SCATL route implemented as quickly as possible. Some respondents questioned the long period of time that it has taken to develop an off-road cycleway between Sutherland and Cronulla. Building infrastructure next to an operating train network is complex. Existing rail infrastructure such as electrical and signalling equipment, bridges and other structures, as well as operational issues such as ensuring the safety of pedestrians and bike riders, and maintaining access for maintenance staff and safety vehicles, all need to be considered.

Transport for NSW will continue to work with Sutherland Shire Council, Roads and Maritime Services and Sydney Trains to progress the planning of Kirrawee to Cronulla. Future sections of SCATL would endeavour to make greater use of the rail corridor, while still connecting to key destination points. Detailed environmental impact assessment(s) and community consultation would be undertaken prior to the construction of any future stages.

3.2 Trees

Nine respondents, including Sutherland Shire Council, expressed concern about the proposed number of trees to be removed to enable construction of SCATL Stage 1.

Based on this feedback, the design was reconsidered to determine how the potential impact on trees could be reduced by innovative pavement treatments and design amendments. As a result of this process, the number of trees that are likely to require removal for SCATL Stage 1 has been reduced as outlined below:

- 22 trees would be removed
- 19 trees may need to be removed subject to further site investigations
- 4 trees would be retained

- 23 trees would be retained with root protection.

A summary of the amended tree impacts are shown in Appendix C. The ecological assessments of significance (Appendix D) have been updated to reflect the reduced impacts. During construction an arborist will also supervise the works to identify trees that could be preserved.

3.3 Parking

Parking was raised as a concern by eight respondents, including Sutherland Shire Council. Submissions covered the following matters:

- Temporary loss of parking during construction
- Permanent loss of parking along part of Eton Street
- Difficulty of accessing the proposed parking on the northern side of Minerva School to park and with shopping trolleys.

A construction Traffic Management Plan (TMP) would be prepared and implemented as part of the Construction Environmental Management Plan (CEMP). The TMP would include:

- Construction stages: works would be staged to minimise disturbance to traffic, residents and businesses
- Measures to maintain available parking where possible.

Before impacts to parking occur, Transport for NSW would work with Sutherland Shire Council to implement alternative arrangements to minimise disruption. Some parking would be provided on President Avenue to offset the changes to parking on Eton Street. Transport for NSW would continue to work with Sutherland Shire Council to identify any additional replacement parking options.

3.4 Construction noise

One respondent was concerned about potential impacts of construction noise. Potential impacts of construction noise on adjacent properties would be minimised by restricting the majority of the works to standard working hours to between 7 am and 6 pm, Monday to Friday and 8 am to 1 pm on Saturdays. No work would occur on Sundays or public holidays except where out of hours works are approved as outlined below.

It is anticipated that some out of hours works would be required for work within the road pavement and to the road traffic signals. Approval from Transport for NSW would be required for any works outside of these hours and the affected stakeholders would be notified as outlined in Transport for NSW's *Construction Noise and Vibration Strategy* (2018b).

Where possible, construction near the schools would be scheduled during school holidays when there is less traffic and fewer pedestrians in these areas. Noise impacts will be short term during the construction period. Mitigation measures have been proposed to manage noise and vibration impacts and are outlined in the REF.

3.5 Patronage

One respondent did not support the project because they felt that it would not be well used.

There has been sustained support from the community for an active transport link between Sutherland and Cronulla. There is evidence of the benefits to communities where similar active transport facilities have been constructed in other areas.

3.6 Cost

One respondent did not support the project due to concerns regarding the cost of the Project.

Future Transport 2056 highlights the importance of place making. Recent research (Transport for London 2018) shows that there are economic benefits of investment in walking and cycling. It was found that walking and cycling facilities help create thriving streets, and adds social value to areas. This is because people who walk and cycle tend to stay longer to stop, sit and socialise. SCATL Stage 1 is expected to provide similar economic and social benefits to the local community.

The costs associated with the construction and maintenance of the project are considered appropriate due to the benefits the project is expected to deliver.

3.7 Route and design features for Stage 1

Alternative routes or path designs were preferred by 33 respondents, with the aim to improve safety and access, and reduce loss of parking. Comments are provided in Table 1-1 in response to suggested alternative routes and designs for Stage 1.

Table 1-1 Comments on proposed route for Stage 1 SCATL

Location	Issue raised in submissions	Response
Path width	Respondents indicated a preferred path width of between 3 m and 8 m	It is challenging to retrofit an active transport link into an existing built environment. The proposed path has been designed in accordance with Australian Austroads, Roads and Maritime Services, and Sutherland Shire Council standards to optimise safety and, where possible, avoid trees and other restrictions. A road safety audit was undertaken as part of the design development. Safety of users would continue to be monitored on an ongoing basis. Emergency access to the area would be maintained.
Rail corridor	Respondents wanted to have the route within the rail corridor	The rail corridor route option was rejected for Stage 1 due to inadequate space, lack of connectivity with destinations along the route including schools and business precincts, and additional distance between stations.
President Avenue to Old Princes Hwy (as per the 2016 REF)	Respondents nominated this as a preferred route because they felt it would avoid loss of parking on Eton St and risks associated with shared zone in McCubbens Lane. In addition, it was assumed this route would provide better integration with Sutherland Station and regional cycleways in the south	Following detailed investigation, it was identified that the previous alignment could not accommodate a separated path and cycleway without major works. These major works would include the relocation of power poles and services, alteration/realignment of the roundabouts and narrowing of the roadway with possible impacts on car parking provisions.

Location	Issue raised in submissions	Response
McCubbens Lane	Respondents were concerned about risks associated with a shared zone and cyclists exiting McCubbens Lane, particularly at the western end	At the western end of McCubbens Lane, bicycle riders would be able to ride onto the road, or dismount and use the footpath and crossing. Signage and pavement marking would reduce risks.
Flora Street	Respondents nominated Flora Street as a more direct route between Sutherland Station and Kirrawee Station, and the new Kirrawee Brickpit commercial and residential development	<p>Transport for NSW previously considered Flora Street as an option for the project. Detailed investigation found that the provision of a separated cycleway and footpath could not be accommodated within the 20 m wide road reserve without removing all trees along the southern side of Flora Street and relocating a large number of power poles (22 low voltage and nine high voltage) at a high cost to the project. To avoid the impact on trees and services, the alternative option would have resulted in the potential loss of over 100 on-street car parking spaces. A one-way movement would have been also required between Eton Street and the Old Princes Highway, as well as the relocation of the bus and taxi facilities.</p> <p>A route along Flora Street is not the preferred alignment as it would result in an increased number of parking spaces lost and more residential driveway crossings. Having the active transport link on Eton Avenue and President Avenue would provide direct connection to key destinations.</p> <p>Flora Street will remain a cycle route for bicycle riders who wish to ride on the road.</p>
Eton Street	Respondents preferred an alternative route for the cycle path (not the pedestrian path) through the centre of Eton Street to avoid loss of parking	The location suggested for the cycleway on Eton Street (through the middle of the road) would have large impacts. This includes more trees being removed from Eton Street and the removal of car parking because the location does not have sufficient width to meet Australian design standards. Locating the cycleway in the centre of the road would also present safety risks to road users including drivers, pedestrians and bicycle riders. A central cycleway would likely confuse road users and limit access.
Glencoe Street crossing	A couple of respondents asked if Glencoe Street could be a priority crossing	A priority crossing is not proposed because it would cause traffic queuing at the intersection. The existing crossing would be upgraded with a wider island to improve safety for pedestrians and bicycle riders.
Pavement material	One respondent requested that the pavement material should be different to that used in other areas to avoid glare	The surface material would generally be designed in accordance with the Sutherland Shire Council's <i>Public Domain Design Manual</i> (2017). Transport for NSW will work with Sutherland Shire Council to explore a range of materials that are appropriate for each section.

Location	Issue raised in submissions	Response
Bike racks and storage	Requested at train stations	One bicycle shed and several lockers with Opal card access are already provided at Sutherland Station. These include the lockers at the southern end of the multi deck car park (around 150 m from station entrance) and the lockers at the intersection of East Parade and Moore Street. Bicycle parking also exists on Oak Road at Kirrawee Station. No additional facilities are proposed at this time

3.8 Route for future stages

A number of respondents did not support the Stage 1 SCATL because they were concerned about implications for the future extension of the route along President Avenue and Bath Road (between President Avenue and Avery Avenue). These individuals expressed concern about safety issues associated with driveway crossings and the loss of off-road parking.

Concern was also raised about the potential for the current Development Application (DA181208) for land adjacent Kirrawee Station at 168 Oak Rd Kirrawee to prevent the future extension of SCATL along the rail corridor from Kirrawee Station.

Transport for NSW has made a formal submission regarding DA181208 and will continue to work with Council to ensure future developments along proposed SCATL routes make provision for the future path where possible.

Transport for NSW will continue to work with Sutherland Shire Council, Roads and Maritime Services and Sydney Trains to progress the planning of Kirrawee to Cronulla. Future sections of SCATL would make greater use of the rail corridor, while still connecting to key destination points.

3.9 Safety

A number of respondents were concerned about public safety and collision and injury risks.

The primary objectives of the SCATL are outlined in Section 1.1, and include the provision of adequate separation between pedestrians, bicycle riders and vehicle movements in a safe environment. The aim of SCATL Stage 1 is to provide a safe network for active transport users.

The conflict between different user groups (such as pedestrians, recreational bicycle riders, commuter bicycle riders and motor vehicles) would be managed through education, signage and line marking.

The removal of some trees and widened open space between homes and the road would improve sightlines for road users. The path would be illuminated by street lighting in accordance with the *Australian Standard AS/NZS 1158 - Lighting for Roads and Public Spaces*.

3.10 Traffic and access

A number of respondents were concerned about driveway access, access for trucks and garbage collection.

The new paths would be constructed to Sutherland Shire Council footpath pavement standards. The *NSW Bicycle guidelines* and the *Austrorads Guide to Road Design* provide guidance on potential pavement profiles for the new cycle path, which would be two metres wide on-road along Eton Street and 2.5 metres wide off-road.

The footpath and nature strip between property boundaries and the road are around nine metres wide on President Avenue and six metres wide on Eton Street. As the new paths would be between two and three metres in width, there would still be sufficient space for residents to put bins out for collection and place items in this area during designated Council clean ups.

NSW road rules do not permit parking in driveways that obstruct the footpath, or on nature strips.

At present, cars entering and exiting driveways within the proposal area would need to check for pedestrians and cyclists being within a high pedestrian active area. The area between the proposed footpath and the road for vehicles entering and exiting driveways would provide sufficient space for them to stop prior to entering/exiting their properties or the road.

A Construction Traffic Management Plan (TMP) would be prepared and implemented as part of the Construction Environmental Management Plan (CEMP), to manage potential traffic impacts during construction.

The on road portion of Stage 1 would only remove parking spaces on Eton Street, and not interfere with any existing traffic lanes. The SCATL would aim to provide the option for cyclists to travel on the cycle path, rather than on the road, improving safety and congestion issues.

4 Consideration of the environmental impacts

4.1 Environmental Planning and Assessment Act 1979

The REF addresses the requirements of section 5.5 of the EP&A Act. In considering the proposal, all matters affecting or likely to affect the environment are addressed in the REF and the Determination Report and associated documentation.

In accordance with the checklist of matters pursuant to clause 228(3) of the EP&A Regulation, an assessment is provided in Chapter 6 of the REF and Appendix B of the REF.

In respect of the proposal an assessment has been carried out regarding potential impacts on critical habitat, threatened species, populations or ecological communities or their habitats, under section 5.7 of the EP&A Act.

The likely significance of the environmental impacts of the proposal has been assessed in accordance with the then NSW Department of Planning's 1995 best practice guideline [*Is an EIS Required?*](#)⁴ It is concluded that the proposal is not likely to significantly affect the environment (including critical habitat) or threatened species, populations of ecological communities, or their habitats. Accordingly, an environmental impact statement under Division 5.2 of the EP&A Act is not required.

4.2 Environment Protection and Biodiversity Conservation Act 1999

As part of the consideration of the proposal, all matters of national environmental significance (NES) and any impacts on Commonwealth land for the purposes of the *Environment Protection and Biodiversity Conservation Act 1999* have been assessed. In relation to NES matters, this evaluation has been undertaken in accordance with Commonwealth Administrative Guidelines on determining whether an action has, will have, or is likely to have a significant impact. A summary of the evaluation is provided in Chapter 4 of the REF. The evaluation was updated to reflect the change in ecological impacts and can be found in Appendix D.

It is considered that the proposal described in the REF is not likely to have a significant impact on any Commonwealth land and is not likely to have a significant impact on any matters of NES.

4.3 Biodiversity Conservation Act 2016

The biodiversity assessment found that 44 threatened fauna species have been recorded within a 10 kilometre radius of the proposed SCATL Stage 1. No threatened fauna species were recorded within the route during the survey, however potential foraging and/or breeding habitat was recorded for seven threatened fauna species:

- *Ninox strenua* (Powerful Owl)
- *Tyto novaehollandiae* (Masked Owl)
- *Chalinolobus dwyeri* (Large-eared Pied Bat)
- *Mormopterus norfolkensis* (Eastern Freetail-bat)

⁴ Refer to the National Library of Australia's 'Trove' website
<http://trove.nla.gov.au/work/7003034?selectedversion=NBD11474648>

- *Myotis macropus* (Southern Myotis)
- *Pteropus poliocephalus* (Grey-headed Flying-fox)
- *Saccolaimus flaviventris* (Yellow-bellied Sheath-tail-bat).

All of these species are listed as threatened under the BC Act. The Grey-headed Flying-fox and Large-eared Pied Bat are also listed as threatened under the EPBC Act. Assessments of significance were undertaken as part of the REF. These assessments were updated as a result of the change to tree impacts (Appendix D) and they concluded that the proposed construction and maintenance of the SCATL Stage 1 is not likely to have a significant impact on the long-term survival of these highly mobile species.

As a result of the change to tree impacts discussed in Section 3.2, no vegetation from the endangered ecological community Sydney Turpentine Ironbark Forest at Kirrawee would be removed for the proposal. This is listed as an endangered ecological community under the *NSW Biodiversity Conservation Act 2016* and critically endangered under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*.

An assessment of significance was undertaken for the REF and was updated as a result of the change to potential impacts to the Sydney Turpentine Ironbark Forest from the southern edge of Pollard Park and nearby patch of vegetation on the corner of Fauna Place (Appendix D). The updated assessment concluded that it is unlikely that the proposal would place the local occurrence of Sydney Turpentine Ironbark Forest at risk of extinction.

Further detail relating to the biodiversity assessment is in Section 6.3 of the REF and Appendix D of this report.

4.4 Roads Act 1993

Section 138 of the *Roads Act 1993* (Roads Act) requires consent from the relevant road authority for the carrying out of work in, on or over a public road. However, clause 5(1) in Schedule 2 of the Roads Act states that public authorities do not require consent for works on unclassified roads. However, where works are required on a classified road, road occupancy licences would be obtained from the relevant Roads Authority prior to the commencement of works.

5 Conditions of Approval

If approved, the proposal would proceed subject to the Conditions of Approval included at Appendix F.

6 Conclusion

Having regard to the assessment in the REF, consideration of the submissions received, it can be concluded that the proposal is not likely to significantly affect the environment (including critical habitat) or threatened species, populations of ecological communities, or their habitats. Consequently, an environmental impact statement is not required to be prepared under Division 5.2 of the EP&A Act.

It is also considered that the proposal does not trigger any approvals under Part 3 of the EPBC Act.

The environmental impact assessment (REF and Determination Report) is recommended to be approved subject to the proposed mitigation and environmental management measures included in the Conditions of Approval (refer Appendix F).

6.1 Future community and stakeholder consultation

The project team would keep the community, Sutherland Shire Council and other key stakeholders informed, identify any further issues as they arise, and develop additional mitigation measures to minimise the impacts of the proposal.

The interaction with the community would be undertaken in accordance with a Community Liaison Plan to be developed prior to the commencement of construction. A community liaison officer would be appointed for the project. The community would be kept informed before and during construction via newsletters, project updates, updates to the project website and letterbox drops. Site signage would be installed during construction.

6.2 Future stages Kirrawee to Cronulla

Transport for NSW is continuing to work with Sutherland Shire Council, Roads and Maritime Services and Sydney Trains to progress the design of the future SCATL stages from Kirrawee to Cronulla, incorporating feedback received from the community.

The community will also be invited to provide feedback on future stages of SCATL. Project updates will be issued via transport.nsw.gov.au/projects/current-projects/sutherland-to-cronulla-active-transport-link or email projects@transport.nsw.gov.au to join the project mailing list.

References

Department of Infrastructure, Planning and Natural Resources, 2004, *Guideline for Preparation of Environmental Management Plans*

Department of Planning, 1995, *Is an EIS Required?*, Sydney

Landcom, 2004, *Managing Urban Stormwater: Soils and Construction - Volume 1, 4th Edition*

Office of Environment and Heritage (OEH), 2011, *Guidelines for Consultants Reporting on Contaminated Sites*, Sydney

Transport for London, 2018, *Economic benefits of walking and cycling*
<https://tfl.gov.uk/corporate/publications-and-reports/economic-benefits-of-walking-and-cycling>

Transport for NSW, 2014, *Sutherland to Cronulla Active Transport Link – Review of Environmental Factors*, Sydney

Transport for NSW, 2018a, *Sutherland to Cronulla Active Transport Link – Stage 1, Sutherland to Kirrawee – Review of Environmental Factors*, Sydney

Transport for NSW, 2018b, *Construction Noise and Vibration Strategy*, Sydney

Environmental Impact Assessment Determination

Sutherland to Cronulla Active Transport Link Stage 1

APPROVAL

I, Louise Sureda, as delegate of the Secretary, Transport for NSW:

1. Have examined and considered the proposal in the Sutherland to Cronulla Active Transport Link Stage 1 Review of Environmental Factors (October, 2018) and the Sutherland to Cronulla Active Transport Link Stage 1 Determination Report (December, 2018) in accordance with section 5.5 of the *Environmental Planning and Assessment Act 1979*.
2. Determine on behalf of Transport for NSW (the proponent) that the proposal may be carried out in accordance with the Conditions of Approval in this Determination Report (December, 2018), consistent with the proposal described in the Review of Environmental Factors (October, 2018) as amended by this Determination Report.



Louise Sureda
Director Planning and Environment
Infrastructure and Place
Transport for NSW

Date: 10.12.18

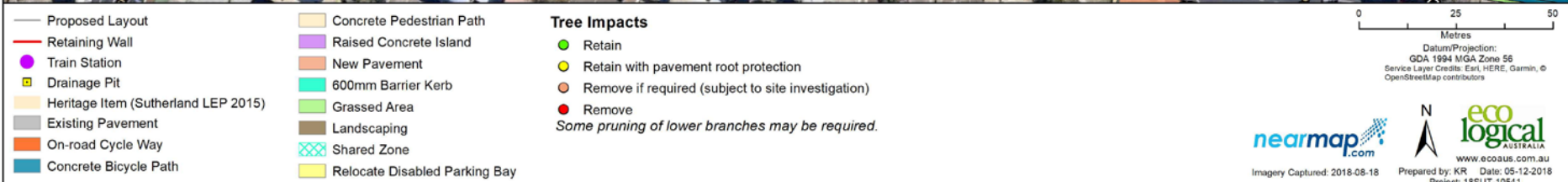
Appendix A Maps of the proposed route of the SCATL Stage 1 – Sutherland to Kirrawee

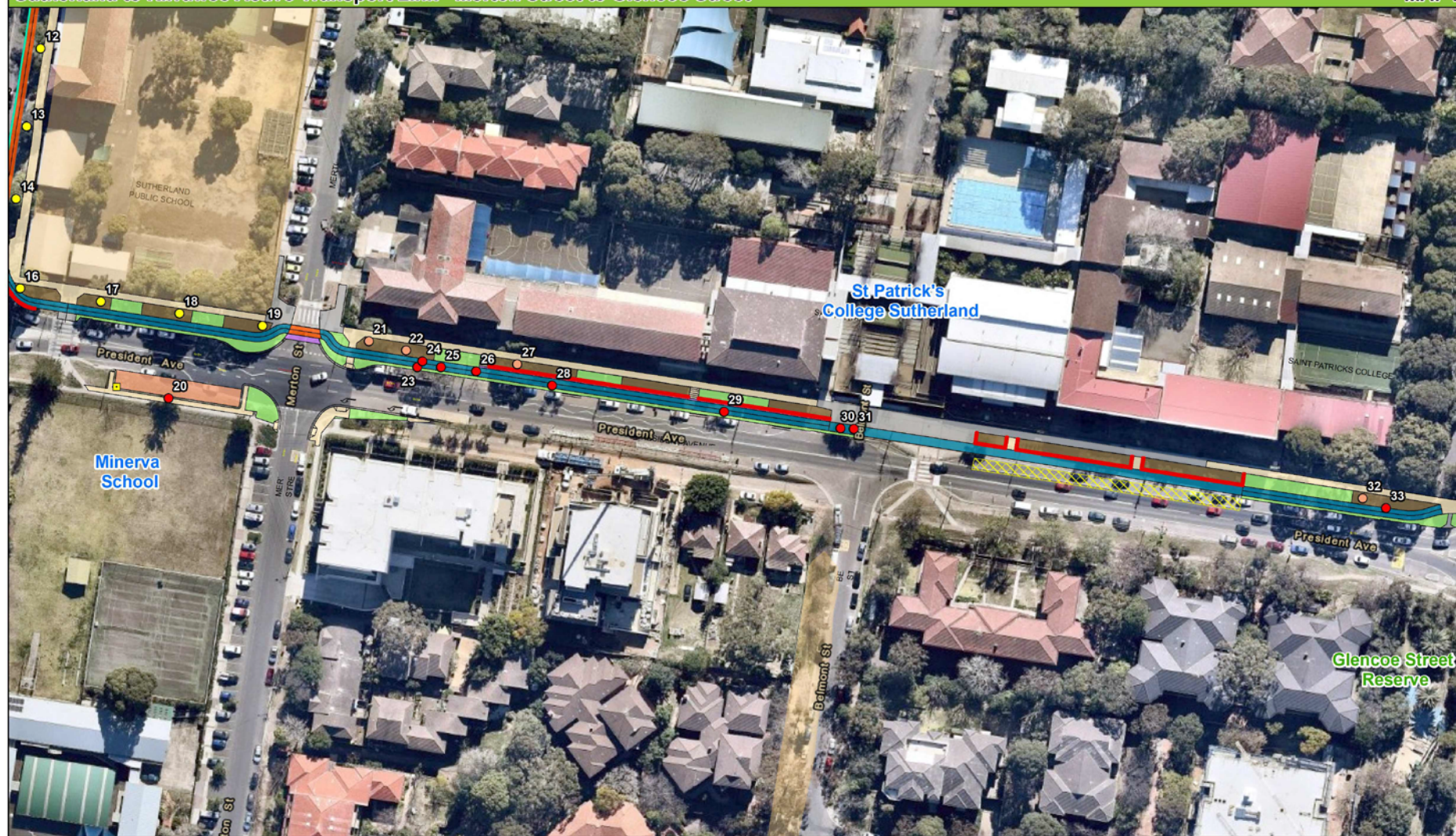
In the maps overleaf, the arboricultural impacts are defined as follows:

- Retain – these trees would be retained (no impact)
- Retain with root protection – construction is proposed within the root zone of these trees. Innovative construction techniques and pavement would be applied in these locations to protect and retain trees where possible by avoiding damage to structural roots. An AQF Level 5 consulting arborist would confirm the suitability of tree retention during construction when the roots are exposed through non-destructive methods (medium impact)
- Remove if required (subject to site investigation)
- Remove – these trees would be removed (high impact).

Sutherland to Kirrawee Active Transport Link - Old Princes Highway to Merton Street

MAP 1





- | | | |
|---------------------------------------|--------------------------|---|
| — Proposed Layout | Concrete Pedestrian Path | Tree Impacts
● Retain with pavement root protection
○ Remove if required (subject to site investigation)
● Remove
<i>Some pruning of lower branches may be required.</i> |
| — Retaining Wall | Raised Concrete Island | |
| ■ Drainage Pit | New Pavement | |
| ■ Heritage Item (Sutherland LEP 2015) | 600mm Barrier Kerb | |
| ■ Existing Pavement | Grassed Area | |
| ■ On-road Cycle Way | Landscaping | |
| ■ Concrete Bicycle Path | School Bus Zone | |

0 25 50
Metres

Datum/Projection:
GDA 1994 MGA Zone 56
Service Layer Credits: Esri, HERE, Garmin, ©
OpenStreetMap contributors

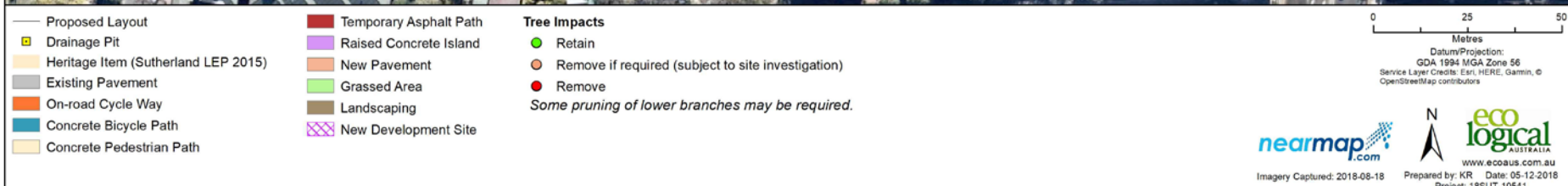
nearmap
com

Imagery Captured: 2018-08-18



eco
logical
AUSTRALIA

Prepared by: KR Date: 05-12-2018
Project: 18SUT-10541





Appendix B Submission number and response references

Transport for NSW received a total of 110 submissions during the public display of the REF. Table A-1 lists the respondents and each respondent's allocated submission number. The table also indicates where the issues raised in each submission have been addressed in this report.

Table A-1 List of respondents and issues addressed

Respondent	Submission number	Section number where issues are addressed
Individual	E1	Section 3.1.2
Individual	E2	Section 3.7 and 3.9
Individual	E3	Section 3.7, 3.9 and 3.10
Individual	E4	Section 3.1, 3.2 and 3.7
Individual	E5	Section 2.2.2
Individual	E6	Section 3.5, 3.7 and 3.9
Individual	E7	Section 2.2.2
Individual	E8	Section 2.2.2
Individual	E9	Section 2.2.2
Individual	E10	Section 3.1.1 and 3.4
Individual	E11	Section 3.3 and 3.7
Individual	E12	Section 2.2.2
Individual	E13	Section 3.1.2 and 3.8
Individual	E14	Section 3.2 and 3.7
Individual	E15	Section 3.2 and 3.7
Individual	E16	Section 3.2
Individual	E17	Section 3.1.2
Individual	E18	Section 2.2.2
Individual	E19	Section 2.2.2

Individual	E20	Section 3.1
Individual	E21	Section 3.1
Individual	E22	Section 3.7
Individual	E23	Section 3.1
Individual	E24	Section 3.1
Individual	E25	Section 3.1
Individual	E26	Section 3.1.2
Individual	E27	Section 3.2, 3.7 and 3.9
Individual	E28	Section 2.2.2
Individual	E29	Section 3.1
Individual	E30	Section 3.1.2
Individual	E31	Section 3.1.2
Individual	E32	Section 3.3, 3.7 and 3.9
Individual	E33	Section 3.7, 3.8, 3.9 and 3.10
Individual	E34	Section 2.2.2
Individual	E35	Section 2.2.2 and 3.1.2
Individual	E36	Section 2.2.2
Individual	E37	Section 3.7
Individual	E38	Section 2.2.2
Individual	E39	Section 2.2.2
Individual	P1	Section 2.2.2
Individual	P2	Section 3.8
Individual	W1	Section 3.1.2
Central and North Miranda Precinct Residents Association	W2	Section 3.8

Individual	W3	Section 3.3, 3.6, 3.7 and 3.10
Bicycle NSW	W4	Section 2.2.2
Individual	W5	Section 3.7
Individual	W6	Section 3.1.2 and 3.8
Individual	W7	Section 2.2.2
Individual	W8	Section 3.2, 3.3, 3.6, 3.7 and 3.9
Individual	W9	Section 3.3, 3.7, 3.9 and 3.10
Individual	W10	Section 3.3, 3.9 and 3.10
Individual	W11	Section 2.2.2
Individual	W12	Section 3.1.2, 3.7
Individual	W13	Section 3.1.2 and 3.8
Individual	W14	Section 3.3, 3.8 and 3.9
Individual	W15	Section 3.7
Individual	W16	Section 3.2, 3.3 and 3.9
Sutherland Shire Council	W17	Section 3.2 and 3.3
Individual	O1	Section 3.7
Individual	O2	Section 3.7
Individual	O3	Section 3.7
Individual	O4	Section 3.7
Individual	O5	Section 3.7 and 3.9
Individual	O6	Section 3.7
Individual	O7	Section 3.7
Individual	O8	Section 3.7
Individual	O9	Section 3.2

Individual	O10	Section 3.2
Individual	O11	Section 3.2 and 3.3
Individual	O12	Section 3.7
Individual	O13	Section 3.7
Individual	O14	Section 3.7
Individual	O15	Section 3.2
Individual	O16	Section 3.7
Individual	O17	Section 3.7
Individual	O18	Section 2.2.2
Individual	O19	Section 3.7
Individual	O20	Section 2.2.2
Individual	O21	Section 2.2.2
Individual	O22	Section 2.2.2
Individual	O23	Section 3.2 and 3.7
Individual	O24	Section 2.2.2
Individual	O25	Section 3.7
Individual	O26	Section 2.2.2
Individual	O27	Section 2.2.2
Individual	O28	Section 2.2.2
Individual	O29	Section 2.2.2
Individual	O30	Section 3.1.2
Individual	O31	Section 3.7
Individual	O32	Section 3.3 and 3.7
Individual	O33	Section 3.3
Individual	O34	Section 3.7

Individual	O35	Section 3.7
Individual	O36	Section 3.1.1
Individual	O37	Section 3.7
Individual	O38	Section 2.2.2
Individual	O39	Section 3.1 and 3.7
Individual	O40	Section 2.2.2
Individual	O41	Section 2.2.2
Individual	O42	Section 3.1.2
Individual	O43	Section 3.7
Individual	O44	Section 3.1.2
Individual	O45	Section 2.2.2
Individual	O46	Section 2.2.2
Individual	O47	Section 2.2.2
Individual	O48	Section 3.7
Individual	O49	Section 3.1 and 3.7
Individual	O50	Section 2.2.2
Individual	O51	Section 2.2.2
Individual	O52	Section 3.7

Appendix C Revised tree impacts

This table is to be read in conjunction with the maps in Appendix A.

Table A-2 Arboricultural impacts

Tree	Botanical name	Height (m)	Spread (m)	Health	Structure	Retention value	DBH (mm)	TPZ (mm)	SRZ (mm)	Impact
1	<i>Lophostemon confertus</i>	7	5	Poor	Fair	Low	350	4200	2100	Retain with pavement root protection
2	<i>Platanus acerifolia</i>	6	4	Fair	Fair	Medium	300	3600	2000	Remove
3	<i>Platanus acerifolia</i>	6	3	Fair	Fair	Low	250	3000	1800	Remove
4	<i>Syncarpia glomulifera</i>	4	2	Fair	Fair	Low	100	2000	1500	Remove
5	<i>Syncarpia glomulifera</i>	3	2	Poor	Fair	Low	100	2000	1500	Retain with pavement root protection
6	<i>Syncarpia glomulifera</i>	5	2	Poor	Fair	Low	100	2000	1500	Retain with pavement root protection
7	<i>Eucalyptus punctata</i>	9	4	Good	Fair	Medium	250	3000	1800	Retain with pavement root protection
8	<i>Lophostemon confertus</i>	11	10	Good	Good	High	750	9000	2900	Retain with pavement root protection
9	<i>Lophostemon confertus</i>	12	11	Good	Good	High	800	9600	3000	Retain with pavement root protection
10	<i>Lophostemon confertus</i>	10	8	Good	Good	High	750	9000	2900	Retain
11	<i>Lophostemon confertus</i>	9	8	Fair	Good	Medium	600	7200	2700	Retain with pavement root protection
12	<i>Ficus rubiginosa</i>	7	6	Fair	Fair	Medium	700	8400	2800	Retain with pavement root protection
13	<i>Ficus rubiginosa</i>	9	8	Good	Good	High	850	10000	3100	Retain with pavement root protection
14	<i>Lophostemon confertus</i>	9	10	Good	Good	High	800	9600	3000	Retain with pavement root protection
15	<i>Ficus rubiginosa</i>	5	6	Good	Fair	Medium	600	7200	2700	Remove
16	<i>Lophostemon confertus</i>	7	8	Good	Good	High	800	9600	3000	Retain with pavement root protection
17	<i>Ficus rubiginosa</i>	4	5	Good	Fair	Medium	750	9000	2900	Retain with pavement root protection
18	<i>Araucaria heterophylla</i>	9	6	Poor	Poor	Low	550	6600	2600	Retain with pavement root protection
19	<i>Lophostemon confertus</i>	8	7	Good	Fair	High	700	8400	2800	Retain with pavement root protection
20	<i>Ulmus parvifolia</i>	6	6	Fair	Fair	Medium	250	3000	1800	Remove
21	<i>Melaleuca armillaris</i>	5	5	Poor	Poor	Low	700	8400	2800	Remove if required (subject to site investigation)
22	<i>Ulmus parvifolia</i>	4	7	Fair	Fair	Low	200	2400	1700	Remove if required (subject to site investigation)
23	<i>Melaleuca armillaris</i>	5	4	Poor	Poor	Low	100	2000	1500	Remove
24	<i>Triadica sebifera</i>	4	3	Poor	Poor	Low	100	2000	1500	Remove

Tree	Botanical name	Height (m)	Spread (m)	Health	Structure	Retention value	DBH (mm)	TPZ (mm)	SRZ (mm)	Impact
25	<i>Lophostemon confertus</i>	6	7	Good	Poor	Medium	632	7600	2700	Remove
26	<i>Callistemon salignus</i>	5	3	Fair	Poor	Low	450	5400	2400	Remove
27	<i>Melaleuca armillaris</i>	3	4	Poor	Poor	Low	400	4800	2300	Remove if required (subject to site investigation)
28	<i>Casuarina cunninghamiana</i>	5	3	Poor	Poor	Low	200	2400	1700	Remove
29	<i>Eucalyptus sp.</i>	6	4	Fair	Poor	Low	200	2400	1700	Remove
30	<i>Callistemon salignus</i>	4	3	Poor	Poor	Low	200	2400	1700	Remove
31	<i>Callistemon salignus</i>	5	5	Good	Fair	Medium	600	7200	2700	Remove
32	<i>Syncarpia glomulifera</i>	5	9	Good	Poor	Low	700	8400	2800	Remove if required (subject to site investigation)
33	<i>Eucalyptus punctata</i>	10	6	Poor	Poor	Low	450	5400	2400	Remove
34	<i>Eucalyptus punctata</i>	10	9	Poor	Poor	Low	750	9000	2900	Remove
35	<i>Eucalyptus punctata</i>	14	12	Poor	Poor	Low	450	5400	2400	Remove
36	<i>Ulmus parvifolia</i>	6	10	Fair	Poor	Low	500	6000	2500	Remove
37	<i>Ulmus parvifolia</i>	4	9	Fair	Poor	Low	750	9000	2900	Remove
38	<i>Lophostemon confertus</i>	6	8	Good	Poor	Low	600	7200	2700	Remove if required (subject to site investigation)
39	<i>Lophostemon confertus</i>	5	8	Good	Poor	Low	700	8400	2800	Remove if required (subject to site investigation)
40	<i>Callistemon viminalis</i>	3	3	Good	Fair	Medium	200	2400	1700	Remove
41	<i>Lophostemon confertus</i>	10	8	Good	Good	High	700	8400	2800	Remove
42	<i>Lophostemon confertus</i>	9	8	Good	Good	High	800	9600	3000	Retain
43	<i>Agonis flexuosa</i>	5	5	Poor	Poor	Low	350	4200	2100	Retain
44	<i>Syncarpia glomulifera</i>	3	2	Poor	Fair	Medium	150	2000	1500	Remove
45	<i>Syncarpia glomulifera</i>	4	3	Good	Fair	Low	100	2000	1500	Retain
46	<i>Lophostemon confertus</i>	12	9	Good	Good	High	800	9600	3000	Remove if required (subject to site investigation)
47	<i>Lophostemon confertus</i>	10	8	Good	Good	High	450	5400	2400	Remove if required (subject to site investigation)
48	<i>Syncarpia glomulifera</i>	4	3	Fair	Fair	Low	200	2400	1700	Remove if required (subject to site investigation)
49	<i>Melaleuca armillaris</i>	3	4	Poor	Poor	Low	350	4200	2100	Remove if required (subject to site investigation)

Tree	Botanical name	Height (m)	Spread (m)	Health	Structure	Retention value	DBH (mm)	TPZ (mm)	SRZ (mm)	Impact
										investigation)
50	<i>Eucalyptus punctata</i>	13	15	Good	Good	High	900	11000	3200	Remove if required (subject to site investigation)
51	<i>Eucalyptus pilularis</i>	7	7	Good	Poor	Medium	500	6000	2500	Remove if required (subject to site investigation)
52	<i>Eucalyptus paniculata</i>	12	12	Good	Good	High	700	8400	2800	Remove if required (subject to site investigation)
53	<i>Eucalyptus paniculata</i>	16	11	Good	Poor	Medium	400	4800	2300	Remove if required (subject to site investigation)
54	<i>Eucalyptus paniculata</i>	15	11	Good	Fair	Medium	500	6000	2500	Remove if required (subject to site investigation)
55	<i>Eucalyptus paniculata</i>	14	7	Fair	Fair	Medium	500	6000	2500	Remove if required (subject to site investigation)
56	<i>Eucalyptus sp.</i>	12	11	Good	Good	High	750	9000	2900	Remove
57	<i>Lophostemon confertus</i>	9	7	Good	Good	High	750	9000	2900	Remove if required (subject to site investigation)
58	<i>Eucalyptus micorcorys</i>	14	11	Fair	Fair	Medium	700	8400	2800	Remove if required (subject to site investigation)
59	<i>Eucalyptus micorcorys</i>	14	11	Fair	Fair	Medium	750	9000	2900	Remove if required (subject to site investigation)
60	<i>Eucalyptus micorcorys</i>	14	8	Fair	Poor	Low	750	9000	2900	Retain with pavement root protection
61	<i>Eucalyptus punctata</i>	15	15	Good	Fair	Medium	950	11000	3200	Retain with pavement root protection
62	<i>Eucalyptus sp.</i>	12	6	Fair	Poor	Low	600	7200	2700	Retain with pavement root protection
63	<i>Eucalyptus sp.</i>	10	7	Good	Fair	Medium	550	6600	2600	Retain with pavement root protection
64	<i>Eucalyptus punctata</i>	12	7	Fair	Fair	Medium	650	7800	2800	Retain with pavement root protection
65	<i>Eucalyptus punctata</i>	8	6	Good	Fair	Medium	600	7200	2700	Retain with pavement root protection
66	<i>Eucalyptus sp.</i>	6	6	Good	Fair	Medium	500	6000	2500	Retain with pavement root protection
67	<i>Eucalyptus punctata</i>	15	15	Good	Fair	Medium	950	11000	3200	Retain with pavement root protection
68	<i>Lophostemon confertus</i>	8	8	Good	Fair	Medium	450	5400	2400	Retain with pavement root protection

Appendix D Revised assessments of significance

For the purposes of these assessments of significance, it is assumed that up to 0.09 hectares of vegetation would be removed.

EP&A Act Assessment of Significance

The Assessment of Significance is applied to species, populations and ecological communities listed on schedules of the *Biodiversity Conservation Act* (BC Act) and the *Fisheries Management Act*. The assessment sets out five factors, which when considered, allow proponents to undertake a qualitative analysis of the likely impacts of an action and to determine whether further assessment is required via a species impact statement (SIS). All factors must be considered and an overall conclusion made based on all factors in combination. An SIS is required if, through application of the 5-part test, an action is considered likely to have a significant impact on a threatened species, population or ecological community.

Threatened species, populations and ecological communities which may be directly or indirectly affected by the proposal include:

Sydney Turpentine Ironbark Forest

Large Forest Owls

- *Ninox strenua* (Powerful Owl)
- *Tyto novaehollandiae* (Masked Owl)

Megachiropteran bats

- *Pteropus poliocephalus* (Grey-headed Flying-fox)

Microchiropteran bats

- *Chalinolobus dwyeri* (Large-eared Pied Bat)
- *Mormopterus norfolkensis* (Eastern Freetail-bat)
- *Myotis macropus* (Southern Myotis)
- *Saccolaimus flaviventris* (Yellow-bellied Sheath-tail-bat).

SYDNEY TURPENTINE IRONBARK FOREST

Sydney Turpentine-Ironbark Forest (STIF) is the name given to the endangered ecological community that occurs in Sydney and is heavily fragmented, with only 0.5 percent its original extent remaining intact. Remnants mostly occur in the Baulkham Hills, Hawkesbury, Hornsby, Ku-ring-gai, Parramatta, Ryde, Sutherland and Wollondilly LGA. Good examples can be seen in small reserves such as Wallumatta Nature Reserve and Newington Nature Reserve. The community is described as an open forest with dominant canopy trees including *Syncarpia glomulifera* (Turpentine), *Eucalyptus punctata* (Grey Gum), *E. paniculata* (Grey Ironbark) and *E. eugenioides* (Thin-leaved Stringybark). In areas of high rainfall (over 1050 millimetres per annum) Sydney Blue Gum *E. saligna* is more dominant. The shrub stratum is usually sparse and may contain mesic species such as *Pittosporum undulatum* (Sweet Pittosporum) and *Polyscias sambucifolia* (Elderberry Panax). The community originally existed as a forest but disturbance and clearing means that the community now exists as woodland or remnant trees.

0.72 hectare of STIF was recorded within and adjacent to the route at Kirrawee in moderate to good condition. It consists of remnant and planted vegetation consistent with the scientific determination for STIF.

The local occurrence of STIF within and adjacent to the route is defined by two patches which are separated by the train line: 0.41 hectare in Pollard Park and 0.31 hectare in the Kirrawee commuter car park. Dispersal and pollination are unlikely to be inhibited by the train line width (25 metres). The patch on the northern side of the rail line in the car park was created as an offset to vegetation lost during the railway line duplication. Mature trees are present in patches on both sides of the rail line.

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

STIF is an endangered ecological community and therefore this question is not applicable.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

Actions that are likely to have an adverse effect on the extent of local occurrence of STIF include clearing of native vegetation, fragmentation of habitats, inappropriate fire regime and weed invasion.

The proposed works would not involve any clearing of STIF from Pollard Park or the patch adjacent to the Kirrawee commuter carpark. Therefore, it is considered unlikely that the proposal would place the local occurrence of STIF at risk of extinction.

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

The proposed works would not involve any clearing of STIF therefore it is unlikely to be at risk of extinction. However, ongoing intensive management would be needed to prevent weed encroachment and further degradation of remaining vegetation.

(c) in relation to the habitat of a threatened species or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

The proposed works will not involve the clearing of any STIF.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

No STIF would be impacted by the proposed works and so the STIF patch would not be fragmented or divided. Thus the proposal would not prevent the dispersal and pollination of flora and fauna species within the STIF patch.

The proposal would not remove connecting habitat between other patches of this community in the surrounding landscape as the STIF extends beyond the patch recorded within the study area to the north, and is already separated by an existing train line. In light of this it is unlikely that the habitat would become further fragmented or isolated from other habitats as a result of the proposed actions.

Edge effects (such as weeds and rubbish) and unauthorised access tracks would continue to be a threat.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

The patch of STIF at Kirrawee is already small, isolated and fragmented by surrounding the roads, rail line and other urban land uses. It is similar to other patches of STIF throughout the Shire.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

No declared area of outstanding biodiversity value has been identified by the Director-General of the Office of Environment and Heritage.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

A key threatening process is defined as “a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities”. One threatening process listed under the BC Act is relevant to the current proposal and poses a threat to the continued survival of STIF, namely “Clearing of Native Vegetation”. The final determination specifically identifies small-scale clearing associated with residential subdivisions, road upgrading, extension and maintenance of service easements etc. as posing a threat of ongoing decline of the extent of the community (DECCW, 2005). The proposal would not increase the clearing of this EEC and therefore does not represent a key threatening process.

Conclusion

The proposal is unlikely to have a significant impact on STIF for the following reasons:

- The proposal would not remove any STIF.
- The proposal would not isolate or fragment any currently connecting areas of habitat.

Consequently, a Species Impact Statement (SIS) is not required for the proposal with respect to this EEC.

LARGE FOREST OWLS

The two large forest owl species are regarded as having potential to occur within the study area and, consequently, have been grouped together for this Assessment of Significance. This is because they have similar foraging and/or roosting behaviours, habitat requirements and consequently predicted impacts are considered to be the same or similar. Where obvious differences are apparent between each species, they are discussed separately.

The Powerful and Masked Owl are listed as vulnerable under the BC Act. No individuals of these species were recorded during the field survey, although these species are known from records within a 10 kilometres radius of the study area (OEH 2015a). The proposed activity would only impact on potential foraging habitat for these species, as no hollow-bearing tree were found to provide suitable nesting habitat for large forest owls.

Ninox strenua (Powerful Owl)

The Powerful Owl is endemic to eastern and south-eastern Australia, mainly on the coastal side of the Great Dividing Range from Mackay to south-western Victoria and occurs at low densities. In NSW, it is widely distributed throughout the eastern forests from the coast inland to tablelands, with scattered, mostly historical records on the western slopes and plains (OEH 2015).

Powerful Owls occur primarily in densely vegetated gullies of open and tall open forest, but they are also found in a wider range of habitats, including forests and woodlands within the metropolitan regions of cities. However, optimal habitat requires large tracts of forest or woodland habitat, including a tall shrub layer and abundant hollows supporting high densities of arboreal marsupial prey species (OEH 2015).

This species roosts in dense mid-canopy trees (such as *Syncarpia glomulifera* (Turpentine), She-oaks and rainforest trees), or tall shrubs in sheltered gullies, typically on wide creek flats and at the heads of minor drainage lines. Nesting occurs from late autumn to mid-winter in large hollows (greater than 45 centimetre wide and greater than 100 centimetre deep) in eucalypts in unlogged, unburnt gullies and lower slopes within 100 metres of streams or minor drainage lines. Nest trees are typically emergent, and are often the largest and oldest in a stand. Powerful Owls are faithful to traditional nesting hollows but can also use other hollows within the nesting gully (OEH 2015).

Tyto novaehollandiae (Masked Owl)

The Masked Owl is listed as vulnerable under the BC Act. They occur in undulating wet-dry forests of the coast and dry eucalypt forests of the tablelands, with optimal habitat including a mosaic of sparse (grassy) and dense (shrubby) groundcover on gentle terrain (OEH 2015).

Roosts are located in live or occasionally dead hollow eucalypts, dense foliage in gullies and caves, and recesses in cliffs. They require mature forest or woodland with large hollow trees and dense trees or shrubs for fledglings to shelter in. Hollows greater than 40 centimetre wide and 100 centimetre deep in trees at least 90 centimetre diameter at breast height are used. Masked Owls are faithful to traditional nest trees but may use alternative hollows within the breeding territory in different years. Home ranges are estimated to be 400-1000 hectare, varying with habitat productivity (OEH 2015).

It is a specialist predator of terrestrial mammals, including rodents and rabbits in disturbed areas and dasyurids in forested areas. Arboreal mammals (e.g. Sugar Glider), birds and bandicoots also supplement the diet. The species forages preferentially in ecotones within forests or along forest edges but also in open areas, and usually hunts from a perch at or near ground level, sometimes near the edges of roads (OEH 2015).

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Factors likely to have an adverse effect on the life cycle of the Powerful Owl and Masked Owl would include a substantial loss and/or fragmentation of foraging habitat and loss of suitable nesting and roosting habitat (e.g. large hollow bearing trees).

The proposal would remove up to 0.09 hectare of native and exotic vegetation with a sparse to absent understorey, which represents potential foraging habitat for Powerful Owl and Masked Owl. Selective removal of trees and shrubs is required for the proposed works, consisting of mostly of street trees with a cleared grassy understorey. No hollow bearing trees will be removed.

Given these species are highly mobile and no breeding habitat in the form of suitable hollow bearing trees will be impacted, the action proposed is unlikely to have an adverse effect on the life cycle of the Powerful Owl and Masked Owl such that a viable local population of these species is likely to be placed at risk of extinction.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable. The Powerful Owl and Masked Owl are not endangered populations.

(c) in relation to the habitat of a threatened species or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

The extent of the proposed impact (up to 0.09 hectare of street vegetation to be cleared) is considered minor relative to the home range of these species and availability of bushland habitat throughout the Shire.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

The area of habitat that would be impacted for the proposed works is already fragmented from other areas of potential habitat. In addition, selective removal of trees and shrubs would not fragment the habitat of such wide ranging mobile species. Therefore, the proposal will not isolate any currently connecting areas of potential habitat.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

The large forest owl species are highly mobile and the vegetation to be removed does not represent primary roosting or foraging habitat. Extensive areas of habitat are present surrounding the study area within the LGA. In this context, the potential foraging habitat to be removed is unlikely to be important to the long-term survival of these species.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

No declared area of outstanding biodiversity value has been identified by the Director-General of the Office of Environment and Heritage.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

Key threatening processes of relevance to the Powerful Owl and Masked Owl include the clearing of native vegetation and loss of hollow bearing trees (OEH 2015). No hollow bearing trees will be removed as part of the proposal. As discussed above vegetation to be impacted is considered minor due to the distribution this habitat relative to the large home ranges of the species and the areas of habitat in the surrounding landscape available to these highly mobile species.

Conclusions

The proposal is unlikely to significantly impact the Powerful Owl or Masked Owl given that the proposed works:

- Would only disturb a small area of foraging habitat within these species home range.
- Would not impact nesting / breeding habitat (suitable hollow bearing trees) for this species or any of their prey species.
- Would not isolate or fragment any currently connecting areas of habitat due to the high mobility of the species.

Further, loss of vegetation will be offset in accordance with Transport for NSW's Vegetation Offset Guide, so in the long term additional habitat should be available to these species in the area.

Consequently, a Species Impact Statement is not required for the proposal with respect to these species.

MEGACHIROPTERAN BATS

Pteropus poliocephalus (Grey-headed Flying-fox)

The Grey-headed Flying-fox (GHFF) is listed as a vulnerable species under the BC Act. It is generally found within 200 kilometres of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. It occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops, and has been recorded as travelling long distances on feeding forays (up to 50 kilometres). Fruits and flowering plants of a wide variety of species are the main food source (OEH 2015).

The species roosts in 'camps' comprising thousands of individuals. Camps are usually formed within 20 kilometres of a regular food source and are generally close to water and along gullies. However, the species has been known to form camps in urban areas (OEH 2015).

Key threats to the species are loss of roosting and foraging sites, electrocution on powerlines, entanglement in netting and on barbed-wire, heat stress, and conflict with humans (OEH 2015).

GHFF have been recorded in the study area, and suitable foraging habitat is located along the proposed route and elsewhere throughout the Shire.

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Impacts likely to have an adverse effect on the life cycle of GHFF would include impacts which resulted in the loss of significant areas of foraging habitat, increases in the mortality rate, and increases in conflicts with humans.

The proposal would remove up to 0.09 hectare of native and exotic vegetation, including trees which represents potential foraging habitat for the GHFF. Selective removal of trees and shrubs is required for the proposed works, consisting of mostly street trees with a cleared grassy understorey. No GHFF camps would be impacted.

The species is highly mobile and has a large home range. There is higher quality habitat available in the surrounding landscape, therefore the species is considered likely to use trees along the proposed route on an occasional basis and would not be dependent on the foraging resources within the study area.

Some disturbance (noise, dust) is expected to occur during the construction phase. The extent of this has not been quantified. However, noise and dust impacts would be low-level, temporary and occurring during day-time hours, therefore, unlikely to degrade adjacent habitat affecting the species' habitat.

It is unlikely that the proposal would result in increases in mortality rates through heat stress or electrocution and, therefore, impact the life cycle of the species. Also, it is unlikely that the proposal would increase conflicts with humans as it is unlikely the proposal would contribute to GHFF establishing a camp in the locality.

Therefore, removal of potential foraging habitat is unlikely to have a significant impact on life cycle of this species such that a viable local population of the species would be placed at risk of extinction

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable. The GHFF is not an endangered ecological community.

(c) in relation to the habitat of a threatened species or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

The proposal would remove up to 0.09 hectare of vegetation, including trees that provide occasional foraging habitat for the GHFF. No camps would be impacted.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

The area of habitat that would be impacted for the proposed works is already fragmented from other areas of potential habitat. In addition, selective removal of trees and shrubs, would not fragment the habitat of such wide ranging mobile species. Therefore, the proposal will not isolate any currently connecting areas of potential habitat.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

Given the highly mobile nature of the species and the fact that the vegetation to be removed on site does not represent primary roosting or foraging habitat and extensive areas of habitat are present adjacent to the study area and within the LGA, the habitat to be removed is unlikely to be important to the long-term survival of this species.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

No declared area of outstanding biodiversity value has been identified by the Director-General of the Office of Environment and Heritage.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

Key threatening processes of relevance to the GHFF include the clearing of native vegetation. The proposal would result in the clearing of native vegetation however, this loss is considered minor due to the size of this habitat relative to the large home ranges of this species, and the areas of habitat in the surrounding landscape available to these highly mobile species.

Conclusion

The proposal is unlikely to constitute a significant impact on GHFF given that:

- No camps will be affected by the proposal.
- The species is highly mobile and forages widely.
- The proposal would not fragment or isolate habitat for this species.
- Potential habitat for this species would remain adjacent to the study area and is present throughout the locality.

Further, loss of vegetation will be offset in accordance with Transport for NSW's Vegetation Offset Guide, so in the long term additional habitat should be available to these species in the area.

Consequently, a SIS is not required for the proposal with respect to this species.

MICROCHIROPTERAN BATS

The following four microchiropteran bat species are regarded as having potential to occur within the study area and, consequently, have been grouped together for this Assessment of Significance. This is because they have certain similarities in their foraging and/or roosting behaviours, habitat requirements and consequently predicted impacts are considered to be the same or similar. Where obvious differences are apparent between each species, they are discussed separately.

The Large-eared Pied Bat, Eastern Bentwing Bat, Eastern Freetail Bat and Yellow-bellied Sheathtail-bat are listed as vulnerable under the BC Act. No individuals of these species were recorded during the field survey, although all species are known from records within a 10 kilometre radius of the study area (OEH 2015a). The proposed development would primarily impact on potential foraging habitat for these species, as no hollow-bearing trees have been identified in the study area.

Chalinolobus dwyeri (Large-eared Pied Bat)

The Large-eared Pied Bat is listed as vulnerable under the BC Act. It is a small to medium-sized bat with long, prominent ears and glossy black fur. The lower body has broad white fringes running under the wings and tail-membrane, meeting in a V-shape in the pubic area. The species is found mainly in areas with extensive cliffs and caves, from Rockhampton in Queensland south to Bungonia in the NSW Southern Highlands. It is generally rare with a very patchy distribution in NSW. There are scattered records from the New England Tablelands and North West Slopes (OEH 2015).

Large-eared Pied Bat roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the *Hirundo ariel* (Fairy Martin). Females have been recorded raising young in maternity roosts (c. 20-40 females) from November through to January in roof domes in sandstone caves. They remain loyal to the same cave over many years (OEH 2015).

Large-eared Pied Bat is found in well-timbered areas containing gullies. It frequents low to mid-elevation dry open forest and woodland close to caves, crevices in cliffs, old mine workings and disused mud nests of Fairy Martin. The relatively short, broad wing combined with the low weight per unit area of wing indicates manoeuvrable flight. This species probably forages for small, flying insects below the forest canopy (OEH 2015).

Mormopterus norfolkensis (Eastern Freetail-bat)

The Eastern Freetail-bat is listed as vulnerable under the BC Act. It is found along the east coast from south Queensland to southern NSW in dry eucalypt forests, woodlands, swamp forests and mangrove forests where they forage for insects among canopy gaps and on edges of vegetation and mainly roost in hollow-bearing trees. This species will utilise paddock trees and remnant vegetation in farmland where these are in proximity to larger forest remnants. This species usually forages within a few kilometres of its roost (OEH 2015).

Myotis macropus (Southern Myotis)

The Southern Myotis is listed as vulnerable under the BC Act. The species generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, stormwater channels, buildings, under bridges and in dense foliage. They forage over streams and pools catching insects and small fish by raking their feet across the water surface (OEH 2015).

Saccolaimus flaviventris (Yellow-bellied Sheathtail-bat)

The Yellow-bellied Sheathtail-bat roosts singly or in groups of up to six, in tree hollows and buildings. In treeless areas they are known to utilise mammal burrows. They forage in most habitats throughout their very wide range, including areas with and without trees and appear to defend an aerial territory (OEH 2015).

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Factors likely to have an adverse effect on the life cycle of the Large-eared Pied Bat, Eastern Freetail Bat, Southern Myotis and Yellow-bellied Sheathtail-bat would include a substantial loss of roosting habitats such as cliffs, mines and caves, loss and/or fragmentation of foraging habitat around these roosting sites, pesticide usage and inappropriate fire regimes.

The proposal would remove up to 0.09 hectare of native and exotic vegetation including trees, which represents potential foraging and roosting habitat for the Large-eared Pied Bat, Eastern Freetail Bat, Southern Myotis and Yellow-bellied Sheath-tail-bat.

The species are highly mobile and have a large home range. There is higher quality habitat available in the surrounding landscape, including suitable hollow bearing trees, therefore the species is considered likely to use the study area on an occasional basis and would not be dependent on the foraging resources within the study area.

Thus, given, the small area of potential habitat to be removed it is unlikely that the loss of vegetation/potential foraging habitat will significantly disrupt the life cycle of these species such that a viable local population is placed at risk.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable. Large-eared Pied Bat, Eastern Freetail Bat, Southern Myotis and Yellow-bellied Sheath-tail-bat are not an endangered ecological community.

(c) in relation to the habitat of a threatened species or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

The proposal would remove up to 0.09 hectare of native and exotic vegetation, which represents potential foraging and roosting habitat for the Large-eared Pied Bat, Eastern Freetail Bat, Southern Myotis and Yellow-bellied Sheath-tail-bat. The habitat to be removed comprises mainly scattered street trees. No hollow bearing trees were identified which might have been suitable for microbats.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

The area of habitat that would be impacted for the proposed works is already fragmented from other areas of potential habitat. In addition, selective removal of street trees and shrubs would not fragment the habitat of such wide ranging mobile species. Therefore, the proposal will not isolate any currently connecting areas of potential habitat.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

The habitat to be removed comprises scattered trees along roadsides. No hollow bearing tree, which may support roosting and breeding, would be affected by the proposal. There is alternative foraging habitat available throughout the Shire. Therefore, the disturbance of a small amount of foraging habitat is unlikely to affect the long-term survival of the species in the locality.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

No declared area of outstanding biodiversity value has been identified by the Director-General of the Office of Environment and Heritage.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

Key threatening processes relevant to this proposal with respect to the Large-eared Pied Bat, Eastern Freetail Bat, Southern Myotis and Yellow-bellied Sheath-tail-bat:

- Loss of hollow-bearing trees

- Clearing of native vegetation
- Artificial light sources spilling onto foraging and/or roosting habitat.

Whilst the proposal would increase the impact of these key threatening process, the scale of the impact is not considered significant, given the relatively small area of the proposed clearing of trees when considering the extent of surrounding vegetation which constitutes foraging habitat. No hollow bearing trees will be removed.

Conclusion

The proposal is unlikely to constitute a significant impact on Large-eared Pied Bat, Eastern Freetail Bat, Southern Myotis and Yellow-bellied Sheath-tail-bat, given that:

- The proposed works would constitute a minor disturbance to an area of foraging habitat within the study areas.
- The proposed works will not disturb any caves or adjacent habitat.
- Larger areas of suitable foraging habitat are present within the surrounding landscape.
- The proposal would not isolate or fragment any currently connecting areas of habitat in terms of use by highly mobile species.

Further, loss of vegetation will be offset in accordance with Transport for NSW's *Vegetation Offset Guide*, so in the long term additional habitat should be available to these species in the area. Consequently, a SIS is not required for the proposal with respect to these species.

EPBC Act Significance Impact Assessment

The EPBC Act Administrative Guidelines on Significance set out 'Significant Impact Criteria' that are to be used to assist in determining whether a proposed action is likely to have a significant impact on matters of national environmental significance. Matters listed under the EPBC Act as being of national environmental significance include:

- Listed threatened species and ecological communities
- Listed migratory species
- Wetlands of International Importance
- The Commonwealth marine environment
- World heritage properties
- National heritage places
- Nuclear actions

'Significant Impact Criteria' are provided for each matter of national environmental significance except for threatened species and ecological communities in which case separate criteria are provided for species listed as critically endangered, endangered and vulnerable under the EPBC Act.

Sydney Turpentine Ironbark Forest

Sydney Turpentine Ironbark Forest (STIF) is listed as a critically endangered ecological community (CEEC) under the EPBC Act.

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it:

Criteria 1: will the action reduce the extent of an ecological community

The local occurrence of STIF within the study area is defined by two patches which are separated by an existing train line. Dispersal and pollination are unlikely to be inhibited by the train line width (25 metres). For the purpose of this assessment the local occurrence includes all STIF mapped within the study area and extending to the south of the train line. Based on the NPWS (2002) mapping, the local occurrence of STIF is 0.72 ha (0.41 in Pollard Park and 0.31 in the car park).

The proposal would not reduce the current extent of STIF in Pollard Park or the patch adjacent to Kirrawee commuter carpark.

Criterion 2: will the action fragment or increase fragmentation of an ecological community.

The proposed works would not reduce the current local extent of STIF. Thus the proposal would not prevent the dispersal and pollination of flora and fauna species within the STIF patch, particularly the larger patch at Pollard Park. The habitat would not become further fragmented or isolated from other habitats as a result of the proposed actions.

Criterion 3: will the action adversely affect habitat critical to the survival of an ecological community.

Habitat critical to the survival of a species or ecological community' refers to areas that are necessary for activities such as foraging, breeding, roosting, or dispersal, for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators), to maintain genetic diversity and long term evolutionary development, or for the reintroduction of populations or recovery of the species or ecological community. Such habitat may be, but is not limited to: habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community; and/ or habitat listed on the Register of Critical Habitat maintained by the minister under the EPBC Act.

No STIF would be removed under the proposed works and so habitat critical to the survival of the community would not be adversely affected.

Criterion 4: will the action modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns.

The proposal would not substantially alter the abiotic factors necessary for the survival of the local occurrence of this community. Consideration should be given to using pervious pavement adjacent to this community to maximum rainfall infiltration.

Criterion 5: will the action cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting

The patch is subject to significant edge effects such as weed encroachment. This would continue and would require ongoing management to prevent loss of condition.

Criterion 6: will the action cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:

- *assisting invasive species, that are harmful to the listed ecological community, to become established, or*
- *causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or*

Potential indirect impacts on the local occurrence from invasive species (weeds) and pollutants (e.g. herbicides) would be mitigated through ongoing management such as best practice bush regeneration techniques.

Criterion 7: will the action interfere with the recovery of an ecological community.

The proposal would not result in a permanent loss of the extent of STIF within the study area for the proposed works. This action does not conflict with the recovery of the STIF community.

Conclusion

Based on the above assessment it is concluded that the proposed work is unlikely to have a significant impact on the STIF. As such, no referral to the Commonwealth Department of Environment for assessment and approval by the Environment Minister is necessary.

Pteropus poliocephalus (Grey-headed Flying-fox)

Grey-headed Flying-fox (GHFF) is listed as a vulnerable threatened species under the EPBC Act.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

Criterion a: lead to a long-term decrease in the size of an important population of a species

Trees to be removed for construction of the SCATL Stage 1 provide foraging habitat for the GHFF. However, only a small number of trees will be impacted compared to the available foraging habitat in the area and the species is highly mobile. No camps will be affected by the proposal.

Therefore, the proposal is unlikely to lead to a long-term decrease in the size of an important population of a species.

Criterion b: reduce the area of occupancy of an important population

There is a single interbreeding population of GHFF in Australia, and as such, any colony or individual of the species is an important population of the species. The proposal is unlikely to reduce the area of occupancy of an important population given that no camps have been recorded within the study area and that extensive foraging habitat exists in the surrounding landscape.

Criterion c: fragment an existing important population into two or more populations

There is a single interbreeding population of GHFF in Australia, and as such, any colony or individual of the species is an important population of the species. The area of habitat that would be impacted for the proposed works is already fragmented from other areas of potential habitat. In addition, selective removal of trees and shrubs would not fragment the habitat of such wide ranging mobile species. Therefore, the proposal will not fragment an existing important population into two or more populations.

Criterion d: adversely affect habitat critical to the survival of a species

Foraging habitat within a 50 kilometres radius of a roost site with greater than 30,000 individuals is foraging habitat critical to the survival of this species. The study area is located within 50 kilometres of

a number of camps. However, the proposed works will not directly impact the camp and would result in the removal/modification of a small amount of foraging habitat. Given the highly mobile nature of the species and the fact that extensive areas of habitat are present adjacent to the study area and within the LGA, the proposed works is not considered to have an adverse impact of habitat critical to the survival of the species.

Criterion e: disrupt the breeding cycle of an important population

As no roosting habitat would be removed or disturbed, it is unlikely the proposed work would disrupt the breeding cycle of an important population. Potential foraging habitat to be removed is minimal and unlikely to affect the amount of resources available to any breeding individuals.

Criterion f: modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;

Given the highly mobile nature of the species and the fact that the vegetation to be removed on site does not represent primary roosting or foraging habitat and extensive areas of habitat are present adjacent to the study area and within the LGA, the proposed works will not modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

Criterion g: Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat;

The proposal would not result in invasive species that would be harmful to GHFF. Weed control will be undertaken as part of the construction and maintenance of the SCATL Stage 1.

Criterion h: Introduce disease that may cause the species to decline;

GHFF are reservoirs for the Australian bat lyssavirus and can cause clinical disease and mortality in the species. The proposed works are unlikely to present a significant ecological stress on known individuals or camps utilizing the subject site and therefore unlikely to affect this species. The proposed works would be unlikely to introduce a disease that may cause this species to decline.

Criterion i: Interfere substantially with the recovery of the species;

Draft National Recovery Plan for the GHFF was developed in 2009. As no roosting habitat would be removed and foraging habitat exists in the surrounding landscape, the proposed works would be unlikely to interfere with the recovery of this species.

Conclusion

Based on the above assessment it is concluded that the proposed work is unlikely to have a significant impact on a population of GHFF. As such, no referral to the Commonwealth Department of Environment for assessment and approval by the Environment Minister is necessary.

Chalinolobus dwyeri (Large-eared Pied Bat)

The Large-eared Pied Bat is listed as a vulnerable threatened species under the EPBC Act.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

Criterion a: lead to a long-term decrease in the size of an important population of a species

The removal of potential foraging habitat is unlikely to have a significant impact on the life cycle of the Large-eared Pied Bat such that it would lead to a long-term decrease in the size of an important population. The amount of potential foraging habitat that would be lost is small relative to the amount of available habitat in the locality.

Criterion b: reduce the area of occupancy of an important population

This is not an important population. There is higher quality habitat available in the surrounding landscape, therefore the species is likely to use the study area on an occasional basis and would not be dependent on the foraging resources within the study area.

The amount of potential foraging habitat that would be lost is small relative to the amount of potential habitat in the locality. Therefore, the proposal is unlikely to reduce the area of occupancy of an important population.

Criterion c: fragment an existing important population into two or more populations

This is not an important population. The proposed action would not fragment an important population into two or more populations.

Criterion d: adversely affect habitat critical to the survival of a species

The Large-eared Pied Bat is dependent on the presence of diurnal roosts for shelter. Roosts are utilised during the day and also at night when not feeding, as well as for the raising of young. This bat has been known to roost in disused mine shafts, caves, overhangs and abandoned *Hirundo ariel* (Fairy Martin) nests. Sandstone cliffs and fertile wooded valley habitat within close proximity of each other should also be considered habitat critical to the survival of the Large-eared Pied Bat (DotE 2015).

No hollow bearing tree which may provide roosting or breeding habitat would be impacted as a result of the proposed works, and potential foraging habitat to be removed is minimal and unlikely to affect the amount of resources available to any breeding individuals. Also, there is higher quality habitat is available in the surrounding landscape, therefore the species is likely to use the study area on an occasional basis and would not be dependent on the foraging resources within the study area. Therefore, the proposed works would not adversely affect habitat critical to the survival of this species.

Criterion e: disrupt the breeding cycle of an important population

This is not an important population.

Criterion f: modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;

Given the highly mobile nature of the species and the fact that the vegetation to be removed on site does not represent primary roosting or foraging habitat and extensive areas of habitat are present adjacent to the study area and within the LGA, the proposed works would not modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

Criterion g: Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat;

The proposal would not result in invasive species, such as weeds, that would be harmful to Large-eared Pied Bat. Weeds would be controlled during construction and operation of the proposal.

Criterion h: Introduce disease that may cause the species to decline;

The proposed works would be unlikely to introduce a disease that may cause this species to decline.

Criterion i: Interfere substantially with the recovery of the species;

A National Recovery Plan for the Large-eared Pied Bat has been prepared. As roosting and foraging habitat exists in the surrounding landscape, the proposed works would be unlikely to interfere with the recovery of this species.

Conclusion

Based on the above assessment it is concluded that the proposed work is unlikely to have a significant impact on a population of Large-eared Pied Bat. As such, no referral to the Commonwealth Department of Environment for assessment and approval by the Environment Minister is necessary.

Appendix E Review of Environmental Factors

Please refer to the Transport for NSW website to access the SCATL Stage 1 REF:

<https://www.transport.nsw.gov.au/projects/current-projects/sutherland-to-cronulla-active-transport-link>

Appendix F Conditions of Approval

CONDITIONS OF APPROVAL

Sutherland to Cronulla Active Transport Link - Stage 1

Note: these conditions of approval must be read in conjunction with the final mitigation measures in the Sutherland to Cronulla Active Transport Link – Stage 1 Review of Environmental Factors.

Schedule of acronyms and definitions used:

Acronym	Definition
ADEIA	Associate Director Environmental Impact Assessment (or nominated delegate)
ADEM	Transport for NSW Associate Director Environmental Management (or nominated delegate)
ADSPD	Transport for NSW Associate Director Sustainability, Planning and Development (or nominated delegate)
AS	Australian Standard
CEMP	Construction Environmental Management Plan
CLP	Community Liaison Plan
dBA	Decibels (A-weighted scale)
ECM	Environmental Controls Map
EIA	Environmental Impact Assessment
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EMR	Environmental Management Representative
EMS	Environmental Management System
EPL	Environment Protection Licence issued by the Environmental Protection Authority under the <i>Protection of the Environment Operations Act 1997</i> .
ICNG	<i>Interim Construction Noise Guidelines</i> (Department of Environment and Climate Change, 2009)
ISO	International Standards Organisation
OEH	NSW Office of Environment and Heritage
OOHWP	Out of Hours Works Protocol
RBL	Rating Background Level
REF	Review of Environmental Factors
Roads and Maritime	NSW Roads and Maritime Service (formerly Roads and Traffic Authority)
SCATL	Sutherland to Cronulla Active Transport Link

Acronym	Definition
TMP	Traffic Management Plan
Construction	Includes all work in respect of the Proposal, other than survey, acquisitions, fencing, investigative drilling or excavation, building/road dilapidation surveys, or other activities determined by the Transport for NSW ADEM to have minimal environmental impact such as minor adjustments to services/utilities, establishing temporary construction compounds (in accordance with this approval), or minor clearing (except where threatened species, populations or ecological communities would be affected).
Contamination	The presence in, on or under land of a substance at a concentration above the concentration at which the substance is normally present in, on or under (respectively) land in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment.
Designated Works	Includes tunnelling, blasting, piling, excavation or bulk fill or any vibratory impact works including jack hammering and compaction, for Construction.
Emergency Work	Includes works to avoid loss of life, damage to external property, utilities and infrastructure, prevent immediate harm to the environment, contamination of land or damage to a heritage (indigenous or non-indigenous) item.
Environmental Impact Assessment (EIA)	The documents listed in Condition 1 of this approval.
Environmental Management Representative (EMR)	An independent environmental representative appointed to the Project, or a delegate nominated by Transport for NSW.
Feasible	A work practice or abatement measure is feasible if it is capable of being put into practice or of being engineered and is practical to build given Proposal constraints such as safety and maintenance requirements.
Noise Sensitive Receiver	In addition to residential dwellings, noise sensitive receivers include, but are not limited to, hotels, entertainment venues, pre-schools and day care facilities, educational institutions (e.g. schools, TAFE colleges), health care facilities (e.g. nursing homes, hospitals), recording studios, places of worship/religious facilities (e.g. churches), and other noise sensitive receivers identified in the environmental impact assessment.
Project	The construction and operation of the SCATL Stage 1 as described in the Environmental Impact Assessment.
Proponent	A person or body proposing to carry out an activity under Division 5.1 of the EP&A Act – in the case of the Proposal, Transport for NSW.
Reasonable and feasible	Consideration of best practice taking into account the benefit of proposed measures and their technological and associated operational application in the NSW and Australian context. Feasible relates to engineering considerations and what is practical to build. Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and nature and extent of potential improvements.

Condition number	Type
General	
1	<p>Terms of approval</p> <p>The Project shall be carried out generally in accordance with the environmental impact assessment (EIA) for this Project, which comprises the following documents:</p> <ul style="list-style-type: none"> a) <i>Sutherland to Cronulla Active Transport Link- Stage 1 – Review of Environmental Factors</i>, (Eco Logical Pty Ltd, October 2018) b) <i>Sutherland to Cronulla Active Transport Link- Stage 1 – Determination Report</i> (Transport for NSW, December 2018). <p>In the event of an inconsistency between these conditions and the EIA, these conditions will prevail to the extent of the inconsistency.</p>
2	<p>Project modifications</p> <p>Any modification to the project as approved in the EIA would be subject to further assessment. This assessment would need to demonstrate that any environmental impacts resulting from the modifications have been minimised. The assessment shall be subject to approval under delegated authority by Transport for NSW. The Proponent shall comply with any additional requirements from the assessment of the project modification.</p>
3	<p>Statutory requirements</p> <p>These conditions do not relieve the Proponent of the obligation to obtain all other licences, permits, approvals and land owner consents from all relevant authorities and land owners as required under any other legislation for the Project. The Proponent shall comply with the terms and conditions of such licences, permits, approvals and permissions.</p>
Communications	
4	<p>Community Liaison Plan</p> <p>The Proponent shall develop and implement a Community Liaison Plan (CLP) to engage with government agencies, relevant councils, landowners, community members and other relevant stakeholders (such as utility and service providers, bus companies and businesses) where required. The CLP shall comply with the obligations of these conditions and should include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> a) details of the protocols and procedures for disseminating information and liaising with the community and other key stakeholders about construction activities (including timing and staging) and any associated impacts during the construction period b) stakeholder and issues identification and analysis c) procedures for dealing with complaints or disputes and response requirements, including advertising the 24 hour construction response line number d) details (including a program) of training for all employees, contractors and sub-contractors on the requirements of the CLP. <p>Sub-plans to the CLP will be developed as required. These sub-plans will detail site-specific consultation and communication requirements for construction works that impact residents, other stakeholders and businesses. They will also identify further mitigation measures and processes to reduce construction impacts.</p> <p>The CLP shall be prepared to the satisfaction of the Director Community Engagement (or nominated delegate) prior to the commencement of construction and implemented, reviewed and revised as appropriate during construction of the Project.</p>

Condition number	Type
5	<p>Community notification and liaison</p> <p>The local community shall be advised of any activities related to the Project with the potential to impact upon them.</p> <p>Prior to any site activities commencing and throughout the Project duration, the community is to be notified of works to be undertaken, the estimated hours of construction and details of how further information can be obtained (i.e. contact telephone number/email, website, newsletters etc.) including the 24 hour construction response line number.</p> <p>Construction-specific impacts including information on traffic changes, access changes, detours, services disruptions, public transport changes, high noise generating work activities and work required outside the nominated working hours shall be advised to the local community at least seven (7) days prior to such works being undertaken or other period as agreed to by the Director Community Engagement or as required by Environment Protection Authority (EPA) (where an environment protection licence (EPL) is in effect).</p>
6	<p>Website</p> <p>The Proponent shall provide electronic information (or details of where hard copies of this information may be accessed by members of the public) related to the Project, on dedicated pages within its existing website, including:</p> <ul style="list-style-type: none"> a) a copy of the documents referred to under Condition 1 of this approval b) a list of environmental management reports that are publicly available c) 24 hour contact telephone number for information and complaints. <p>All documents uploaded to the website must be compliant with the <i>Web Content Accessibility Guidelines 2.0</i>.</p>
7	<p>Complaints management</p> <p>The Proponent shall set up a 24 hour construction response line number.</p> <p>Details of all complaints received during construction are to be recorded on a complaints register. A verbal response to phone enquiries on what action is proposed to be undertaken is to be provided to the complainant within two (2) hours during all times construction is being undertaken and within 24 hours during non-construction times (unless the complainant agrees otherwise). A verbal response to written complaints (email/letter) should be provided within 48 hours of receipt of the communication. A detailed written response is to be provided to the complainant within seven (7) calendar days for verbal and/or written complaints.</p> <p>Information on all complaints received during the previous 24 hours shall be forwarded to the Environmental Management Representative (EMR) each working day.</p>
Environmental management	
8	<p>Construction Environmental Management Plan</p> <p>The Proponent shall prepare a construction environmental management plan (CEMP) prior to commencement of construction which addresses the following matters, as a minimum:</p> <ul style="list-style-type: none"> (a) traffic and pedestrian management (in consultation with the relevant roads authority) (b) noise and vibration management (c) water and soil management (d) air quality management (including dust suppression) (e) indigenous and non-indigenous heritage management

Condition number**Type**

- (f) flora and fauna management
- (g) storage and use of hazardous materials
- (h) contaminated land management (including acid sulphate soils)
- (i) weed management
- (j) waste management
- (k) sustainability
- (l) environmental incident reporting and management procedures
- (m) non-compliance and corrective/preventative action procedures

The CEMP shall:

- i. comply with the Conditions of Approval, conditions of any licences, permits or other approvals issued by government authorities for the Project, all relevant legislation and regulations, and accepted best practice management
- ii. comply with the relevant requirements of *Guideline for Preparation of Environmental Management Plans* (Department Infrastructure, Planning and Natural Resources, 2004)
- iii. include an Environmental Policy.

The Proponent shall:

- 1. consult with government agencies and relevant service/utility providers as part of the preparation of the CEMP
- 2. submit a copy of the CEMP to the EMR for review
- 3. submit a copy of the CEMP to the ADEM (or nominated delegate) for approval
- 4. review and update the CEMP at regular intervals, and in response to any actions identified as part of the EMR's audit of the document
- 5. ensure updates to the CEMP are made within 7 days of the completion of the review or receipt of actions identified by any EMR audit of the document, and be submitted to the EMR for approval.

The CEMP must be approved by the ADEM prior to the commencement of construction work associated with the Project.

9**Environmental management representative**

Prior to the commencement of construction, the ADEM shall appoint an EMR for the duration of the construction period for the Project.

The EMR shall provide advice to the ADEM in relation to the environmental compliance and performance of the Project. The EMR shall have responsibility for:

- a) considering and advising the Proponent on matters specified in these conditions and compliance with such
 - b) reviewing and where required by the ADEM, providing advice on the Project's induction and training program for all persons involved in the construction activities and monitoring implementation
 - c) periodically auditing the Project's environmental activities to evaluate the implementation, effectiveness and level of compliance of on-site construction activities with authority approvals and licences, the CEMP and associated plans and procedures, including carrying out site inspections weekly, or as required by the ADEM
 - d) reporting weekly to the Proponent, or as required by the ADEM
 - e) issuing a recommendation to the Proponent for work to stop immediately, if in
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Condition number	Type
	<p>the view of the EMR circumstances so require. The stop work recommendation may be limited to specific activities if the EMR can easily identify those activities</p> <ul style="list-style-type: none"> f) requiring reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts g) reviewing corrective and preventative actions to ensure the implementation of recommendations made from the audits and site inspections h) providing reports to the Proponent on matters relevant to the carrying out of the EMR role as necessary i) where required by the ADEM, providing advice on the content and implementation of the CEMP and environmental controls map (ECM) in accordance with the conditions j) reviewing and approving updates to the CEMP. <p>The EMR shall be available during construction activities to inspect the site(s) and be present on-site as required.</p>
10	<p>Environmental Controls Map</p> <p>An Environmental Controls Map (ECM) shall be prepared in accordance with Transport for NSW's <i>Guide to Environmental Controls Map</i> (3TP-SD-015) prior to the commencement of construction for implementation for the duration of construction. The ECM is to be endorsed by the EMR and may be prepared in stages as set out in the CEMP.</p> <p>The ECM shall be prepared as a map – suitably enlarged (e.g. A3 size or larger) for mounting on the wall of a site office and included in site inductions, supported by relevant written information.</p> <p>A copy of the ECM shall be submitted to the EMR for review and endorsement. The EMR is to be given a minimum period of 7 days to review and endorse the ECM.</p>
Hours of work	
11	<p>Standard construction hours</p> <p>Construction activities shall be restricted to the hours of 7:00 am to 6:00 pm (Monday to Friday); 8:00 am to 1:00 pm (Saturday) and at no time on Sundays and public holidays except for the following works which are permitted outside these standard hours:</p> <ul style="list-style-type: none"> a) any works which do not cause noise emissions to be more than 5dBA higher than the rating background level at any nearby residential property and/or other noise sensitive receivers b) out of hours work identified and assessed in the EIA or the approved out of hours work protocol (OOHWP) c) the delivery of plant, equipment and materials which is required outside these hours as requested by police or other authorities for safety reasons and with suitable notification to the community as agreed by the ADEM d) emergency work to avoid the loss of lives, property and/or to prevent environmental harm e) any other work as agreed by the ADEM (or nominated delegate) and considered essential to the Project, or as approved by EPA (where an EPL is in effect).
12	<p>High noise generating activities</p> <p>Rock breaking or hammering, jack hammering, pile driving, vibratory rolling, cutting of</p>

Condition number	Type
	pavement, concrete or steel and any other activities which result in impulsive or tonal noise generation shall not be undertaken for more than 3 hours, without a minimum 1 hour respite period unless otherwise agreed to by the ADEM (or nominated delegate), or as approved by EPA (where relevant to the issuing of an EPL), unless inaudible at nearby residential properties and/or other noise sensitive receivers.
Noise and vibration	
13	<p>Construction noise and vibration</p> <p>Construction noise and vibration mitigation measures shall be implemented through the CEMP, in accordance with Transport for NSW's <i>Construction Noise Strategy 2016</i> and the EPA <i>Interim Construction Noise Guideline</i> (July 2009). The mitigation measures shall include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> a) details of construction activities and an indicative schedule for construction works b) identification of construction activities that have the potential to generate noise and/or vibration impacts on surrounding land uses, particularly sensitive noise receivers c) detail what reasonable and feasible actions and measures shall be implemented to minimise noise impacts (including those identified in the environmental impact assessment) d) procedures for notifying sensitive receivers of construction activities that are likely to affect their noise and vibration amenity, as well as procedures for dealing with and responding to noise complaints e) an OOHWP for the assessment, management and approval of works outside the standard construction hours identified in Condition 11 of this approval, including a risk assessment process which deems the out of hours activities to be of low, medium or high environmental risk, is to be developed. All out of hours works are subject to approval by the EMR and/or ADEM (or nominated delegate) or as approved by EPA (where relevant to the issuing of an EPL). The OOHWP should be consistent with the Transport for NSW <i>Construction Noise Strategy 2016</i> f) a description of how the effectiveness of actions and measures shall be monitored during the proposed works, identification of the frequency of monitoring, the locations at which monitoring shall take place, recording and reporting of monitoring results and if any exceedance is detected, the manner in which any non-compliance shall be rectified.
14	<p>Vibration criteria</p> <p>Vibration (other than from blasting) resulting from construction and received at any structure outside of the Project shall be limited to:</p> <ul style="list-style-type: none"> a) for structural damage vibration – German Standard DIN 4150:Part 3 – 1999: <i>Structural Vibration in Buildings: Effects on Structures</i> b) for human exposure to vibration – the acceptable vibration values set out in the <i>Environmental Noise Management Assessing Vibration: A Technical Guideline</i> (DEC 2006). <p>These limits apply unless otherwise approved by the ADEM through the CEMP.</p>
15	<p>Noise impacts on educational facilities</p> <p>Potentially affected pre-schools, schools, universities and any other permanent educational institutions shall be consulted in relation to noise mitigation measures to identify any noise sensitive periods (e.g. exam periods). As much as reasonably practicable noise intensive construction works in the vicinity of affected educational buildings are to be minimised.</p>
16	Non-tonal reversing beepers

Condition number	Type
	Non-tonal reversing beepers (or an equivalent mechanism) shall be fitted and used on all construction vehicles and mobile plant regularly used on site (i.e. greater than one day) and for any out of hours work.
Contamination and hazardous materials	
17	<p>Unidentified contamination (other than asbestos)</p> <p>If previously unidentified contamination (excluding asbestos) is discovered during construction, work in the affected area must cease immediately, and an investigation must be undertaken and report prepared to determine the nature, extent and degree of any contamination. The level of reporting must be appropriate for the identified contamination in accordance with relevant EPA guidelines, including the <i>Guidelines for Consultants Reporting on Contaminated Sites</i> (OEH, 2011).</p> <p>The Proponent shall:</p> <ul style="list-style-type: none"> a) submit a copy of any contamination report to the EMR for review. The EMR is to be given a minimum period of 7 days to review and provide any comments to the Proponent in relation to the report b) submit a copy of the report to the ADEM for consideration upon completion of the EMR review period. The ADEM shall determine whether consultation with the relevant council and/or EPA is required prior to continuation of construction works within the affected area. <p><i>Note: In circumstances where both previously unidentified asbestos contamination and other contamination are discovered within a common area, nothing in these conditions shall prevent the preparation of a single investigation report to satisfy the requirements of both Condition 17 and Condition 18.</i></p>
18	<p>Asbestos management</p> <p>If previously unidentified asbestos contamination is discovered during construction, work in the affected area must cease immediately, and an investigation must be undertaken and a report prepared to determine the nature, extent and degree of the asbestos contamination. The level of reporting must be appropriate for the identified contamination in accordance with relevant EPA and SafeWork NSW guidelines and include the proposed methodology for the remediation of the asbestos contamination. Remediation activities must not take place until receipt of the investigation report.</p> <p>Works may only recommence upon receipt of a validation report from a suitably qualified contamination specialist that the remediation activities have been undertaken in accordance with the investigation report and remediation methodology.</p> <p>Note: <i>In circumstances where both previously unidentified asbestos contamination and other contamination are discovered within a common area, nothing in these conditions shall prevent the preparation of a single investigation report to satisfy the requirements of both Condition 17 and Condition 18.</i></p>
19	<p>Storage and use of hazardous materials</p> <p>Construction hazard and risk issues associated with the use and storage of hazardous materials shall be addressed through risk management measures, which shall be developed prior to construction as part of the overall CEMP, in accordance with relevant EPA guidelines, Transport for NSW's <i>Chemical Storage and Spill Response Guidelines</i> (9TP-SD-066) and Australian and International Standards Organisation (ISO) standards. These measures shall include:</p> <ul style="list-style-type: none"> a) the storage of hazardous materials, and refuelling/maintenance of construction plant and equipment to be undertaken in clearly marked designated areas that are designed to contain spills and leaks b) spill kits, appropriate for the type and volume of hazardous materials stored or in use, to be readily available and accessible to construction workers. Kits are to be

Condition number	Type
	<p>kept at hazardous materials storage locations, in site compounds and on specific construction vehicles. Where a spill to a watercourse is identified as a risk, spill kits are to be kept in close proximity to potential discharge points in support of preventative controls</p> <p>c) all hazardous materials spills and leaks to be reported to site managers and actions to be immediately taken to remedy spills and leaks</p> <p>d) training in the use of spill kits to be given to all personnel involved in the storage, distribution or use of hazardous materials.</p>
Soils and water	
20	<p>Erosion and sediment control</p> <p>Soil and water management measures shall be prepared and implemented as part of the CEMP for the mitigation of water quality and hydrology impacts during construction of the Project. The management measures shall be prepared in accordance with <i>Managing Urban Stormwater: Soils and Construction - Volume 1</i>, 4th Edition (Landcom, 2004).</p>
Heritage management	
21	<p>Indigenous and non-Indigenous heritage</p> <p>If previously unidentified Indigenous or non-Indigenous heritage/archaeological items are uncovered during construction works, the procedures contained in the Transport for NSW <i>Unexpected Heritage Finds Guideline</i> (3TP-SD-115) shall be followed and all works in the vicinity of the find shall cease. The Transport for NSW Environment and Planning Manager shall be immediately notified to co-ordinate a response, which may include seeking appropriate advice from a suitably qualified and experienced heritage consultant (in consultation with the Heritage Division, Office of Environment and Heritage (OEH) where appropriate). Works in the vicinity of the find shall not recommence until clearance has been received from Transport for NSW and/or the heritage consultant.</p>
Flora and fauna	
22	<p>Removal of trees or vegetation</p> <p>Separate approval, in accordance with Transport for NSW's <i>Removal or Trimming of Vegetation Application</i> (9TP-FT-078), is required for the trimming, cutting, pruning or removal of trees or vegetation where the impact has not already been identified in the EIA for the Project. The trimming, cutting, pruning or removal of trees or vegetation shall be undertaken in accordance with the conditions of that approval.</p>
23	<p>Replanting program</p> <p>All cleared vegetation shall be offset in accordance with Transport for NSW's <i>Vegetation Offset Guide</i> (9TP-ST-149). All vegetation planted on-site is to consist of locally endemic native species, unless otherwise agreed by the ADEM (or nominated delegate), following consultation with the relevant council, where relevant, and/or the owner of the land upon which the vegetation is to be planted.</p>
Traffic and access	
24	<p>Construction Traffic Management Plan</p> <p>A Construction Traffic Management Plan (TMP) shall be prepared as part of the CEMP which addresses, as a minimum, the following:</p> <p>a) ensuring adequate road signage at construction work sites to inform motorists and</p>

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	<p>pedestrians of the work site ahead to ensure that the risk of road accidents and disruption to surrounding land uses is minimised</p> <ul style="list-style-type: none"> b) maximising safety and accessibility for pedestrians and cyclists c) ensuring adequate sight lines to allow for safe entry and exit from the site d) ensuring access to railway stations, businesses, entertainment premises and residential properties (unless affected property owners have been consulted and appropriate alternative arrangements made) e) managing impacts and changes to on and off street parking, and requirements for any temporary replacement parking f) parking locations for construction workers away from stations and busy residential areas, and details of how this will be monitored for compliance g) routes to be used by heavy construction-related vehicles to minimise impacts on sensitive land uses and businesses h) details for relocating kiss and ride, taxi ranks bus stops (and rail replacement bus stops if required), including appropriate signage to direct customers, in consultation with the relevant taxi/bus operator. Particular provisions should also be considered for the accessibility impaired i) measures to manage traffic flows around the area affected by the Project, including as required regulatory and direction signposting, line marking and variable message signs and all other traffic control devices necessary for the implementation of the construction TMP <p>The Proponent shall consult with the relevant roads authority during preparation of the TMP, as required and obtain any approvals as required under the <i>Roads Act 1993</i>. The performance of all Project traffic arrangements are be monitored at regular intervals (no less than annually) during construction.</p>
Sustainability	
25	<p>Sustainability Strategic Management Plan</p> <p>Prior to finalisation of the Project's detailed design, a Sustainability Strategic Management Plan (SSMP) shall be prepared which outlines the sustainability objectives for the project and demonstrates how objectives and sustainability are addressed in design through to construction and operation to the satisfaction of the ADSPD. The Plan shall include the following minimum components:</p> <ul style="list-style-type: none"> (a) sustainability opportunities and risks for the project, identifying initiatives that should be considered for the project as part of the design process that address Transport for NSW sustainability objectives <p>The Proponent shall submit a copy of the SSMP to the ADSPD for approval, as part of strategic business case or final business case (or within such time as otherwise agreed to by the ADSPD).</p> <p>The SSMP shall be:</p> <ul style="list-style-type: none"> i. prepared prior to the finalisation of the Project's detailed design ii. prepared in consultation with relevant stakeholders iii. prepared by the sustainability team or a sustainability practitioner. iv. accepted by Transport for NSW's Sustainability and Systems team.
26	<p>A pre-construction sustainability report (PCSR) shall be prepared prior to construction that addresses sustainability in design through to construction to the satisfaction of the ADSPD. The Plan shall include the following minimum components:</p> <ul style="list-style-type: none"> (a) a completed electronic checklist demonstrating compliance with Transport for

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	<p>NSW's <i>NSW Sustainable Design Guidelines Version 4.0</i></p> <ul style="list-style-type: none"> (b) a statement outlining the Proponent's own corporate sustainability obligations, goals, targets, in house tools, etc (c) a section detailing sustainability initiatives and innovation initiatives that will be implemented on the project as well as a project plan detailing a process and steps that will be taken to progress the identified initiatives. <p>The Proponent shall submit a copy of the PCSR to the ADSPD for approval, at least 14 days prior to the commencement of construction (or within such time as otherwise agreed to by the ADSPD).</p>
	Urban Design
27	<p>Urban design statement</p> <p>The Proponent shall prepare an urban design statement (UDS) which demonstrates compliance with Sutherland Shire Council's Public Domain Design Manual (2017) and includes the following:</p> <ul style="list-style-type: none"> (a) materials, finishes, colour schemes and maintenance procedures including graffiti control for new walls, barriers and fences (b) location and design of street furniture including relocated bus and taxi facilities, signage and lighting equipment (c) landscape treatments and street tree planting to integrate with surrounding streetscape (d) total water management principles to be integrated into the design where considered appropriate. <p>The UDS shall be:</p> <ul style="list-style-type: none"> i. prepared for each design phase and shall accompany design documentation packages ii. prepared in consultation with council and relevant stakeholders iii. prepared by an urban design professional iv. accepted by Transport for NSW's Precincts and Urban Design Team.

END OF CONDITIONS