Transport for NSW

# ZEB Macquarie Park Bus Depot

## REF submissions report

September 2024

NSW GOVERNMENT

transport.nsw.gov.au

# Acknowledgement of Country

Transport for NSW acknowledges the traditional custodians of the land on which we work and live.

We pay our respects to Elders past and present and celebrate the diversity of Aboriginal people and their ongoing cultures and connections to the lands and waters of NSW.

Many of the transport routes we use today – from rail lines, to roads, to water crossings – follow the traditional Songlines, trade routes and ceremonial paths in Country that our nation's First Peoples followed for tens of thousands of years.

Transport for NSW is committed to honouring Aboriginal peoples' cultural and spiritual connections to the land, waters and seas and their rich contribution to society.

Prepared by AtkinsRéalis and Transport for NSW.

# Executive summary

## The proposal

Transport for NSW (Transport) is proposing to build a new battery electric bus depot at 1A and 1B Talavera Road, Macquarie Park as part of the Zero Emission Buses Greater Sydney Stage 1. The Macquarie Park Bus Depot (the proposal) will accommodate around 165 battery electric buses (BEBs) to support public transport services to the lower North Shore and Northwest suburbs of Sydney, stretching to Chatswood, Ryde and Paramatta.

The proposal will be the first purpose built battery electric bus depot delivered as part of the Zero Emission Buses (ZEB) Program, a New South Wales (NSW) Government initiative to transition the State's 8,000 plus diesel and compressed natural gas buses, to zero emissions technology by 2047.

Key community benefits of the ZEB Program include:

- improved liveability in the area through reduced noise and air pollution from diesel and gas buses
- an improved passenger experience on board and at bus interchanges

Key features of the proposal include:

- building new facilities to support the future bus operations including:
  - a single-level underground staff and visitor car park accessed from Talavera Road
  - an administration office
  - a bus maintenance facility
  - a bus wash bay
- removal of an existing bike path connection between M2 Hills Motorway and Talavera Road
- up to 162 bus charging bays and maintenance bays
- one breakdown bay
- installation of gantries and charging structures
- installation of chargers for buses around the depot
- upgrading and widening of Pittwater Road to enable two-way bus access to and from the depot
- essential fire services
- installation of new dedicated walkways, security booths, fencing and lighting
- additional features of the proposal include:
  - substantial earthwork including retaining walls to create a suitable level operating surface
  - associated electrical infrastructure including power supply and switchgear
  - drainage and flood storage provision, including culvert construction
  - utilities adjustments
  - temporary on-site ancillary facilities during construction

Construction is expected to commence around mid-2025 and would take around 18-24 months to complete.

## Display of the review of environmental factors (REF)

Transport prepared a REF for the ZEB Macquarie Park Bus Depot. The REF was publicly displayed between 3 June and 24 June 2024 at which time key stakeholders and the community were invited to provide feedback on the proposal.

The REF was published on Transport's project website (https://www.transport.nsw.gov.au/macpark-depot), the NSW Government Have Your Say website (https://www.nsw.gov.au/have-your-say/macquarie-park-bus-

depot) and made available for download. A printed copy of the REF was also provided to City of Ryde Council Customer Service Centre at 1 Pope Street, Ryde NSW 2112.

The community were informed of the REF display location and website address through:

- email issued to stakeholders identified through early stakeholder mapping
- community notification distribution within 400m of the proposal
- hand-delivered letters issued to occupiers of adjoining land
- four posters installed at Talavera Road and Pittwater Road site entrances
- one post on Facebook.

Transport also held community information sessions during the public display period to give the community a chance to learn more about the project, ask questions and 'have their say'. The community information sessions were held at Café Parco (5 Talavera Road, Macquarie Park) by Transport staff on 4 June 2024 and 12 June 2024.

## Summary of issues and responses

Public display of the REF and the supporting consultation resulted in a total of 64 submissions, of which 52 were from the general community, one was from City of Ryde, one was from a government agency, one was a key stakeholder, five were from local businesses, one was a business interest group, one was a business owner, and two were property owners.

Of these submissions, 19 were in full support of the proposal, 8 submissions expressed partial support or were neutral about the proposal, and 23 objected to the proposal. The remaining 14 submissions raised comments or requests but did not offer a position on the proposal.

The five main issues raised during display of the REF were:

- proposal justification
- proposal design
- traffic, transport and access
- safety
- landscape, character and visual

Responses to these issues are summarised below.

### Proposal justification

Some submissions queried the justification for the proposal, including the viability and cost effectiveness of the ZEB program, the alignment of the proposal with the net zero agenda, and the lifespan and cost of ZEB compared to diesel/gas buses. The proposal will contribute to the NSW Government's target of achieving net zero emissions by 2050. Transport has been using ZEBs in a trial since 2019 which has shown that they are viable. The ZEBs have a similar lifespan in terms of the whole asset to diesel or natural gas buses; the main difference being that ZEBs require a change of batteries every 8-10 years.

Submissions raised a lack of detail in the REF around other sites considered for the proposal. Submissions also suggested various alternative locations for a ZEB bus depot. The key criteria for selecting the potential depot location are that it must be located on Transport-owned land within bus contract region 7, be of appropriate size to accommodate the required capacity requirements and be suitably located to ensure effective access and operational performance of the depot. Based on this, the only option identified that meets these criteria are land plots at 1A/1B Talavera Road at Macquarie Park. There were no other potential depot locations that met all the criteria.

## Proposal design

**Design clarification**

Various submissions requested clarification around the design, including on aspects such as site security, drainage and retaining wall interfaces, proposal location, bus entry/exit points, and impact on third party road assets.

Where additional environmental and community impacts may arise as part of detailed design, consultation will be undertaken with effected stakeholders.

**General design suggestions/requests**

Submissions included several general design suggestions and requests in relation to the proposal, including high quality and the need for design excellence standards, yard supervisor room, motorcycle parking facilities, duty officer and lost property room, flagpole and small garden, shade sail over bus parking area to protect drivers from adverse weather, private coach parking at depot, Electric Vehicle (EV) charging stations for public use, footpath continuity to site, road pavement reconstruction, utility service connections to be underground, reconsider the requirement for retaining wall, and incorporating 'woven ways' into the design as featured in the finalised Macquarie Park Innovation Precinct Place Strategy (NSW Department of Planning and Environment, 2022).

All the design suggestions and requests raised in the submissions have been noted and some will be further investigated during the detailed design of the proposal.

**Electricity/power supply and demand**

Concerns were raised in the submissions around the ability to meet the required power supply demand for the depot, as well as sourcing the power from renewable energy.

Transport is working closely with Ausgrid to secure the required power supply requirements for the depot.

Transport will be procuring a 100% firmed renewable electricity supply to power the remainder of the depot not powered by the depot solar photovoltaic (PV) system, as outlined in Section 3.1.7 of the REF. The depot (including depot buildings) shall utilise energy efficient fixtures and fittings and passive design measures to reduce total energy demand.

**Renewable energy generation**

A number of submissions identified the potential for renewable energy generation as part of the proposal and suggested the inclusion of solar panels, solar-charging pavement and inclusion of a Battery Energy Storage System (BESS). A solar photovoltaic (PV) system is proposed for installation on the maintenance workshop building, as outlined in Section 3.1.7 of the REF. Additional locations for solar PV systems and inclusion of a BESS may be investigated as part of detailed design to meet the existing sustainability and greenhouse gas emission environmental safeguards.

## Traffic, transport and access

**Impact on local road network**

Concerns were raised in the submissions around the location of the proposal and its potential to result in increased traffic on the local road network, in relation to the existing congestion during peak hours and traffic choke points on Talavera Road, Lane Cove Road, and Waterloo Road, and its impacts on residents. The Traffic and Transport Assessment (TTA) undertaken concludes that the performance of intersections would not be changed by the proposal.

In general, City of Ryde Council queried aspects of the TTA and requested that should amendments to access be proposed during detailed design, the TTA should be refined. Traffic and transport impacts will be assessed, where additional impacts are expected as a result of detailed design.

Submissions also referred to cumulative development/construction occurring in the area, as well as the high degree of uncertainty regarding future development in the precinct. A specific concern was raised around future traffic generation being significantly higher than the background traffic growth data used in the modelling for the TTA. It is acknowledged that there is a high degree of uncertainty around future

development in the precinct, which may impact future traffic generation growth. Transport have provided the NSW Department of Planning, Housing and Industry (DPHI) with information on the proposed ZEB Macquarie Park Bus Depot to consider during the preparation of the Macquarie Park Innovation Precinct Stage 2 Rezoning Proposal.

**Site access**

Various alternatives to accessing the site were suggested in the submissions. The proposal separates light and heavy vehicles with light vehicles accessing via Talavera Road and heavy vehicles, including construction vehicles and buses, via Pittwater Road. This reduces the risk of driving light vehicles through an active depot. Feedback received during the community information sessions supported the proposed different access points for light and heavy vehicles. Access to the site, including dimensions of entrances, will be further developed during detailed design.

**Active transport**

In terms of active transport, a number of submissions expressed concern around the removal of the bike path connection between the M2 Hills Motorway (M2) and Talavera Road. The submissions indicated that the bike path is considered as a highly convenient link in the bike path network. Following consideration of the feedback received, Transport is looking into options to retain or relocate the existing bike path connecting the M2 and Talavera Road as part of detailed design. A suggestion was made around pedestrian and bicycle access also being provided to the depot from Pittwater Road. For safety reasons, access for pedestrians and bicycles will remain separate from the access for buses.

In relation to car parking supply, City of Ryde Council do not support the proposed 90% private vehicle mode-share for the depot, particularly given that the Macquarie Park Metro Station is located around 400 metres from the proposed site. Private vehicle parking numbers have been designed to support the proposed split shifts at the depot during operations. The number of car and motorcycle spaces will be further explored during detailed design and in consultation with the bus operator.

## Safety

Submissions raised fire-related safety concerns around lithium-ion batteries in electric vehicles, fire events on-site and how this would be contained to protect neighbouring businesses. Transport is working closely with industry, bus operators and fire safety experts, including Fire and Rescue NSW and Office of Transport Safety Investigations, to identify any fire safety risks and mitigations that can be applied. Fire and Rescue NSW have specific requirements for battery electric vehicles and their charging infrastructure such as being located externally or in open air where possible and protected by fire hydrant coverage. These requirements will be integrated during the detailed design, in consultation with Fire and Rescue NSW.

A safety concern was also raised around the audibility of electric vehicles. To ensure peoples' safety, battery electric buses will be fitted with an acoustic vehicle alert system (AVAS) in accordance with Australian Design Rule 113/00 – Acoustic Vehicle Alerting Systems for Quiet Road Transport Vehicles 2024. The AVAS will generate an alerting sound while electric buses are travelling at low speeds of up to 25km/hr. Electric buses produce enough sound to hear whilst travelling above 25km/hr.

## Landscape character and visual

Submissions expressed concerns around insufficient details being provided in the consultation material, including lack of any landscape plan and visual impact study. A landscape character and visual impact assessment was undertaken for the proposal to assess the potential impacts on the existing landscape character and views in the area surrounding the proposal. The assessment is included in Section 6.6 of the REF.

The visual impact assessment assessed several publicly accessible representative viewpoints in the area of the proposal, to ascertain potential landscape character and visual impacts and determine appropriate mitigation and management measures for minimising any impacts identified. These measures will be addressed during the detailed design.

A key management measure is the preparation of an Urban Design and Landscape Plan (UDLP) for the proposal as part of detailed design. The UDLP will investigate additional opportunities for landscaping.

Tree and vegetation removal is required to facilitate construction of the proposal. A Tree and Hollow Replacement Plan, which prioritises offset planting in the local area including within the depot site, will be

developed during the detailed design phase. All replacement planting will be undertaken in accordance with Transport's *Tree and Hollow Replacement guidelines EMF-BD-GD-0129* (Transport for NSW, 2023).

## Changes to the proposal

After consideration of the issues raised in the public submissions, no changes to the proposal, such as amended designs or concept plan figures, are proposed. However, in response to feedback received in the submissions, additional safeguards and management measures have been proposed, and some feedback will be considered as part of detailed design. These are detailed in Section 5.2 of this submissions report.

## Next steps

Transport, as the determining authority, will consider the information in the REF and this submissions report and make a decision whether or not to proceed with the proposal.

Transport will inform the community and stakeholders of this decision and, where a decision is made to proceed, will continue to consult with the community and stakeholders prior to and during the construction phase.

# Table of contents

# Tables



# Figures

# 1. Introduction and background

## 1.1 The proposal

Jointly funded by the Australian and NSW Governments, the ZEB Macquarie Park Bus Depot (the proposal) will be the first purpose-built battery electric bus depot delivered as part of the Zero Emission Buses Program (ZEB Program).

The ZEB Program is a NSW Government initiative to transition the State's 8,000 plus diesel and gas buses, to zero emissions technology by 2047. This transition delivers on the NSW Government's commitment to achieve net zero emissions by 2050, and to provide more comfortable journeys and liveable places for our passengers and communities.

The first stage of the ZEB Program is expected to be completed by 2028 and will deliver:

- 1,200 new electric buses for Greater Sydney
- 11 existing bus depots conversions to support the new battery electric fleet
- a new bus depot proposed to be built in Macquarie Park

Along with planned new electric buses and those already in service, it is expected there will be around 1,700 zero emission buses operating on Sydney roads by the end of 2028.

The key objectives of the ZEB program include:

- transition to net zero bus services and renewable energy sources in alignment with government policy
- increase liveability – reduction in bus noise and emissions, during operation, asset life & supply chain
- increase efficiencies in bus operations and maintenance
- improve fuel security and cost certainty
- increase mode shift to bus through improved passenger experience
- increase opportunities for local investment – (manufacturing, assembly, training and education).

For more information about the ZEB Program, please visit transport.nsw.gov.au/zeroemissionbuses.

**ZEB Macquarie Park Bus Depot**

Transport for NSW (Transport) is proposing to build a new battery electric depot at 1A and 1B Talavera Road, Macquarie Park. The proposal will accommodate around 165 battery electric buses to support public transport services to the lower North Shore and Northwest suburbs of Sydney, stretching to Chatswood, Ryde and Paramatta.

Key features of the proposal include:

- building new facilities to support the future bus operations including:
  - a single-level underground staff and visitor car park accessed from Talavera Road
  - an administration office
  - a bus maintenance facility
  - a bus wash bay
- removal of an existing bike path connection between the M2 Hills Motorway and Talavera Road
- up to 162 bus charging bays and maintenance bays
- one breakdown bay
- installation of gantries and charging structures
- installation of chargers for buses around the depot

- upgrading and widening of Pittwater Road to enable two-way bus access to and from the depot
- essential fire services
- installation of new dedicated walkways, security booths, fencing and lighting
- additional features of the proposal include:
  - substantial earthwork including retaining walls to create a suitable level operating surface
  - associated electrical infrastructure including power supply and switchgear
  - drainage and flood storage provision, including culvert construction
  - utilities adjustments
  - temporary on-site ancillary facilities during construction.

The proposal is located on a parcel of surplus land owned by Transport, which has been used consistently by construction projects in the past as compound and laydown areas. The site comprises a mix of vegetated and cleared areas. The sloping site is bounded to the east by the M2 Hills Motorway. Beyond the motorway, to the east, lies the boundary of Lane Cove National Park.

Various commercial and industrial spaces surround the proposal, including the Cleanaway Ryde Resource Recovery Centre, to the east, and existing commercial developments to the west and south. The closest residential properties are to the northeast of the proposal.

Pending approval, construction is expected to commence around mid-2025 and would take around 18-24 months to complete.

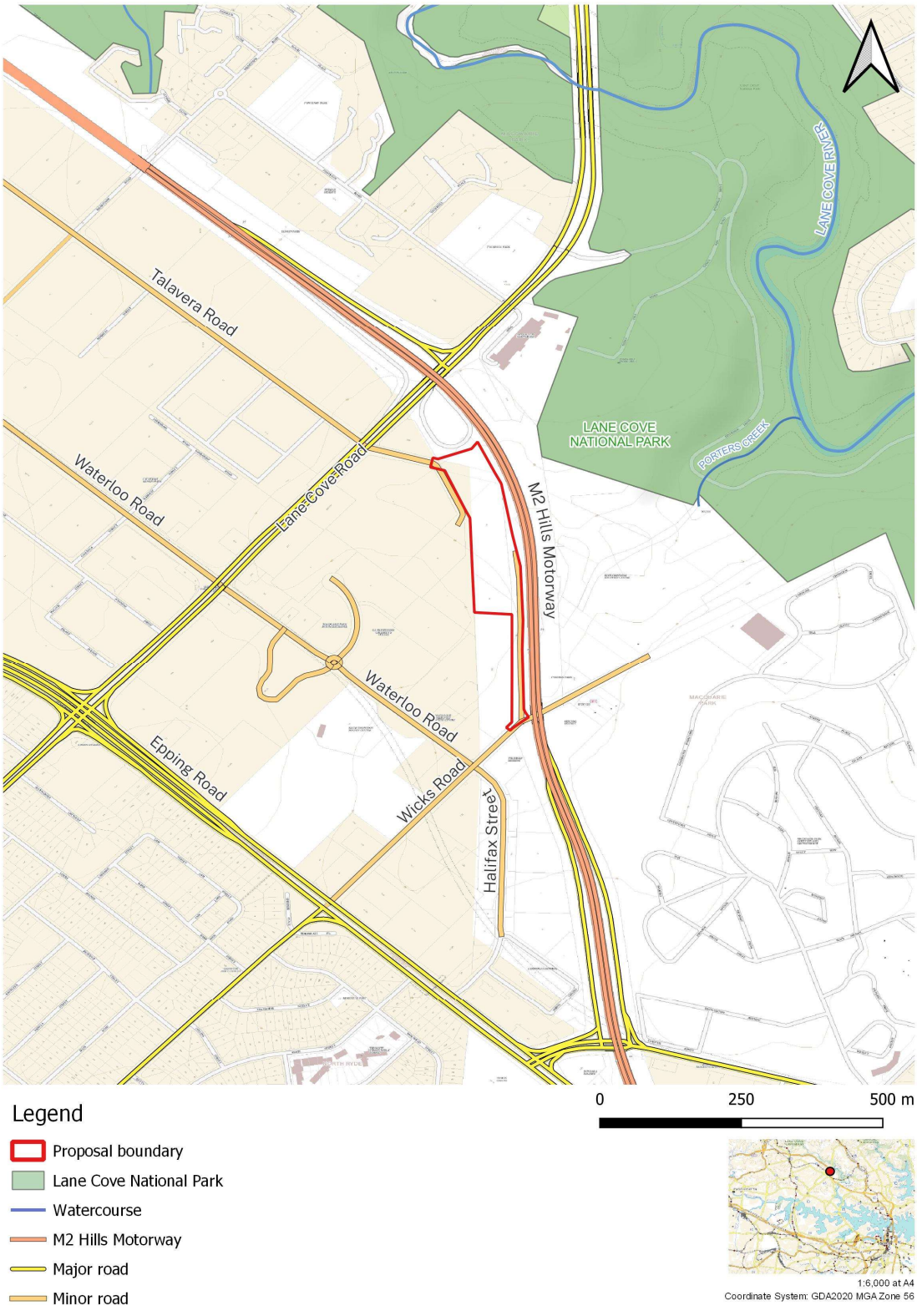


Figure 1-1: Location of the proposal

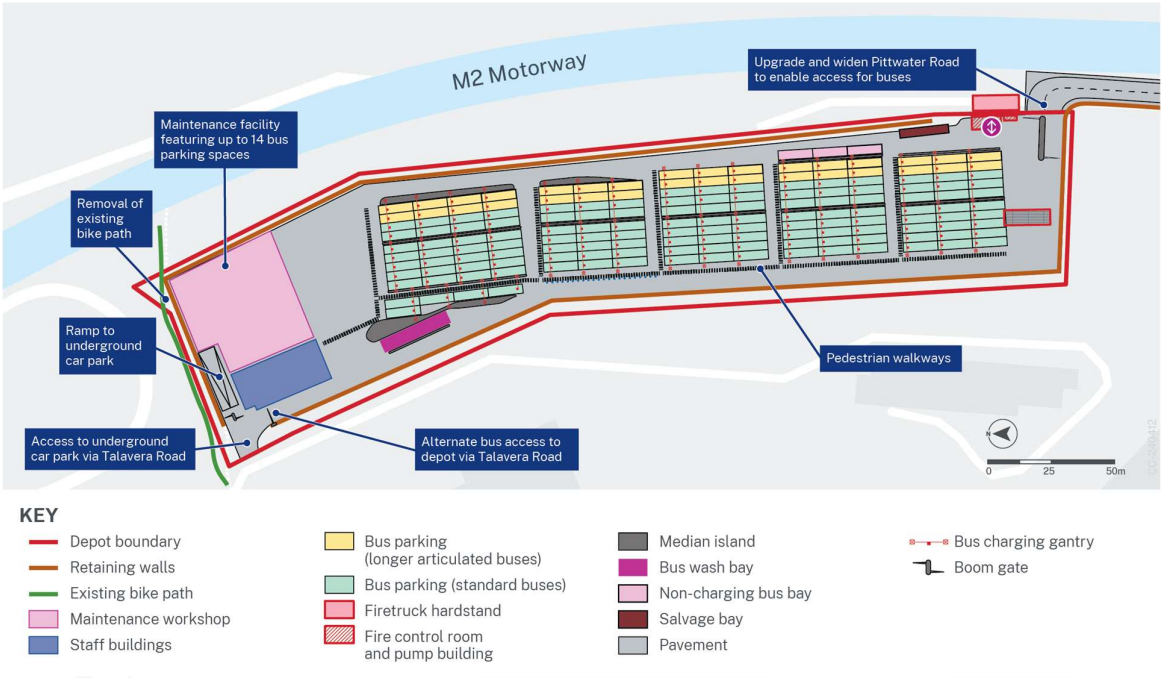


Figure 1-2: Key features of the proposal - indicative only, subject to change during detailed design

A more detailed description of the ZEB Macquarie Park Bus Depot is found in the ZEB Macquarie Park Bus Depot Review of Environmental Factors (REF) prepared by Transport in May 2024.

## 1.2 REF display

Transport prepared a REF to assess the potential environmental impacts of the proposal. The REF was publicly displayed for three weeks between 3 June 2024 and 24 June 2024 at which time key stakeholders and the community were invited to provide feedback on the proposal.

The REF was published on Transport's project website, the NSW Government Have Your Say website and made available for download. A printed copy of the REF was also provided to City of Ryde Customer Service Centre at 1 Pope Street, Ryde NSW 2112.

The community were informed of the REF display using the following methods:

- over 100 community notification delivered to properties within a 400 metre distance of the proposal
- emails sent to 40+ recipients
- doorknocking and hand delivering letters to neighbouring businesses
- four posters installed: two at the Talavera Road bike path and two at the Pittwater Road site entrances
- a Facebook social media campaign reaching over 19,166 users across Macquarie Park and neighbouring suburbs

Transport also held two community information sessions during the public display period to give the community a chance to learn more about the project, ask questions of the project team and provide feedback. The community information sessions were held at Café Parco (5 Talavera Road, Macquarie Park) by Transport staff on 4 June 2024 (between 8:00am – 10:00am) and 12 June 2024 (between 11:30am – 1:30pm).

The community were invited to submit feedback using the following communication channels:

- online survey at yoursay.transport.nsw.gov.au/macpark-depot

- Transport's Project Infoline 1800 684 490
- Email at projects@transport.nsw.gov.au
- Mail delivered to PO Box K659, Haymarket NSW 1240
- In person at one of our pop-up information sessions held at Café Parco

There were 64 submissions relating to the proposal and REF received by Transport. This submissions report summarises the issues raised and provides responses to each issue (Section 2).

No changes to the proposal described in the REF are proposed. Therefore, no additional environmental assessment is required.

## 1.3 Purpose of this report

This submissions report relates to the REF prepared for the ZEB Macquarie Park Bus Depot and should be read in conjunction with that document.

The purpose of the submissions report is to summarise the issues raised during the REF public consultation and provides responses to each issue (Section 2). It also details any investigations carried out since finalisation of the REF (Section 3), describes and assesses the environmental impact of any changes to the proposal (Section 4) and identifies any new or revised environmental management measures (Section 5).

# 2. Response to issues

Transport received 64 submissions, accepted up until Monday 24 June 2024.

Table 2-1 lists the respondents and each respondent's allocated submission number. The table also indicates where the issues from each submission have been addressed in Section 3 of this report.

Table 2-1: Respondents

| Respondent | Submission No. | Section number where issues are addressed |
|---|---|---|
| Individual | 1 | 2.6.1 |
| Individual | 2 | 2.5.1 |
| Individual | 3 | 2.2.1, 2.17 |
| Individual | 4 | 2.4.4, 2.17 |
| Individual | 5 | 2.17 |
| Individual | 6 | 2.5.1, 2.5.3, 2.9, 2.17 |
| Individual | 7 | 2.5.1 |
| Individual | 8 | 2.17 |
| Individual | 9 | 2.17 |
| Individual | 10 | 2.5.3, 2.17 |
| Individual | 11 | 2.5.3, 2.17 |
| Individual | 12 | 2.17 |
| Individual | 13 | 2.5.1, |
| Individual | 14 | 2.4.2, 2.17 |
| Individual | 15 | 2.17 |
| Individual | 16 | 2.5.1, |
| Individual | 17 | 2.6.1, 2.6.2 |
| Individual | 18 | 2.5.1, 2.17 |
| Individual | 19 | 2.4.2, 2.5.2, 2.15, 2.16, 2.17 |
| Individual | 20 | 2.15 |
| Individual | 21 | 2.17 |
| Individual | 22 | 2.5.3, 2.17 |
| Individual | 23 | 2.5.1, 2.17 |
| Individual | 24 | 2.5.1 |
| Individual | 25 | 2.2.1 |
| Individual | 26 | 2.2, 2.4.3, 2.6.1, 2.13, 2.16 |
| Individual | 27 | 2.17 |
| Individual | 28 | 2.17 |
| Individual | 29 | 2.17 |

| Respondent | Submission No. | Section number where issues are addressed |
|---|---|---|
| Individual | 30 | 2.5.1, 2.5.3, 2.9 |
| Individual | 31 | 2.4.3, 2.5.1 |
| Individual | 32 | 2.5.1 |
| Individual | 33 | 2.17 |
| Individual | 34 | 2.4.1 |
| Individual | 35 | 2.4.2 |
| Individual | 36 | 2.15 |
| Individual | 37 | 2.15 |
| Individual | 38 | 2.6.1 |
| Individual | 39 | 2.17 |
| Individual | 40 | 2.5.3, 2.17 |
| Individual | 41 | 2.4.4 |
| Local Business | 42 | 2.17 |
| Individual | 43 | 2.5.3 |
| Individual | 44 | 2.15, |
| Individual | 45 | 2.4.2, 2.4.4 |
| Individual | 46 | 2.5.1 |
| Business Interest Group | 47 | 2.17 |
| Individual | 48 | 2.2.1, 2.2.2 |
| Individual | 49 | 2.4.2, 2.6.1, 2.7, 2.8 |
| Individual | 50 | 2.2.2, 2.5.1, 2.7, 2.8 |
| Individual | 51 | 2.5.3 |
| Individual | 52 | 2.2.2, 2.5.1, 2.7 |
| Individual | 53 | 2.2, 2.2.2 |
| Local Business | 54 | 2.14 |
| Property Owner | 55 | 2.4.2, 2.4.3, 2.5.2, 2.7, 2.11.1 |
| Local Business | 56 | 2.3, 2.5.2, 2.6.1, 2.9, 2.11.1, 2.12, 2.14, 2.16 |
| Property Owner | 57 | 2.2.1, 2.2.2, 2.3, 2.5.1, 2.5.2, 2.6.1, 2.7, 2.9, 2.11.1, 2.12, 2.14, 2.16 |
| Local Business | 58 | 2.2.2, 2.3, 2.4.1, 2.5.1, 2.5.2, 2.6.1, 2.7, 2.8, 2.9, 2.10 |
| Local Business | 59 | 2.3, 2.4.1, 2.5.1, 2.6.1, 2.9 |
| Stakeholder | 60 | 2.4.1, 2.4.2, 2.9, 2.11.1, 2.12 |
| Business owner | 61 | 2.4.4, 2.17 |
| Individual | 62 | 2.4.4, 2.17 |
| NSW State Emergency Service (SES) | 63 | 2.3, 2.11.2 |

| Respondent | Submission No. | Section number where issues are addressed |
|---|---|---|
| City of Ryde | 64 | 2.4.2, 2.5.1, 2.5.2, 2.5.3, 2.7, 2.8, 2.11.1, 2.11.2, 2.12, 2.16 |

## 2.1 Overview of issues raised

A total of 64 submissions were received in response to the display of the REF. This included submissions from City of Ryde, one government agency, one key stakeholder, five were from local businesses, one was a business interest group, one was a business owner, and two were property owners.

In total, 23 submissions objected to the proposal, 19 fully supported the proposal, 8 submissions were partially supportive or were neutral about the proposal, and 14 submissions did not offer a position on the proposal but raised comments or requests.

Each submission has been examined individually to understand the issues being raised. The issues raised in each submission have been extracted and collated, and corresponding responses to the issues have been provided. Where similar issues have been raised in different submissions, only one response has been provided. The issues raised and Transport's response to these issues forms the basis of this chapter.

The key issues raised have been summarised into the following categories:

- Justification of the proposal
- Alignment with NSW Government strategies
- Consultation
- Proposal design
- Traffic, transport and access
- Safety
- Landscape character and visual impact
- Lighting
- Air quality
- Hydrology and flooding impacts
- Soil and contamination
- Climate risk and greenhouse gases
- Impact on businesses
- Impact on bus services
- Other issues

A breakdown of the number of key issue categories raised by the community are included in Figure 2-1.

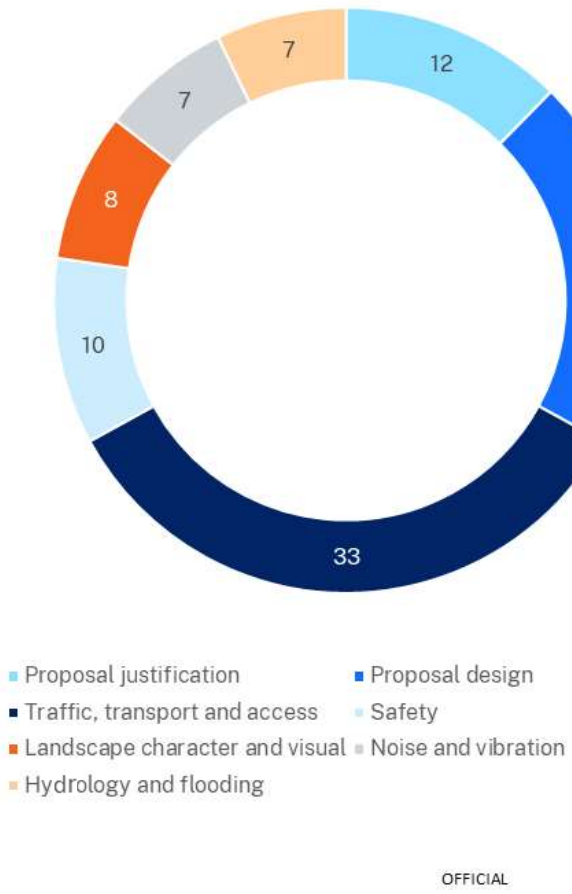


Figure 2-1: Key themes raised by the community and the number of submissions received

The main issues raised in the NSW SES submission were:

- Recommend consulting with the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) regarding the impacts of the development on flood behaviour.
- Request further flood information including velocity, hydraulic hazard, time to overtopping and duration of inundation for the site and access/egress roads, including climate change impacts, for floods up to and including the Probable Maximum Flood (PMF).
- Any updated modelling to include a scale that provides more detail on depth beyond 2m, to better understand the flood risks.
- Site and building design that would avoid entry or exit through high hazard areas.
- Raising power outlets and storing electrical equipment above the PMF level, where possible, to reduce the risk to life and property.
- Consider flood resilience of access/egress routes up to the 1:500 year local flooding, where feasible and there are no adverse impacts on adjacent areas, as we note that upgrades to Pittwater Road are part of the scope of this project. This standard has been adopted for the Hawkesbury-Nepean Valley evacuation routes.
- Ensure that access to the basement and all basement openings (ramp vents, etc.) are situated above the PMF, or reconsidering basement carparking if this is not feasible, to reduce risk to life and property.
- Pursue site design and stormwater management that reduces the impact of flooding and minimises any risk to the community. Any improvements that can be made to reduce flood risk will benefit the community.

- Ensure staff, visitors and workers using the site during and after construction are made aware of the flood risk, for example through site inductions, by using signage and other flood information tools.
- Ensure that buildings are as safe as possible to occupy during flood events – buildings must be designed for potential flood and debris loadings of the PMF so that structural failure is avoided during a flood, especially considering the flash flooding nature at the site.
- Consider closing the worksite and securing all materials and equipment prior to the start of the working day if there is a risk of flooding, on receipt of advice from the Bureau of Meteorology (BoM), or when other evidence leads to an expectation of flooding. Considering the flash flooding nature of the site, a Severe Weather Warning may be the most appropriate trigger for closing the worksite. Check the BoM website prior to start of the workday for any warnings.
- Develop an appropriate emergency plan to assist in being prepared for, responding to and recovering from flooding. Evacuation must not require people to drive or walk through flood water. Therefore, ideally the site would be closed prior to the impact of flooding.

The main issues raised in the City of Ryde submission were:

- Submission identifies components the REF should address
- Landscape character and visual impacts:
  - Insufficient details including lack of any landscape plan and visual impact study. A detailed landscape plan showing tree replacement locations and the public domain, to ensure the proposal maintain tree canopy cover in Ryde Local Government Area (LGA).
  - Concern that payment into the Transport Conservation Fund where tree replacement cannot be accommodated locally, is of no value to City of Ryde Council. Trees must be planted in Ryde LGA to maintain tree canopy cover.
  - A visual impact assessment is required to determine the visual impact of the proposed development to determine the impact on the character of the locality
- Street lighting to be upgraded to comply with relevant standards on Talavera Road traversing the site entrance and on the northern side of Wicks Road.
- Hydrology and flooding:
  - Civil plans to be prepared to reflect detailed demonstration of the exact area where vegetation will be removed and replaced with impervious surfaces
  - Preparation of a stormwater management plan for the proposal
  - New drainage infrastructure to be designed in accordance with City of Ryde Council's Development Control Plan (DCP) Part 8.2 Stormwater and Floodplain Management Technical Manual.
  - Flood study report to be prepared and identify if the proposed works are taking place in the high flood affected area.
  - Computer modelling to be undertaken analysing pre and post development situations to confirm that the proposal does not have adverse impact on the flood conditions of adjacent properties or downstream catchment. Electronic copies of the hydraulic model shall be submitted to Council.
  - Implement an onsite detention system
  - Concern around pollutants discharging to stormwater. Requirement to implement water-sensitive urban design (WSUD) components.
  - Flood analysis to account for blockage of stormwater drainage system
- Traffic, transport and access
  - All vehicles (e.g., buses, cars, etc.) including construction vehicles should access the site via Talavera Road (i.e., no access via Wicks Road).
  - Concerns around aspects of the Traffic and Transport Assessment (TTA). Should access from Wicks Road be pursued, consideration to be given to updating the TTA.
  - Provide vehicle swept path analysis

  - Concern for level of staff parking proposed
- Design requests:
  - Provide an extended footpath from Lane Cove Road
  - Provide road pavement reconstruction
  - Details of retaining wall on Pittwater Road to be provided where it encroaches into Ryde Council Public Domain
  - Installation of underground services
- Additional requests:
  - Concept utility connection plan
  - Plans for above ground and underground services
  - Verify ownership and right of use of Pittwater Road
  - Request for additional details, documents and reports to Council

## 2.2 Proposal justification

**Submissions numbers**

26, 53

**Issue description**

a) ZEB program isn't viable or cost effective

b) Proposal does not support net zero emissions agenda

c) ZEB assets have a shorter lifespan and cost more to maintain than diesel/gas buses

**Response**

The NSW Government is committed to achieving net zero emissions by 2050. The transport sector is a large contributor to emissions in NSW, of which Transport's public bus operations are a significant component. The ZEB program will transition the state's 8,000 plus diesel and natural gas public transport buses to zero emissions technology and is key to achieving the NSW's Government's targets of 50 per cent carbon reduction by 2030 and net zero emissions by 2050.

The proposal is consistent with various strategic plans and policy documents including the NSW Government's Net Zero Plan Stage 1: 2020-2030, the Future Transport Strategy, the Transport Sustainability Plan 2021, and the Zero Emission Bus Transition Strategy 2021.

Transport has been using ZEBs in a trial since 2019 which has shown that they are viable.

For this proposal, battery electric buses were chosen as the most suitable zero emission technology available at scale that can support bus services in Sydney. ZEBs also have a similar lifespan in terms of the whole asset to diesel or natural gas buses; the main difference being that ZEBs require a change of batteries every 8-10 years.

BEBs will contribute to a reduction in carbon as they don't emit carbon emissions out of the tailpipe while operating.

To learn more about the Zero Emission Buses, please visit transport.nsw.gov.au/zeroemissionbuses.

### 2.2.1 Site selection and alternatives

**Submissions numbers**

3, 25, 48, 57

**Issue description**

a) No information provided in REF on other sites considered for the proposal.

b) Suggest an alternative site with better connectivity to the M2 would be more appropriate in areas with greater proportion of industrial sites available, such as Seven Hills.

c) Suggestion to construct the depot in south west / Western Sydney due to concerns around driver shortage.

d) Consider alternative proposal location at old North Ryde High School to avoid existing traffic choke points.

**Response**

The key criteria for selecting the preferred depot location for the proposal were that it must be located within Transport-owned land, be situated in bus contract region 7 area, be of appropriate size to accommodate the required capacity and be suitably located to ensure effective access and operational performance of the depot.

1A and 1B Talavera Road, Macquarie Park was the only option identified that meets all the criteria and could support existing bus services provided by Willoughby and Ryde bus depots. As such, no other options have been identified or considered as part of the proposal.

Macquarie Park Bus Depot is the first new depot proposed as part of the ZEB Program, with more locations to be determined during future stages of the program.

In Western Sydney, Transport is currently investigating options to deliver more ZEBs as part of the ZEB Program. in response to the recommendations in the NSW Bus Industry Taskforce Second Report (NSW Bus Taskforce, 2023). Additionally, Transport is proposing to deliver around 100 battery electric buses as part of the New Bus Services for Western Sydney project.

### 2.2.2 Alignment with NSW Government strategies

**Submissions numbers**

48, 50, 52, 53, 57, 58

**Issue description**

a) No cohesion or alignment with Macquarie Park Innovation Precinct Place Strategy. More consideration is required in the context of the Strategy.

b) Clash with Macquarie Park Strategic Infrastructure and Service Assessment.

c) The bus depot design, including the proposed layout of the road network, disregards the intentions, and does not align with the desired outcome of the Macquarie Park Place Strategy for a new local road, inhibiting any connectivity between Wicks Road and Talavera Road.

d) Removal of existing green space, as designated in Macquarie Park Place Strategy, and loss of valuable opportunity for greenspace for public enjoyment.

**Response**

Consideration has been given to the finalised Macquarie Park Innovation Precinct Place Strategy (NSW Department of Planning and Environment, 2022) (“the finalised Strategy”).

Transport acknowledge that the draft Strategy identified 1A and 1B Talavera Road, Macquarie Park as a potential location for open space. However, this proposal was not adopted as part of the finalised Strategy and are no longer being considered.

The Macquarie Park Strategic Infrastructure and Service Assessment Draft Report (Greater Sydney Commission, 2021) was prepared to inform the finalised Strategy, which is therefore likely to have incorporated the outcomes of the assessment, where applicable.

The proposal is consistent with the finalised Strategy, which identifies the site for diversification and does not specify green or recreational zoning.

The concept of "Woven Ways" originates with the Macquarie Park Place Strategy (2022) and is a term used to describe links between key sites in the Macquarie Park precinct. Woven Ways are located outside of the street grid, respond to natural features and support precinct walkability. The Draft Macquarie Park Innovation Precinct Stage 2 Neighbourhoods Urban Design Framework (2024) proposes a woven way along the creek that traverses the proposal site. During the proposal site, the woven way is identified as taking the form of an underground creek connection, consistent with depot operational needs.

Opportunities to incorporate the creek Woven Way through interpretative features will be further investigated during detailed design of the proposal and environmental safeguard GEN6 has been added to address this issue.

Subject to approval, Transport will investigate opportunities to integrate further design options that align with the final Strategy during design which may include active transport connections, landscaping, connection to Country and more.

## 2.3 Consultation

**Submissions numbers**

56, 57, 58, 59, 63

**Issue description**

a) Lack of/inadequate consultation with, and notification to, neighbouring business owners

b) The level of detail in the consultation documentation is insufficient

c) Requests for further consultation with adjacent landowners and other key stakeholder before and during detailed design

d) Request that notification be provided where there are likely to be significant delays in the operation of the roads affected by the upgrades

**Response**

Transport's policy and commitment is to inform and consult with the local community. The ZEB Communications and Stakeholder Engagement Strategy outlines Transport's strategic approach to keeping the community informed and identifying opportunities to consult the community using a range of methods and platforms.

To date, Transport has taken steps to keep the community informed about the proposal and to provide advance notice of work completed. Community notifications have been delivered to neighbouring businesses and residents on three occasions. Several attempts were made to connect with adjoining property owners, strata managers and businesses owners leading up to the REF public display period. Transport has arranged meetings with key stakeholders where required and upon request and will continue to do so as the project progresses.

During the REF public display period, additional steps were taken to raise awareness and encourage feedback on the proposal. This included doorknocking and hand delivering letters to neighbouring businesses, emailing key stakeholders, installing posters at the site entrances and holding two community information sessions at a local café. A detailed overview of our communication approach during the REF can be found in the executive summary of the REF.

Should the project proceed, a Community Liaison Management Plan (CLMP) will be prepared and implemented during detailed design and construction. The CLMP will align with the Zero Emission Buses Program Communications and Stakeholder Engagement Strategy already developed and being implemented. The CLMP will outline specific communication and stakeholder engagement activities, procedures, and protocols for the proposal, as per environmental safeguard NV2 outlined in Section 6.8.5 of the REF.

The community and key stakeholders will be kept informed as the project progresses with regular updates via email, community notifications and website updates. Advanced notice will be provided before starting any construction work.

To receive regular project updates via email, please subscribe to our email distribution list by contacting us at projects@transport.nsw.gov.au.

## 2.4 Proposed design

### 2.4.1 Design clarification

**Submissions numbers**

34, 58, 59, 60

**Issue description**

a) More information sought on proposal location and bus entry/exit

a) Clarification sought on whether there will be adequate site security during construction and operation and whether this will impact neighbouring security

b) Request for more detail to understand the drainage and retaining walls interfaces

c) Confirm no adverse geotechnical effect on the batter slopes/third party road assets, including the M2 and on-ramp bank slopes, arising from the construction of the proposal

**Response**

The proposal is located at 1A and 1B Talavera Road, Macquarie Park (Figure 1-1). It is situated within the Macquarie Park Precinct, next to the M2 Hills Motorway and close to commercial land plots off Talavera Road and Wicks Road.

Buses will access the depot via Pittwater Road, to the southeast of the site (Figure 1-2). Buses will need to travel along Wicks Road to access Pittwater Road.

Site security will be managed by the design and construct contractor during construction.

In relation to geotechnical effect on the batter slopes/third party road assets, including the M2 and on-ramp bank slopes, arising from the construction of the proposal, this will be considered during detailed design.

Where additional environmental and community impacts may arise as part of detailed design, consultation will be undertaken with effected stakeholders.

### 2.4.2 General design suggestions/requests

**Submissions numbers**

14, 19, 35, 45, 49, 55, 60, 64

**Issue description**

a) Consider the incorporation of hydrogen buses alongside electric buses

b) The design of the development should be high quality and the need for design excellence standards, particularly given that the high visibility of the depot site from the M2 and other key vantage points.

c) Suggestions for detailed design including canopy cover/roof over the bus parking areas, yard supervisor room, motorcycle parking facilities, duty officer and lost property room, flagpole and small garden.

d) Consider shade sail over bus parking area to protect drivers from adverse weather

e) Request for private coach parking at depot to support tourism initiatives

f) Consider EV charging stations for public use

g) Consider incorporating the Woven Way, as featured in the 2022 Place Strategy, into the design

h) Geotechnical design should consider the potential impacts of construction of the retaining walls on the batters.

i) Provide footpath continuity to the site from Lane Cove Road by extending the existing granite footpath traversing the frontage of 5 Talavera Road to the development site entrance

j) Request to provide road pavement reconstruction on Wicks Road and Talavera Road

k) Request for details of retaining wall on Pittwater Road to be provided where it encroaches into Ryde Council Public Domain. Consideration shall be made to retain existing levels and remove the retaining wall, being a liability for Council ownership.

l) Request for existing overhead utility line connections servicing the site on timber poles to be removed and undergrounded. Request for all existing and new utility service connections to the site must be undergrounded.

**Response**

In relation to the consideration of hydrogen buses alongside BEB, planning for the ZEB Program included further research into technology for both BEB and Hydrogen Fuel Cell Electric Buses (FCEB) which deliver net zero emissions at the tailpipe. For the first stage of the ZEB program in Greater Sydney, BEB were chosen as the most suitable technology available at scale that can support a net zero transition in the immediate term. The Macquarie Park Bus Depot is the first purpose-built bus depot proposed as part of Greater Sydney Stage 1 and is being designed to support 100% BEB fleet.

Considerations included the fact that BEBs have moved from the trialling phase to wide-spread rollouts of substantial fleets whereas hydrogen fuel cell buses remain in the testing phase. Australian Government advice remains that hydrogen fuel supplies at sufficient scale to support transport needs are unlikely to be available before 2030.

This does not rule out future investigation and/or adaption of other or new emerging technologies. Current funding includes an allocation of $25 million over three years for regional trials in new and emerging technologies, including hydrogen fuel cell electric buses. The regional ZEB trials will provide important information on the performance differences between BEB and Hydrogen FCEB to help guide the type of vehicles that will need to be procured in the future. The trials will also help to understand which technology best suits the challenging aspects of rural operations, including service needs, extreme climates and varied road conditions found in regional areas.

Transport will continue to work closely with bus operators, industry experts and peak bodies to determine the most suitable zero emission technology for each region during future stages of the ZEB Program.

In relation to consideration of EV charging stations for public use, due to operational, security and safety concerns the bus depot will generally not be accessible to the public, therefore, this will not be considered as part of detailed design.

The depot configuration and operation prioritises the depot capacity for public transport buses, therefore provision for private coach parking to support tourism activities will not be considered as part of the proposal.

In relation to the consideration of installing a shade sail over the bus parking area to protect drivers from adverse weather, this won't be considered due to potential fire risk. Heat stress measures, including canopies over the depot walkways, will be considered during detailed design as per environmental safeguard CC2 of the REF.

The concept of "Woven Ways" originates with the Macquarie Park Place Strategy (2022) and is a term used to describe links between key sites in the Macquarie Park precinct. Woven Ways are located outside of the street grid, respond to natural features and support precinct walkability. The Draft Macquarie Park Innovation Precinct Stage 2 Neighbourhoods Urban Design Framework (2024) proposes a woven way along the creek that traverses the proposal site. During the proposal site, the woven way is identified as taking the form of an underground creek connection, consistent with depot operational needs.

Opportunities to incorporate the creek Woven Way through interpretative features will be further investigated during detailed design of the proposal and environmental safeguard GEN6 has been added to address this issue.

In relation to providing road reconstruction on Wicks Road and Talavera Road, the proposal will tie into the existing road network, complete road pavement reconstruction is outside the scope of the proposal.

For clarification, Pittwater Road including the retaining wall will not be within Council domain.

In relation to overhead utility line connections servicing the site, all existing poles and wires outside of the site are not within the scope of the proposal. All new works within the site will be undergrounded.

An additional environmental safeguard GEN6, has been added to Table 5-1 that addresses specific design suggestions/requests.

### 2.4.3 Electricity/power supply and demand

**Submission number(s)**

26, 31, 55

**Issue description**

a) Concern that the electricity grid cannot support the project and that the power supply will not be able to meet the increasing demand

b) Concerns around the ability to power the depot from 100 per cent renewable energy

c) Electric vehicles do not have adequate power supply sources

d) Business owner to be updated with respect to power provision to the site including conduit locations, total supply, status of the application with Ausgrid, expected timing of connection and substation locations

**Response**

In relation to concerns about the electricity grid and its capacity to meet increasing demand, the *NSW Electricity Strategy (November 2019)* is the NSW Government's plan for a reliable, affordable and sustainable electricity future that supports a growing economy. It addresses key challenges associated with the electrical network such as aging traditional generators, congested transmission systems and increasing pressures on households and businesses due to electricity prices.

As part of the proposal, Transport will be procuring a 100% firmed renewable electricity supply to power the remainder of the depot not powered by the depot solar photovoltaic (PV) system, as outlined in Section 3.1.7 of the REF. The depot (including depot buildings) shall utilise energy efficient fixtures and fittings and passive design measures to reduce total energy demand.

Transport is working closely with Ausgrid to secure the required power supply requirements for the depot. Supply, location and status of the power supply application and electrical infrastructure is subject to detailed design and consultation with Ausgrid. Specific details on location of conduits, total supply and status of applications are not planned to be released publicly. Should there be concerns regarding electrical assets during construction, please contact Transport's Project Infoline on 1800 684 490 or projects@transport.nsw.gov.au.

### 2.4.4 Renewable energy generation

**Submission number(s)**

4, 41, 45, 61, 62

**Issue description**

a) Suggestion for inclusion of solar panels, including over the bus stacking area

b) Consider using paved area as a solar charging system

c) Suggestion for inclusion of battery energy storage

**Response**

A solar PV system is proposed for the maintenance workshop building, as outlined in Section 3.1.7 of the REF. Additional locations for solar PV systems and inclusion of a BESS may be investigated as part of detailed design to meet the existing sustainability and greenhouse gas emissions environmental safeguards.

## 2.5 Traffic, transport and access

### 2.5.1 Impact on local road network

**Submissions numbers**

2, 6, 7, 13, 16, 18, 23, 24, 30, 31, 32, 46, 50, 52, 57, 58, 59, 64

**Issue description**

a) Concern regarding increased traffic on the local road network, including deployment of buses during peak traffic times on already congested Lane Cove Road, Talavera Road and Waterloo Road

b) Cumulative development/construction in area increasing traffic congestion

c) Traffic impact on residents

d) Concerns around existing traffic and intersection performance and traffic assessment/modelling of key intersections, including Wicks Road and Epping Road

e) The background traffic growth data used for modelling may not accurately reflect future growth given the high degree of uncertainty regarding future development in the precinct as the DPHI continues to develop plans for the precinct. Traffic generation may be significantly higher by 2031 than any current model could reasonably plan for.

f) Traffic impacts should address future developments

g) No consideration in the traffic study to existing construction activity within Macquarie Park, in particular the use of the Porters Creek site off Wicks Road for the Warringah Freeway upgrade

h) Concerns around certain aspects of the TTA. Should access from Wicks Road be pursued, consideration to be given to updating the TTA to:

- better assess the impacts of the proposed bus depot on the operation of the surrounding road network
- consider bus priority treatments on Waterloo Road to the east of Lane Cove Road and on Wicks Road to the north of Epping Road
- consider potential upgrades at the intersections of Epping Road/Wicks Road, Waterloo Road/Wicks Road/Halifax St to ensure that the longest vehicle (19 metre long articulated bus) can be safely accommodated.

**Response**

The concerns around existing traffic issues are acknowledged, however the traffic assessment undertaken shows that the performance of intersections would not be changed by the proposal.

Intersection performance was modelled to assess the construction-related traffic impact for the Waterloo Road / Halifax Road / Wicks Road intersection as the increase is large enough to have a measurable impact. The increase at the Lane Cove Road/Talavera Road, Lane Cove Road/Waterloo Road and Wicks Road/Epping Road was assessed and is considered minimal and therefore would have minimal impacts to delays and intersection performance. The proposed new bus depot would therefore not change the level of service (LOS) at AM/PM peak time. The LOS and congestion hotspots would remain the same. Where appropriate, the TTA will be further refined during detailed design.

Consideration has been given to the impact of construction traffic from both the bus depot and the Warringah Freeway Upgrade (WFU) Wicks Rd construction support site (160 Wicks Road Macquarie Park) on the Wicks Rd / Waterloo Road/ Halifax Road intersection, using the peak hour volumes stated in the Traffic Impact Assessment for the WFU Wicks Road support site. The WFU construction trips (16 trips in the AM peak and 162 trips in the PM peak) are forecast to have a marginal impact on the Wicks Road / Waterloo Road/ Halifax Road intersection performance with no intersection upgrades warranted. With the addition of six heavy vehicles in and out during the AM and PM peak under this proposal, it is not expected to impact the LOS at the intersection.

It is acknowledged that there is a high degree of uncertainty around future development in the precinct, which may impact future traffic generation growth. Transport have provided the NSW DPHI with information on the proposed ZEB Macquarie Park Bus Depot to consider during the preparation of the Macquarie Park Innovation Precinct Stage 2 Rezoning Proposal.

A road safety audit will be undertaken during detailed design for the proposed depot. This will include an assessment to test potential mitigation options for the Halifax Street /Wicks Road intersection. Transport will determine if works are required following the audit and undertake relevant approvals.

### 2.5.2 Site access

**Submissions numbers**

19, 55, 56, 57, 58, 64

**Issue description**

a) Consider larger entrance to the depot via Talavera Road rather than Pittwater Road.

b) Consider the addition of a driveway from Pittwater Road up to the eastern boundary of 1 Talavera Rd to improve the access from Wicks Road, which could be used by occupants of 1 Talavera Road. This will take strain off the Talavera Rd entry and enable access for those entering from the east.

c) Suggestion that cars should enter/exit from Pittwater Road to avoid already congested Talavera Rd/Lane Cove Rd intersection.

d) Heavy vehicle access should be relocated from Pittwater Road to Talavera Road so large rigid and articulated buses will access the depot through a light industrial cul-de-sac that has direct access to a state road and will interface less with future residential or recreational spaces associated with the development of Wicks Road.

e) All vehicles (e.g., buses, cars, etc.) including construction vehicles should access the site via a larger entrance to the depot at Talavera Road (i.e., no access via Wicks Road), as it is more suited to accommodate the longest vehicles travelling to/from the site, resulting in less civil work and associated cost savings.

f) Regarding vehicle access, the proposal should be accompanied by a vehicle swept path analysis demonstrating the viability of vehicle manoeuvring throughout the area.

g) Should any amendment to access be proposed during detailed design, the Traffic and Transport Assessment should be updated.

**Response**

Feedback received during the community information sessions supported the proposed different access points for light and heavy vehicles.

The proposed approach to separate light vehicle access from heavy vehicle access, was based on several factors including the depot design, layout and safety concerns. Light vehicle access via Talavera Road provides a direct and safe entryway for staff and visitors accessing the administration building which would be located on the northern end of the depot near Talavera Road. It reduces the potential and avoidable risks associated with staff having to travel through an active depot via Pittwater Road. Heavy vehicle access may occur via Talavera Road during emergency situations or on the occasion due to operation matters.

Vehicle swept path analysis was undertaken during the development of the concept design, which informed the design and layout of the depot.

Access to the site, including dimensions of entrances, will be further investigated during detailed design. Where any amendments to access are proposed during detailed design, the TTA will be refined where appropriate.

### 2.5.3 Active transport

**Submission number(s)**

6, 10, 11, 22, 30, 40, 43, 51, 64

**Issue description**

a) Concerns around removal of bike path connection between M2 Hills Motorway and Talavera Road resulting in reduced capacity for active transport

b) Request to preserve/retain/reinstate the bike path as a critical highly convenient link in the bike path network, connecting to the Macquarie Park employment area

c) Pedestrian and bicycle access should be provided from both Pittwater Road and Talavera Road

d) Concerns around the 90% private vehicle mode-share, particularly given that the Macquarie Park Metro Station is located around 400 metres from the proposed site. Car parking supply should be reduced in line with the objectives of the City of Ryde Macquarie Park Corridor DCP.

**Response**

Since drafting the REF, Transport conducted a survey of existing bike path usage to meet the requirements set out in environmental safeguard SE1. The results across the seven-day period showed that there was approximately one bike user per day.

Following consideration of the feedback received around the existing bike path, Transport is looking into options to retain or relocate the existing bike path connecting the M2 and Talavera Road as part of detailed design. An additional safeguard (TT11) has been included in Table 5-1 to ensure that opportunities to retain or re-align the bike path connection will be further investigated during detailed design. Given the survey has since been completed and the addition of environmental safeguard TT1, SE1 will be removed.

Pedestrian and bicycle access from Talavera Road to the proposed depot will be considered during detailed design.

For safety reasons, access for pedestrians and bicycles will remain separate from the access for buses.

In relation to car parking supply, private vehicle parking numbers have been designed to support the proposed split shifts at the depot during operations. The number and allocation of vehicle (car and motorcycle) spaces will be further explored during detailed design and in consultation with the bus operator.

## 2.6 Safety

### 2.6.1 Fire hazard

**Submission number(s)**

1, 17, 26, 38, 49, 56, 57, 58, 59

**Issue description**

a) Concerns around safety/fire hazard of lithium-ion batteries in electric vehicles

b) Lack of detail of how fire will be contained on the site to protect neighbouring businesses from fire hazard

c) Concern around increased difficulty obtaining insurance and increased insurance premiums for neighbouring businesses due to being considered a higher risk to insurers due to fire hazard risk

**Response**

Transport is working closely with industry, bus operators and fire safety experts, including Fire and Rescue NSW and Office of Transport Safety Investigations, to identify any fire safety risks and mitigations that can be applied to improve safety.

The batteries onboard NSW's electric buses are all sealed, Ingress Protection rated and monitored with dedicated battery management software to provide early detection of potential safety issues. If a battery were to trigger the software safety system, the battery would be isolated prior to any potentially dangerous event. Therefore, there is a very low risk of a fire.

There have not been any battery-related fires on an electric bus in operation or storage in NSW to date. In the event of a bus fire during passenger service, Fire and Rescue NSW, in coordination with Transport, would

manage this. This would be the same with diesel compressed natural gas buses. All Transport's contracted buses are fitted with fire suppression systems and monitoring equipment.

Fire and Rescue NSW have specific requirements for battery electric vehicles and their charging infrastructure that will be integrated during the detailed design, in consultation with Fire and Rescue NSW.

A Fire Life Safety Report would be undertaken in conjunction with Fire and Rescue NSW during the detailed design phase and battery storage options would also be investigated.

In relation to concerns around obtaining insurance and increased premiums, the feedback is noted, however is outside the scope of this proposal.

### 2.6.2 Electric vehicle audibility

**Submission number**

17

**Issue description**

a) Battery electric buses may not be heard approaching by other traffic users.

**Response**

The BEB will be fitted with an acoustic vehicle alert system (AVAS), which generates sound for nearly silent electric vehicles to improve the safety of vulnerable road users, such as pedestrians, cyclists, and children. Minimum and maximum sound power levels will be adopted from United Nations (UN) Regulation No. 138 *Uniform provisions concerning the approval of Quiet Road Transport Vehicles with regard to their reduced audibility.*

Australian Design Rule will require all new electric, hybrid and hydrogen fuel cell cars, trucks, and buses to be fitted with an AVAS from November 2025.

AVAS will make these vehicles easier to hear by emitting sound when the vehicle is travelling at low speeds. It is not necessary for an AVAS to be activated at higher speeds as there are other noise sources, such as tyre noise, which make electric buses readily audible at higher speeds.

## 2.7 Landscape character and visual

**Submission number(s)**

49, 50, 52, 55, 56, 57, 58, 64

**Issue description**

a) Insufficient detail provided around the proposed landscape plan and visual impact study

b) Concerns around the visual impact for neighbouring businesses, including 1 and 3 Talavera Road during construction and operation, as well as visibility of the depot from the M2 Hills Motorway and other key vantage points

c) Insufficient detail as to the landscaping arrangement to minimise the visual impact from businesses and other surrounding properties

d) Request to minimise perimeter retaining walls and their appearance softened with setback and screening landscaping, preferably deep soil

e) Clarification on whether the depot will be cleaned regularly and well presented to minimise visual impact from overlooking premises

f) Proposal will destroy existing greenspace

g) Suggestion that proposed plans should provide more than just offsetting the loss of trees to improve the aesthetics of the site and help filter views

h) Concern that payment into the Transport Conservation Fund, where tree replacement cannot be accommodated locally, is of no value to City of Ryde.

**Response**

A landscape character and visual impact assessment was completed for the proposal to assess the potential impacts on the existing landscape character and views in the area surrounding the proposal. The assessment is included in Section 6.6 of the REF.

The visual impact assessment selected several publicly accessible, representative viewpoints in the area to ascertain potential visual impacts, including a view from the neighbouring 3 Talavera Road which would have a comparable outlook to 1 Talavera Road, and the M2 Hills Motorway. The assessment identified mitigation and management measures for minimising visual impacts including those on adjoining properties. These will be further addressed during the detailed design phase. The depot will be regularly cleaned and be well presented to minimise visual impact of the operational depot.

In terms of landscaping, the proposed concept design includes garden beds and landscaping within the rooftop recreational area of the administration building. As detailed in Section 6.6.4 of the REF, the Urban Design and Landscape Plan for the proposal will be further developed as part of detailed design, to ensure it fits with surrounding areas and makes a positive contribution to the place, consistent with Transport's urban design policies. Detailed design would investigate and refine opportunities for additional landscaping where possible including at interfaces with adjoining properties, such as retaining walls, as well as opportunities at depot entrances. The proposal location is not accessible to the public and is therefore not considered a greenspace.

Tree and vegetation removal is required to facilitate construction of the proposal. A Tree and Hollow Replacement Plan, which prioritises local plantings, will be developed during the detailed design and construction phases. Replacement planting will be included within the depot site as much as possible. All replacement planting will be undertaken in accordance with Transport's *Tree and hollow replacement guidelines EMF-BD-GD-0129* (Transport for NSW, 2023).

## 2.8 Lighting

**Submission number(s)**

49, 50, 58, 64

**Issue description**

a) On-site lighting is not clearly defined

b) Concern around site lighting at night and higher lux lighting causing disturbance/nuisance to residents.

c) Request for lighting specifications and intensity

d) Street lighting to be upgraded to comply with relevant standards on Talavera Road traversing the site entrance and on the northern side of Wicks Road.

**Response**

Lighting design would comply with Australian/New Zealand Standard (AS/NZS) 1158 *Lighting for roads and public spaces* (Standards Australia/New Zealand, 2022) and AS 4282-1997 *Control of the obtrusive effects of outdoor lighting*, (Standards Australia, 1997), as set out in environmental safeguard and management measure LVA5 in Section 6.6.4 of the REF.

Lighting would be further developed during detailed design and include opportunities such as LED and shield guards directing lighting to required areas.

## 2.9 Noise and vibration

**Submission number(s)**

6, 30, 56, 57, 58, 59, 60

**Issue description**

a) Concern expressed around the duration of noise disturbance to occupants/businesses at 1 Talavera Road during construction

b) Concerns around disturbance to the peace of nearby cemetery

c) Concern around operation of depot 24 hours a day, 7 days a week impacting on neighbours' quiet enjoyment rights. Requested detail around noise controls and whether buses will have reverse alarms

d) Operational noise to be minimised by all means necessary and assessed against the residential criteria (as opposed to the commercial criteria included in the REF) noting the adjoining property was earmarked in the 2022 Place Strategy by DPHI for residential rezoning and this zoning is underway as part of the Stage 2 rezoning

e) Confirmation sought that the vibration arising from construction works/operations does not adversely affect the stability of the southern bank of the motorway

**Response**

The noise and vibration assessment undertaken for the REF identified noise sensitive receivers in proximity to the works which included residential receivers, hotels and commercial and industrial premises. The assessment of noise impacts from construction work associated with the proposal was undertaken in accordance with the assessment and management approach outlined in the *Interim Construction Noise Guidelines* (ICNG) (Department of Environment and Climate Change NSW, 2009). Construction noise impacts are discussed in Section 6.8 of the REF. Management and mitigation measures identified in Section 6.8.5 of the REF will be followed to reduce noise impacts on the nearby commercial land use.

Most work would be undertaken during standard construction hours, however some out of hours work (OOHW) would be required for the construction of the driveway for 1 Talavera Road. Any OOHW required would be subject to assessment and consideration in accordance with Transport's *Construction Noise and Vibration Guideline – Public Transport Infrastructure* (Transport for NSW, 2023). Consideration would be given to minimising impacts to owners and tenants occupying the neighbouring premises.

A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the Construction Environmental Management Plan (CEMP), which will detail all potential significant noise and vibration generating activities associated with construction activities, feasible and reasonable mitigation measures to be implemented to avoid and minimise noise impacts, and a monitoring program to assess performance against relevant noise and vibration criteria.

Community notifications would be issued in advance detailing the type of work being carried out, the equipment that will be used, possible impacts as well as appropriate mitigation measures.

Noise emissions from the operation of the depot are not anticipated to generate annoying characteristics, such as tonal noise, low frequency noise, or intermittent noise. Maximum noise levels have been predicted for the night-time period during operation of the depot. Sleep disturbance noise impacts are unlikely to be a concern for the proposal as compliance with maximum noise levels is achieved at all sensitive receiver locations.

The existing ambient background level is controlled by the traffic noise associated with the M2 Hills Motorway, which separates the proposal from the Macquarie Park Cemetery and Crematorium. The proposal is not anticipated to disturb the peace of the cemetery during construction or operation.

The draft Macquarie Park Stage 2 – Transport Oriented Development (TOD) rezoning proposal has been exhibited. The rezoning proposal builds on the vision of the Macquarie Park Place Strategy and Macquarie Park Stage 1 rezoning. However, the adjoining property is proposed to remain as commercial industrial/ E3 productivity support and has not been rezoned to support residential development.

In relation to vibration arising from construction works, detailed design would consider assessment of bank stability, by a suitably qualified personnel, and incorporate the relevant management measures and monitoring requirements.

## 2.10 Air quality

**Submission number(s)**

58

**Issue description**

a) Clarification around arrangements to manage dust and dirt

**Response**

Construction impacts relating to air quality are discussed in Section 6.9 of the REF. Dust generated from construction activities may cause impacts to air quality when located close to business activities. Levels of airborne dust would be expected to be low and unlikely to cause concern to nearby sensitive receivers.

Through the implementation of safeguards and management measures provided in Section 6.9.5 of the REF, the mobilisation of dust associated with the proposal is expected to be confined within the area of the immediate work and would be short-term and minor.

## 2.11 Hydrology and flooding

### 2.11.1 Hydrology

**Submission number(s)**

55, 56, 57, 60, 64

**Issue description**

a) Limited details provided on impact to the creek system and riparian zone

b) Clarify whether the capacity of the culverts been set on the basis of the calculated loss in retention and the additional surface flooding

c) Concerns around change in flows, including additional flow directed to channels at edge of the M2 Hills Motorway/Lane Cove Road On Ramp

d) Consider effect of free flow and scour on the M2 Hills Motorway asset if the drain channel at the edge of the site overflows

e) Concern that vegetated banks for the Lane Cove Road On Ramp and M2 Hills Motorway and may be vulnerable to scour due to the new design

f) Clarify if the channel and/or culvert capacity is reached, whether this affects the nature of any flooding through the Transurban road culvert, or impact the Transurban headwall

g) Consideration of scour/erosion to the M2 Hills Motorway culvert if the flow into the culvert is drastically altered due to the works

h) Water flows on the site to be considered during detail design and managed to eliminate flooding impacts on M2 leased area

i) Civil plans to be prepared to reflect detailed demonstration of the exact area where vegetation will be removed and replaced with impervious surfaces

j) Stormwater management to ensure no impacts on upstream properties

k) Stormwater management plan to be prepared clearly demonstrating the proposed drainage method for the site, the location and details/size of the drainage infrastructure, including on-site stormwater detention (OSD)/rainwater tanks, and details of the proposed connection to Council drainage infrastructure.

l) Requirement to implement water sensitive urban design (WSUD) components

m) New drainage infrastructure to be designed in accordance with City of Ryde Council's DCP Part 8.2 Stormwater and Floodplain Management Technical Manual.

**Response**

The impact of the proposal on the creek/stormwater drainage channel was assessed in Section 6.3 of the REF. In terms of minimising water quality impacts, a water treatment unit has been incorporated as part of the concept design to achieve the required water quality outcomes. The design of the unit will be developed further during detailed design.

The various comments in submissions pertaining to hydrology, including concerns, clarifications and requests have been noted and will be considered during the detailed design stage, which is planned to commence in early 2025. Detailed design will be prepared in accordance with the relevant Australian Standards, Transport Standards and Council requirements where relevant.

Stormwater will be managed through WSUD components, as detailed in the urban design principles in Section 2.3.3 of the REF. Further consideration will be given to WSUD during detailed design.

### 2.11.2 Flooding

**Submission number(s)**

63, 64

**Issue description**

a) Consult with the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) regarding the impacts of the development on flood behaviour, particularly in relation to the substantial amounts of fill within the flood extent causing onsite and offsite impacts

b) Request for further flood information including velocity, hydraulic hazard, time to overtopping and duration of inundation for the site and access/egress roads, including climate change impacts, for floods up to and including the Probable Maximum Flood (PMF)

c) Request that any updated modelling includes a scale that provides more detail on depth beyond 2m depth, in order to better understand the flood risks

d) Consider site and building design that would avoid entry or exit through high hazard areas

e) Consider raising any power outlets and storing electrical equipment above the PMF level, where possible, to reduce the risk to life and property.

f) Ensure that access to the basement and all basement openings (ramp, vents, etc.) are situated above the PMF, or reconsidering basement carparking if this is not feasible, to reduce risk to life and property

g) Consider flood resilience of access/egress routes up to the 1:500 year local flooding, where feasible and there are no adverse impacts on adjacent areas, as it is noted that upgrades to Pittwater Road are part of the scope of this project. This standard has been adopted for the Hawkesbury-Nepean Valley evacuation routes.

h) Pursue site design and stormwater management that reduces the impact of flooding and minimises any risk to the community. Any improvements that can be made to reduce flood risk will benefit the community.

i) Ensure staff, visitors and workers using the site during and after construction are made aware of the flood risk, for example through site inductions, by using signage and other flood information tools

j) Ensure that buildings are as safe as possible to occupy during flood events – buildings must be designed for potential flood and debris loadings of the PMF so that structural failure is avoided during a flood, especially considering the flash flooding nature at the site

k) Consider closing the worksite and securing all materials and equipment prior to the start of the working day if there is a risk of flooding, on receipt of advice from the Bureau of Meteorology (BoM), or when other evidence leads to an expectation of flooding. Considering the flash flooding nature of the site, a Severe Weather Warning may be the most appropriate trigger for closing the worksite, therefore we recommend checking the BoM website prior to start of the workday for any warnings.

l) Flood study report to be prepared and identify if the proposed works are taking place in the high flood affected area

m) A HEC-RAS / TUFLOW 2D computer model file analysing pre and post development situations to confirm that the proposal does not have adverse impact on the flood conditions of adjacent properties or

downstream catchment. Electronic copies of the hydraulic model, clearly identifying each modelled scenario, shall be submitted to Council, including files compatible with QGIS software.

n) Flood analysis to account for blockage of stormwater drainage system

o) Implement an onsite detention system to mimic existing levels of runoff within the site, to avoid exacerbating downstream flood conditions

p) Develop an appropriate emergency plan to assist in being prepared for, responding to and recovering from flooding

**Response**

The various comments in submissions in relation to flood risk and impacts have been noted. Feedback received will be considered as part of the flood impact assessment to be undertaken during detailed design. Transport will share the final flood modelling with Council.

Where appropriate and feasible, all site infrastructure will be raised outside the PMF level, to reduce risk to life and property.

An appropriate emergency plan to assist in being prepared for, responding to and recovering from flooding will also be prepared for the proposal. An additional safeguard (HF7) has been included to address this concern. Further details are contained in Table 5-1.

## 2.12 Soils and contamination

**Submission number(s)**

56, 57, 60, 64

**Issue description**

a) Concerns around the discharge of contaminants/pollutants into the existing creek/stormwater drainage channel, riparian zone and adjacent land

**Response**

Section 6.3 of the REF assessed the potential for contamination/pollution of the stormwater drainage line which runs through the site. Contamination of soils, surface water and groundwater will be managed with the implementation of the safeguards and management measures outlined in Section 6.3.4 of the REF.

During operation, surface water will be captured and treated on-site before being discharged, to ensure the water quality outcomes for the on-site stormwater receiving watercourses are achieved.

A construction Soil and Water Management Plan (SWMP) will be prepared for the proposal identifying all reasonably foreseeable risks relating to soil erosion and water pollution and outline how these risks will be addressed during construction.

## 2.13 Climate risk and greenhouse gas emissions

**Submission number(s)**

26

**Issue description**

a) Query around the definition of net zero

b) Electric buses do not reduce carbon emissions

c) Concerns around embodied carbon during manufacturing process of buses

**Response**

The definition of Net Zero or Net Zero Emissions from Transport's *Net Zero and Climate Change Policy* is "*Net zero greenhouse gas emissions are achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period*". Zero Emission Buses are defined by Transport as electric or hydrogen buses, that are powered by renewable energy sources and do not emit tailpipe carbon emissions into the atmosphere.

To meet the NSW Government's commitment to achieving net zero emissions by 2050, Transport is delivering the ZEB program to transition the state's diesel and gas public transport buses to zero emissions technology. This aligns with Transport's Net Zero and Climate Change Policy and the NSW Government's Electric Vehicle Strategy. The ZEB Greater Sydney Stage 1 program will deliver BEB, where future stages may look at alternatives such as hydrogen buses.

Bus procurement is outside of scope for the proposal. Transport is requesting bus fleet suppliers provide third party certified Environmental Product Declarations that outline whole of life cycle environmental and embodied emissions impacts associated with the manufacturing and disposal of buses and components.

For further information on NSW Government's net zero commitments please refer to https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/reaching-net-zero-emissions/net-zero.

Additional measures will be explored during detailed design to further reduce Transport's carbon footprint during construction and operations.

## 2.14 Impact on businesses

**Submission number(s)**

54, 56, 57

**Issue description**

a) Concern around the disruptions and difficulty to access the car park at 299 Lane Cove Road

b) Concern around workers trying to use parking at premises at 299 Lane Cove Road

c) Concerns around impact of project's design and operation to 1 Talavera Road businesses

d) 24 hour operation of the depot would stifle any future residential development opportunities for the area

e) More consideration around the impact the proposal will have on adjoining properties and their occupiers.

**Response**

As set out in Section 3.3.7 of the REF, during all stages of construction, access to residential properties and businesses would be maintained. Where temporary changes to access arrangements may be necessary to accommodate work at 1 Talavera Road, prior to any changes in access, consultation will be undertaken with tenants of 1 Talavera Road. This requirement is specified in environmental safeguard SE2.

The use of off-site compounds with parking facilities during construction will be investigated as part of detailed design. Street parking would be avoided where possible and workers would be encouraged to access site via public transport. During operation, an underground car park would be provided for all workers, which reduces the risk of parking elsewhere in the vicinity. During construction and operation, staff will be encouraged to utilise public transport.

Transport has prepared a REF to assess potential environment and community impacts associated with the proposal. The REF has examined, and taken into account to the fullest extent possible, all environmental matters affecting or likely to be affected by the proposal, including noise and vibration, visual amenity, and socio-economic impacts of the proposal on adjoining properties.

Concerns around stifling residential development in the vicinity of the proposal are noted. It is recognised that housing is a key priority for the NSW Government due to a shortage of diverse and affordable homes in well-located areas, and that Macquarie Park has been identified as a priority high growth area. Transport have provided the NSW DPHI with information on the proposed ZEB Macquarie Park Bus Depot to consider during the preparation of the Macquarie Park Innovation Precinct Stage 2 Rezoning Proposal, particularly regarding future residential zones in the vicinity of the proposed depot.

## 2.15 Bus services

**Submission number(s)**

19, 20, 36, 37, 44

**Issue description**

a) Request for Government to operate buses

b) Concern around already reduced bus services in Macquarie Park area. Bus depot to service other suburbs.

c) Request for extended bus timetables and more reliable bus services

d) Request for School Bus service

e) Request for additional bus service routes near depot

**Response**

Bus services issues and requests are outside of the scope of the proposal.

Transport administers 10 bus regions across Greater Sydney, each contracted to a private operator. Transport does not itself operate any bus services in Sydney.

The NSW Government established the NSW Bus Industry Taskforce to consider the quality and reliability of bus services across the State, and the effectiveness of the current networks in meeting the range of community needs. The Taskforce has engaged directly with bus operators, industry experts, the workforce, and community representatives to determine how to deliver more efficient and reliable services. The Bus Industry Taskforce's final report has recently been released and is available via the Taskforce's website.

The new ZEB depot at Macquarie Park would provide operational benefits for the Northwest public transport bus region including supporting bus services provided by both Willoughby and Ryde bus depots. In addition, the new ZEB Macquarie Park depot will support Transport's Zero Emission Buses Program which aims to convert all Greater Sydney buses to zero emission technology by 2035.

## 2.16 Other issues

**Submission number(s)**

19, 26, 56, 57, 64

**Issue description**

a) Submission identifies components the REF should address

b) Level of detail in REF is insufficient to properly evaluate proposal.

c) High impact on the environment

d) Request for comprehensive training for depot staff

e) Request for a concept utility connection plan inclusive of the electricity, gas, water and communications feed

f) Council requests a preliminary electricity grid supply statement/study demonstrating the necessary infrastructure upgrades and path of electrical supply to the site

g) Verify ownership and right of use Pittwater Road. Where Pittwater Road will be accessible to public, compliant street lighting, new road pavement, new kerb and gutter must be provided.

h) Request for additional details, documents and reports to Council

**Response**

The proposal has been subject to assessment under Division 5.1 of the EP&A Act. Transport has prepared a REF to assess potential environment and community impacts associated with the proposal. The REF has

examined, and taken into account to the fullest extent possible, all environmental matters affecting or likely to be affected by the proposal. The REF therefore fulfils Transport's obligation under Section 5.5 of the EP&A Act.

The proposal would result in some adverse impacts to the environment, road users and the community, however, would also result in overall reductions in operational greenhouse gas emissions and air pollution, which would in turn provide public health and amenity benefits.

Most of the environmental impacts identified in the REF would occur during construction of the proposal and would be temporary. The REF identifies comprehensive environmental management measures to avoid, manage, mitigate, and offset adverse impacts on the environment during construction and operation of the proposal. These include best practice environmental planning, management techniques and urban design. With effective implementation of the environmental management measures, most impacts would be minor or negligible.

Appropriate training will be provided for depot staff.

Feedback around utilities connections is noted and will be investigated as part of detailed design. The design and construct contractor will request and comply with the relevant utility authorities through the detailed design and construction phase, with Transport's oversight. Specific details on utility connection plans won't be released publicly. Should there be concerns regarding utility assets during construction, please contact Transport's Project Infoline on 1800 684 490 or projects@transport.nsw.gov.au.

Transport has an application with Ausgrid and is preparing a concept design for the required power upgrades. Council will be consulted for any utility works within the Council public domain area.

Transport is the owner of Pittwater Road. Pittwater Road is leased to Transurban to maintain the M2. Pittwater Road is not planned to be a public road. The pavement type will be finalised in detailed design.

In relation to the request for additional details, Transport has prepared a REF to assess potential environment and community impacts associated with the proposal. Transport will continue to assess the potential impacts associated with the proposal throughout detailed design.

## 2.17 Support for proposal or proposal aspects

**Submission number(s)**

3, 4, 5, 6, 8, 9, 10, 11, 12, 14, 15, 18, 19, 21, 22, 23, 27, 28, 29, 33, 39, 40, 42, 47, 61, 62

**Description**

a) General support for the proposal

b) General support for transport improvements

c) Support for central location for public transport

d) Support for sustainable transport option

e) Support for government aiming for zero emissions

f) Increased reliability and capacity of bus services

g) Environmental benefits, including improved public health

h) Enhance the sustainability of transportation infrastructure

i) Support for battery electric buses replacing traditional internal combustion engines

j) Improved connectivity

k) Supporting new jobs

l) Using green energy

m) Less environmental impact – reduced noise and improved air quality

**Response**

Support for the proposal or aspects of the proposal are noted.

# 3. Changes to the proposal

After consideration of the issues raised in the public submissions, no changes to the proposal, such as amended designs or concept plan figures, are proposed.

However, in response to feedback provided in the submissions, several new safeguards and management measures have been included, and feedback will be considered as part of detailed design. Further details are provided in Section 5.2.

# 4. Environmental assessment

As there are no proposed changes to the proposal, no further additional environmental studies or additional environmental impact assessment is required.

# 5. Environmental management

The REF for the ZEB Macquarie Park Bus Depot identified the framework for environmental management, including safeguards and management measures that would be adopted to avoid or reduce environmental impacts (Section 7.2 of the REF).

After consideration of the issues raised in the public submissions, additional safeguard and management measures have been included.

Should the proposal proceed, environmental management will be guided by the framework and measures outlined below.

## 5.1 Environmental management plan

A number of safeguards and management measures have been identified to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the proposal. Should the proposal proceed, these management measures would be incorporated into the detailed design and applied during the construction and operation of the proposal.

A Construction Environmental Management Plan (CEMP) will be prepared to describe safeguards and management measures identified. The CEMP will provide a framework for establishing how these measures will be implemented and who would be responsible for their implementation.

The CEMP will be prepared prior to construction of the proposal and must be reviewed and certified by Transport environment staff, prior to the commencement of any on-site works. The CEMP will be a working document, subject to ongoing change and updated as necessary to respond to specific requirements. The CEMP would be developed in accordance with the *Environmental Management Guideline for Infrastructure Projects* (NSW Department of Planning, Industry and Environment, 2020).

## 5.2 Summary of safeguards and management measures

The REF for the proposal identified a range of environmental outcomes and management measures that would be required to avoid or reduce the environmental impacts.

After consideration of the issues raised in the public submissions, additional environmental management measures for the proposal (refer to Section 7.2 of the REF) have been included. Should the proposal proceed, the environmental management measures in Table 5-1 will guide the subsequent phases of the proposal.

As a result of consultation, additional and amended environmental safeguards and management measures to those presented in the REF (GEN6, HF7, TT11 and SE1) have been included in Table 5-1.

Environmental safeguards B7, LVA2, LVA3 and NV4, have been amended from those presented in the REF. Environmental safeguard B7 was amended to better align with Transport's Biodiversity Management Guideline, LVA2 was amended to correct a wording error, LVA3 was updated to better reflect current site conditions and NV4 was amended to fix an error with timing.

Table 5-1: Summary of environmental safeguards and management measures

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| GEN1 | General – minimise environmental impacts during construction | A CEMP will be prepared and submitted for review and endorsement of Transport's Senior Manager Environment and Sustainability prior to commencement of the activity. As a minimum, the CEMP will address the following:<br>• any requirements associated with statutory approvals<br>• details of how the project will implement the identified safeguards outlined in the REF<br>• issue-specific environmental management plans<br>• roles and responsibilities<br>• communication requirements<br>• induction and training requirements<br>• procedures for monitoring and evaluating environmental performance, and for corrective action<br>• reporting requirements and record-keeping<br>• procedures for emergency and incident management<br>• procedures for audit and review.<br>The endorsed CEMP will be implemented during the undertaking of the activity. | Contractor | Detailed design/ Pre-construction | Site specific safeguard |
| GEN2 | General – environmental awareness | All personnel working on site will receive training to ensure awareness of environment protection requirements to be implemented during the project. This will include up-front site induction and regular "toolbox" style briefings. Site-specific training will be provided to personnel engaged in activities or areas of higher risk. | Contractor | Construction | Site specific safeguard |
| GEN3 | General – environmental compliance | A Construction Environmental Compliance Report (CECR) for the Project shall be prepared which addresses the following matters:<br>a) compliance with the CEMP and the Submissions Report safeguards<br>b) compliance with any approvals or licences issued by relevant authorities for the construction of the Project<br>c) implementation and effectiveness of environmental controls (the assessment of effectiveness should be based on a comparison of actual impacts against performance criteria identified in the CEMP) | Contractor | Construction | Site specific safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| | | d) environmental monitoring results, presented as a results summary and analysis<br>e) number and details of any complaints, including summary of main areas of complaint, actions taken, responses given and intended strategies to reduce recurring complaints (subject to privacy protection)<br>f) details of any review and amendments to the CEMP resulting from construction during the reporting period<br>g) any other matter as requested by Transport.<br>The CECR shall be submitted to Transport for review and approval. The first CECR shall report on the first three months of construction and be submitted within four weeks of expiry of that period (or at any other time interval agreed to by Transport). CECRs shall be submitted no later than six months after the date of submission of the preceding CECR (or at other such periods as requested by the Transport) for the duration of construction. The final CECR shall detail compliance with all safeguards, licences and permits required to be obtained under any other legislation for the Project. | | | |
| GEN4 | General - minimise environmental impacts during construction | An environmental control map (ECM) will be prepared in accordance with Transport's *environmental control map guideline* EMF-EM-GD-0148 and submitted to Transport for review and approval prior to works commencing. The ECM will be regularly updated throughout construction to reflect changing site conditions and submitted to Transport for acceptance. | Contractor | Construction | Site specific safeguard |
| GEN5 | General – Project modifications | Any modification to the Project will be subject to further environmental assessment. The assessment will be subject to approval under delegated authority under Transport. The contractor will comply with any additional requirements from the assessment. | Contractor | Pre-construction/ Construction | Site specific safeguard |
| GEN6 | General - Site specific components | The following site specific components would be investigated as part of the detailed design phase:<br>a) re-allocation of proposed car spaces to motorcycle parking and the provision of suitably sized lockers for motorcycle riding gear<br>b) flagpole and small garden<br>c) duty officer and lost property room located in an area that considers public access<br>d) footpath continuity to the depot from Lane Cove Road | Contractor | Detailed design | Site specific safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| | | e) opportunities to incorporate the creek Woven Way through interpretative features. | | | |
| B1 | Removal of Native Vegetation and Threatened Fauna Habitat | Native vegetation removal and threatened fauna habitat removal will be minimised through detailed design, where feasible. | Contractor | Detailed design | Transport's *Biodiversity Management Guideline* (Transport for NSW, 2024). |
| B2 | Removal of Native Vegetation and Protection of Retained Vegetation | Vegetation clearance limits will be identified both on site maps/plans and on-site through the erection of temporary exclusion fencing, bunting or similar in accordance with *Guide 2: Exclusion Zones* in Transport's *Biodiversity Management Guideline* (Transport for NSW, 2024).<br>Exclusion zones will be set up at the limit of clearing in accordance with *Guide 2: Exclusion zones* of Transport's *Biodiversity Management Guideline* (Transport for NSW, 2024).<br>Fencing etc. will be established at the outer limits of the drip line of any retained trees and the areas marked as 'no-go zones' to avoid direct impact. | Contractor | Pre-construction/ Construction | Site specific safeguard |
| B3 | Removal of Vegetation | Pre-clearing surveys will be undertaken in accordance with *Guide 1: Pre-clearing process* in Transport's *Biodiversity Management Guideline* (Transport for NSW, 2024). | Contractor | Pre-construction | Site specific safeguard |
| B4 | Removal of Trees | A suitably qualified arborist is to participate in pre-clearing site walk-through, to confirm trees to be removed. Prior to tree removal, the arborist will assess and report on any significant roots that require removal. If structural roots are encountered and need to be cut, they shall provide advice on the position and method of removal to minimise impacts.<br>The arborist will assess and report on the need for any further tree removals required within the proposal boundary. | Contractor | Pre-construction | Site specific safeguard |
| B5 | Vegetation/Trees on Third Party Land | Where vegetation/trees are proposed to be removed or trimmed on land not owned by Transport, the contractor shall obtain the landowner's consent prior to these works being undertaken. | Contractor | Pre-construction | Site specific safeguard |
| B6 | Removal of Native Vegetation/Threatened Fauna Habitat | Vegetation removal and threatened fauna habitat removal will be undertaken in accordance with *Guide 4: Clearing of vegetation and removal of bushrock* in Transport's *Biodiversity Management Guideline* (Transport for NSW, 2024) to minimise disturbance to surrounding flora and fauna habitats. | Contractor | Construction | Site specific safeguard |
| B7 | Removal of Native Vegetation | Where feasible, removed native and non-seed-bearing, exotic vegetation would be mulched or re-used on-site (e.g., to stabilise disturbed areas). | Contractor | Construction/ Post-construction | Site specific safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| | | Weed material is not to be mulched unless it has been appropriately composted to remove the potential for regrowth/growth | | | |
| B8 | Removal of Native Vegetation | Vegetation removal work is not to be conducted during periods of high winds. | Contractor | Construction | Site specific safeguard |
| B9 | Removal of Native Vegetation | The contractor must submit for review and endorsement by the Transport Senior Manager Environment and Sustainability, a Tree and Hollow Replacement Plan, which prioritises local plantings in accordance with Transport's *Tree and Hollow Replacement guidelines* EMF-BD-GD-0129 (Transport for NSW, 2023). Unless otherwise agreed to by Transport, this plan will be submitted within three months of commencing construction. | Contractor | Pre-construction/ Post-construction | Site specific safeguard |
| B10 | Unexpected threatened species | The unexpected species find procedure in *Guide 1: Preclearing process* in Transport's *Biodiversity Management Guideline* (Transport for NSW, 2024) is to be followed if threatened ecological communities and threatened fauna or flora not assessed in the biodiversity assessment, are identified in the proposal boundary. | Contractor | Construction | Site specific safeguard |
| B11 | Removal of threatened fauna habitat | An ecologist (or similar qualified person) is to be present on-site during the removal of the 31 hollow-bearing trees. The ecologist is to:<br>• develop lines of communication with the tree felling operator<br>• inspect each tree prior to its clearing<br>• inspect the tree once it is on the ground<br>• collect and relocate locally any sheltering fauna<br>• transport to a local veterinarian any animals that require treatment. | Contractor | Construction | Site specific safeguard |
| B12 | Removal of threatened fauna habitat | The 31 hollow-bearing trees are to be marked during pre-clearing surveys. Pre-clearing surveys will be undertaken in accordance with *Guide 1: Preclearing process* of Transport's *Biodiversity Management Guideline* (Transport for NSW, 2024).<br>If possible, all vegetation around the hollow-bearing trees to be removed would be cleared 24 to 48 hours prior to the removal of the hollow-bearing trees. This approach isolates the hollow-bearing trees and reduces their habitat value (particularly for ground-traversing fauna that are exposed to predation). | Contractor | Pre-construction/ Construction | Site specific safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| B13 | Removal of threatened fauna habitat | The hollow-bearing trees should be 'soft- felled' in sections, the cut being about 100 mm below the bottom of the cavity, with hollow-limbs lowered to the ground. Once on the ground, the ecologist, or similar, would inspect the cavities for sheltering species. These should be collected and used locally as habitat as part of the off-setting requirements. | Contractor | Construction | Site specific safeguard |
| B14 | Removal of threatened fauna habitat | Fauna will be managed in accordance with *Guide 9: Fauna handling* of Transport's *Biodiversity Management Guideline* (Transport for NSW, 2024). | Contractor | Construction | Site specific safeguard |
| B15 | Removal of threatened fauna habitat | If an arborist [or similar] is to be employed, they would climb each identified hollow-bearing tree and provide confirmation if the predicted hollows are actual cavities.<br>• Whilst examining the tree, the arborist is to use a hand-held torch to inspect any cavities for sheltering animals. A photographic record of the cavity is to be obtained, this included in a pre-clearing report that is submitted to the appropriate Transport Environmental representative.<br>• If animals are observed sheltering in the cavity, the entrance is to be temporarily plugged through the placement of a breathable material (cloth bag, towel etc.). The limb/branch is then to be roped off; a chainsaw being used to remove this from the main plant (the cut made at least 100 mm beyond the predicted limit of the cavity). The limb is to be gently lowered to the ground, relocated to the edge of the road corridor and the cloth plug removed (if possible, upon dusk). The sheltering animal is to be permitted to naturally disperse from the cavity.<br>• If birds are present, particularly fledglings, these are to be collected and taken to a wildlife carer or veterinarian for assessment.<br>Prior to the trees' removal (if an excavator employed) these would be knocked several times to alert potential sheltering fauna and provide an opportunity for these animals to disperse. The trees would not be felled until approval from the ecologist is given. | Contractor | Construction | Site specific safeguard |
| B16 | Protection of retained trees | A suitably qualified arborist is to participate in pre-clearing site walk-through, to confirm trees to be retained and the setup of tree protection measures as per the Arboricultural Impact Assessment (AIA) recommendations.<br>Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) for retained trees are to be confirmed by the arborist. | Contractor | Pre-construction/ Construction | Site specific safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| | | Prior to commencement of construction, the arborist will inspect the setup of TPZ, ensuring they meet the requirements of *AS4970(2007) Protection of Trees on Development Sites*. The arborist will undertake regular monitoring/site inspections during construction to monitor tree health, and provide advice and recommendations in relation to:<br>• methods to minimise the extent of encroachment within the TPZ<br>• long-term health of retained trees such as watering regimes, fertiliser application and mulching<br>• additional tree care if there are signs of stress<br>• non-destructive digging techniques and when to stop works within TPZ<br>• refinements to the work methodology<br>• the adequacy of site training and induction material regarding TPZ.<br>Where trees are to be retained but pruning is required, the arborist is to prepare a site-specific pruning report when detailed design is confirmed. All pruning works are to be undertaken by suitably qualified tree workers (minimum Australian Qualifications Framework (AQF) Level 3 or equivalent) in accordance with Australian Standard AS4373-2007 *Pruning of Amenity Trees and Safe Work Australia's Guide to Managing Risks of Tree Trimming and Removal Works.* | | | |
| B17 | Replacement of habitat | Habitat will be replaced or re-instated in accordance with *Guide 5: Re-use of woody debris and bushrock*.<br>To replace the loss of one 'occupied' hollow from within the 31 hollow-bearing trees to be removed, 50 artificial hollows as per the *Tree and Hollow Replacement guidelines EMF-BD-GD-0129* (Transport for NSW, 2023) would be established. Artificial hollows would be provided in accordance with *Guide 8: Artificial hollows* of Transport's *Biodiversity Management Guideline* (Transport for NSW, 2024).<br>Where hollow replacement cannot be accommodated for locally [or only partially], payment of $500 would be made into Transport's Conservation Fund for each hollow replacement required. | Contractor | Construction | Site specific safeguard |
| B18 | Injury and mortality of fauna | Checks beneath vehicles/machinery will be undertaken prior to their use for the presence of sheltering fauna species (i.e., frogs and ground-traversing mammals). | Contractor | Construction | Site specific safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| | | Fauna will be managed in accordance with *Guide 9: Fauna handling* of Transport's *Biodiversity Management Guideline* (Transport for NSW, 2024). | | | |
| B19 | Invasion and spread of weeds | In accordance with the *NSW Biosecurity Act 2015*, the weeds identified on-site would be controlled, thereby mitigating impacts on adjoining land to which it could spread.<br>Weed species will be managed in accordance with *Guide 6: Weed management* of Transport's *Biodiversity Management Guideline* (Transport for NSW, 2024). | Contractor | Pre-construction/ Construction | Site specific safeguard |
| B20 | Invasion and spread of pests | Pest species will be managed within the proposal boundary. | Contractor | Construction | Site specific safeguard |
| B21 | Invasion and spread of pathogens and disease | Pathogens will be managed in accordance with *Guide 2: Exclusion zones* of Transport's *Biodiversity Management Guideline* (Transport for NSW, 2024). | Contractor | Construction | Site specific safeguard |
| B22 | Noise, light, dust and vibration | Shading and artificial light impacts will be minimised through detailed design. | Contractor | Detailed design | Site specific safeguard |
| B23 | Greenstar credit | The detailed design is to consider species connectivity. | Contractor | Detailed design | Site specific safeguard |
| B24 | Additional vegetation removal/trimming | Where trimming, cutting, pruning or removal of trees or vegetation has not already been identified in the Environmental Impact Assessment, separate approval, in accordance with Transport's *Removal or trimming of vegetation application EMF-EM-TT -0144* is required.<br>The trimming, cutting, pruning or removal of trees or vegetation shall be undertaken in accordance with the conditions of that approval. | Contractor | Detailed design / Construction | Site specific safeguard |
| HF1 | Flood risk | Measures incorporated into the detailed design to ensure flood risk is minimised within the site and downstream, are to be implemented. | Contractor | Detailed design/ Pre-construction | Site specific safeguard |
| HF2 | Flood risk | Prior to construction commencing, final hydrology and drainage assessments will be undertaken to inform detailed design measures to minimise flood risks to the environment, properties and the proposal, including access and egress. Drainage designs to be inclusive of increase in rainfall intensity to account for climate change. | Contractor | Detailed design/ Pre-construction | Site specific safeguard |
| HF3 | Flood risk | When flooding is predicted, construction plant and equipment will not be stored in flood prone areas within the site boundary. | Contractor | Construction | Site specific safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| HF4 | Flood risk | Appropriate construction measures to minimise flood risk and drainage impacts will be included in the CEMP and implemented on site. | Contractor | Construction | Site specific safeguard |
| HF5 | Changes to hydrology | Changes to existing surface water flows will be minimised through detailed design. | Contractor | Detailed design | Site specific safeguard |
| HF6 | Surface water runoff management | Surface water flows will be managed during construction. | Contractor | Construction | Site specific safeguard |
| HF7 | Flood risk | Develop an appropriate emergency plan to assist in being prepared for, responding to and recovering from flooding. | Contractor (construction)/ Transport (operations) | Detailed design/ Pre-construction/ Construction/ Operation | Site specific safeguard |
| SC1 | Contaminated land | A Remedial Action Plan will be prepared in accordance with Transport's *Contaminated land management procedure EMF-LM-PR-0016* (Transport for NSW, 2023) and submitted to Transport for review and endorsement.<br>The plan will include, but not be limited to:<br>• capture and management of any surface runoff contaminated by exposure to the contaminated land<br>• further investigations required to determine the extent, concentration and type of contamination, as identified in the Detailed Site Investigation<br>• management of the remediation and subsequent validation of the contaminated land, including any certification required<br>• measures to ensure the safety of site personnel and local communities during construction. | Contractor | Detailed design/ Pre-construction | Standard safeguard |
| SC2 | Contaminated land | If contaminated areas are encountered during construction, appropriate control measures will be implemented to manage the immediate risks of contamination.<br>All other work that may impact on the contaminated area will cease until the nature and extent of the contamination has been confirmed and any necessary site-specific controls or further actions identified in consultation with the Transport's Environment Manager and/or Environment Protection Authority (EPA). | Contractor | Construction | Standard safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| SC3 | Contamination of soils, surface water and groundwater | A Soil and Water Management Plan (SWMP), forming a sub-plan of the CEMP, will to be prepared for the work.<br>The SWMP will identify all reasonably foreseeable risks relating to soil erosion and water pollution and describe how these risks will be addressed during construction. | Contractor | Pre-construction / Construction | Standard safeguard |
| SC4 | Soils – Erosion and sediment control | A site-specific Erosion and Sediment Control Plan (ESCP) would be prepared and implement as part of the SWMP.<br>The ESCP will include arrangements for managing wet weather events, including monitoring of potential high-risk events (such as storms) and specific controls and follow-up measures to be applied in the event of wet weather.<br>The plan would incorporate best management erosion and sediment control practices such as those found in the Managing Urban Stormwater, Soils and Construction Guidelines ("the Blue Book") (4th Edition) (Landcom, 2004).<br>The ESCP will be reviewed and updated whenever the construction program, scope of work or work methods change, or whenever work methods or control measures are found to be ineffective. | Contractor | Pre-construction / Construction | Standard safeguard |
| SC5 | Soils – Erosion and sediment control | Erosion and sediment controls such as sandbags and drainage covers are to be checked weekly and before/after rainfall event greater than 10 mm in a 24-hour period and maintained on a regular basis. | Contractor | Construction | Site specific safeguard |
| SC6 | Soils – Erosion and sediment control | Erosion and sediment control measures are not to be removed until the work is complete, and areas are stabilised. | Contractor | Construction | Site specific safeguard |
| SC7 | Soils – Stabilisation | Work areas are to be stabilised progressively during the work. | Contractor | Construction | Site specific safeguard |
| SC8 | Soils – Stockpile management | All stockpiles are to be managed in accordance with the *Managing Urban Stormwater, Soils and Construction Guidelines* ("the Blue Book") *(4th Edition*) (Landcom, 2004).<br>Erosion and sediment controls would be implemented in the proposed stockpile area, such as:<br>• stockpiles to be covered with geofabric prior to rain events greater than ten millimetres.<br>• maximum height of stockpile is two metres and no greater than a 2:1 slope<br>• segregation in order to minimise risk of cross-contamination of stockpiles and maximise suitability for reuse or recycling | Contractor | Construction | Standard safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| | | • stockpiles are not to encroach on any local vegetation and be kept five metres away from trees to be retained<br>• mitigation measures to manage tannins leaching from mulch stockpiles into waterways will be included in the CEMP and implemented on site stockpiles will be separated using techniques such as hard barriers or markers<br>• stockpiles are to be labelled according to their classification / material type (e.g., topsoil, capping etc)<br>Soil stockpiles with visual signs of hydrocarbon contamination or odours should be sampled and classified in accordance with the *Waste Classification Guidelines* (NSW EPA, 2014) and disposed off-site to a suitably licenced landfill facility. | | | |
| SC9 | Contamination of soils | All fuels, chemicals, liquids and hazardous materials will be stored in an secured impervious bunded area a minimum of 50 metres away from waterbodies, drainage lines and slopes with a gradient of more than 10% and disposed of in accordance with NSW DECC's *Storing and Handling Liquids: Environmental Protection Participants Manual* (NSW DECC, 2007).<br>Appropriate on-site signage will be provided to identify the materials stored. | Contractor | Construction | Site specific safeguard |
| SC10 | Contamination of soils | The Site Supervisor must be notified immediately of any suspected or potentially contaminated ground exposed during construction activities.<br>All work must cease within the vicinity of the actual or suspected contaminated land and the area will be fenced off. All other work that may impact on the contaminated area will cease until the nature and extent of the contamination has been confirmed by a certified contaminated land practitioner and any necessary site-specific controls or further actions identified in consultation with Transport's Environment Manager and/or EPA. | Contractor | Construction | Site specific safeguard |
| SC11 | Contaminated land | Further investigations for waste classification will be undertaken. | Contractor | Pre-construction | Site specific safeguard |
| SC12 | Management of Asbestos containing material | All ACM identified on-site must be managed in accordance with Transport's *Asbestos in soils management procedure EMF-LM-PR-0020* (Transport for NSW, 2023). | Contractor | Construction | Site specific safeguard |
| SC13 | Contamination of surface water | Plant, equipment and vehicles will be cleaned a minimum of 50 metres from waterways and drainage lines. | Contractor | Construction | Site specific safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| SC14 | Contamination of surface water | Water quality control measures are to be used to prevent any materials such as concrete, grout entering drainage lines and waterways. | Contractor | Construction | Site specific safeguard |
| SC15 | Contamination of surface water | All concrete washout will be managed in accordance with Transport's *Concrete washout guideline EMF-EM-GD-0145* (Transport for NSW, 2023). Details of the concrete washout areas are to be included in the CEMP. | Contractor | Construction | Site specific safeguard |
| SC16 | Accidental spills – contamination | Construction vehicles and plant/machinery are to be properly maintained and regularly inspected for fluid leaks to minimise the risk of fuel/oil leaks. | Contractor | Construction | Site specific safeguard |
| SC17 | Accidental spills | Pollution incident response management measures will be included in the CEMP in accordance with Transport's *Chemical storage and spill response guideline EMF-EM-GD-0137* (Transport for NSW, 2023) and relevant EPA guidelines.<br>The CEMP will include adequate water quality and hazardous materials procedures (including spill management procedures, use of spill kits and procedures for refuelling and maintaining construction vehicles/ equipment), as well as initial response, containment, and notification procedures.<br>All staff to be made aware of the location of the spill kits and trained in how to use them in the event of a spill. | Contractor | Construction | Site specific safeguard |
| SC18 | Pollution incident | In the event of a pollution incident (e.g., a spill) work would cease in the immediate vicinity and the Contractor would immediately notify Transport's Project Manager and Transport's Senior Manager Environment and Sustainability. Transport's *Environmental Incident Procedure* (Transport for NSW, 2021) is to be followed. | Contractor | Construction | Site specific safeguard |
| SC19 | Water | All water captured or encountered on-site will be managed in accordance with the requirements of the Transport's *Water Discharge and Reuse Guideline DMS-SD-024* and the *Discharge or Reuse Water Approval DMS-FT-207*. | Contractor | Construction | Site specific safeguard |
| AH1 | Aboriginal heritage | Transport's *Unexpected Heritage Items Procedure* (Transport for NSW, 2024) will be followed in the event that an unknown or potential Aboriginal object/s, including skeletal remains, is found during construction. This applies where Transport does not have approval to disturb the object/s or where a specific safeguard for managing the disturbance (apart from the Procedure) is not in place. | Contractor | Pre-construction/ Construction | Standard safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| | | Work will only re-commence once the requirements of that Procedure have been satisfied. | | | |
| AH2 | Aboriginal heritage | Detailed design will consider the *Connecting to Country Aboriginal Design Principles* (WSP, 2023) and recommendations made by Elders during the on-site Walk on Country. | Contractor | Detailed design | Site specific safeguard |
| H1 | Unexpected non-Aboriginal heritage finds | Transport's *Unexpected Heritage Items Procedure* (Transport for NSW, 2024) will be followed in the event that any unexpected heritage items, archaeological remains or potential relics of non-Aboriginal origin are encountered.<br>Work will only re-commence once the requirements of that Procedure have been satisfied. | Contractor | Construction | Standard safeguard |
| LVA1 | Landscape character | The detailed design is to be undertaken in accordance with design principles outlined *Zero Emission Buses Urban Design Framework* (Transport for NSW, 2022) and the *Urban Design Report* including the *Landscape Design Report* (Taylor Brammer Landscape Architects Pty Ltd, 2024). | Contractor | Detailed design | Site specific safeguard |
| LVA2 | Landscape character | The *Zero Emission Buses Urban Design Framework* and Urban Design Report will provide the basis for development of an UDLP (including detailed urban design drawings and landscape plans) to support the final detailed design.<br>The UDLP will present an integrated urban design for the proposal, providing further practical detail on the application of design principles. | Contractor | Detailed design | Standard measure |
| LVA3 | Landscape character | Detailed design to ~~take into account the design of existing structures and~~ conform to the landscape character of the locality. | Contractor | Detailed design | Site specific safeguard |
| LVA4 | Landscape character and visual impact | Detailed design to minimise tree and vegetation removal within the proposal boundary.<br>Boundary trees to be retained where possible during construction to maintain screening. | Contractor | Detailed design/ Construction | Site specific safeguard |
| LVA5 | Visual impact | Temporary lighting spill beyond the construction footprint is to be minimised in accordance with *AS4282 Control of the obtrusive effects from outdoor lighting*. All lighting to be directed away from sensitive visual receptors. | Contractor | Construction | Site specific safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| LVA6 | Visual impact | Lighting and signage will be installed in accordance with relevant Australian Standards and guidelines, and without reducing the amenity of sensitive receivers where feasible and reasonable. | Contractor | Pre-construction/ Construction | Site specific safeguard |
| LVA7 | Visual impact | Following completion of the work, plant and equipment to be removed from site and disturbed areas to be rehabilitated/restored as appropriate. | Contractor | Construction/ Post-construction | Site specific safeguard |
| TT1 | Traffic and transport | A detailed Construction Traffic Management Plan (CTMP), which will include a Construction Traffic Control Plan, will be prepared in accordance with Transport's *Traffic Control at Work Sites Manual* (Transport, 2022).<br>The CTMP will include:<br>• confirmation of haulage routes<br>• measures to maintain access to local roads and properties<br>• site-specific traffic control measures (including signage) to manage and regulate traffic movement<br>• measures to maintain pedestrian and cyclist access<br>• requirements and methods to consult and inform the local community of impacts on the local road network<br>• access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads.<br>• a response plan for any construction traffic incident<br>• consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic<br>• monitoring, review and amendment mechanisms. | Contractor | Detailed design/ Pre-construction | Standard safeguard |
| TT2 | Local community notification | Potentially affected residences are to be notified prior to the commencement of and during work. Consultation should include but not be limited to door knocks, newsletters or letter box drops providing information on the proposal, working hours and a contact name and number for more information or to register complaints. | Contractor | Pre-construction/ Construction | Site specific safeguard |
| TT3 | Road network | Any minor trenching work required on either Talavera Road or Wicks Road to complete service and utility connection are to be | Contractor | Construction | Site specific safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| | | completed under single-lane shuttle-flow conditions during standard working hours. | | | |
| TT4 | Road network | Parking for construction workers is to be provided within the proposal boundary. | Contractor | Construction | Site specific safeguard |
| TT5 | Active transport network | Appropriate signage to be installed along Wicks Road near Pittwater Road and along Lane Cove Road, near Talavera Road, to manage impacts on the pedestrian and cycling network. | Contractor | Construction | Site specific safeguard |
| TT6 | Emergency service vehicles | Traffic management measures must be implemented to ensure emergency services vehicle access is maintained along Wicks Road during construction. | Contractor | Construction | Site specific safeguard |
| TT7 | Road safety | A road safety review is to be undertaken of the intersection of Halifax Street and Wicks Road to test the following potential mitigation options to accommodate the additional bus movement:<br>• Addition of a green arrow right turn phase from Wicks Road southbound into Waterloo Road.<br>• Some terminating bus services will use Halifax Street and turn right at Wicks Road to access the depot. This movement will require a new "Buses Excepted" sign applied to the existing "No Right Turn" sign from Halifax Street to Wicks Road. | Contractor | Detailed design | Site specific safeguard |
| TT8 | Active transport | Future cycling access configurations to the site to be considered during detailed design including installation of appropriate signage and alternative routes. | Contractor | Detailed design | Site specific safeguard |
| TT9 | Sustainable travel | Construction and operational workers are to be encouraged to use public transport to access the proposal. | Contractor | Construction | Site specific safeguard |
| TT10 | Access | Pedestrian and vehicle access to neighbouring and nearby properties and businesses will be maintained throughout the duration of the work, where possible. | Contractor | Construction | Site specific safeguard |
| TT11 | Active transport | Investigate opportunities to retain or re-align the existing bike path connection between M2 Hills Motorway and Talavera Road during detailed design. | Contractor | Detailed design | Site specific safeguard |
| NV1 | Noise and vibration – general measures | A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will generally follow the approach in *the Construction Noise and Vibration Guideline – Public Transport Infrastructure 2023* (Transport for NSW, 2023) and identify: | Contractor | Detailed design/ Pre-construction | Construction Noise and Vibration Guideline – Public Transport Infrastructure 2023 (Transport for NSW, 2023) |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| | | • all potential significant noise and vibration generating activities associated with the activity<br>• feasible and reasonable mitigation measures to be implemented to avoid and minimise noise impacts<br>• a monitoring program to assess performance against relevant noise and vibration criteria<br>• arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures<br>• contingency measures to be implemented in the event of non-compliance with noise and vibration criteria. | | | |
| NV2 | Noise and vibration – Community Liaison | A Community Liaison Management Plan will be prepared and implemented which will outline specific communication and stakeholder engagement activities, procedures, and protocols for the proposal. | Contractor | Pre-construction | Standard safeguard |
| NV3 | Noise and Vibration - Notification | All sensitive receivers (e.g. local business, residents and schools) likely to be affected will be notified at least five working days prior to commencement of any work associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of:<br>• the proposal<br>• construction dates<br>• working hours and duration of work being undertaken<br>• types of activities being undertaken, and equipment used<br>• any associated impacts and mitigation measures<br>• 24/hr project hotline number. | Contractor | Pre-construction | Standard safeguard |
| NV4 | Noise and vibration – Site inductions | All employees, contractors and subcontractors are to receive an environmental induction which would include consideration of noise and vibration impacts.<br>Regular reinforcement (such as at toolbox talks) of the need to minimise noise and vibration. | Contractor | Pre-construction/ construction | Standard safeguard |
| NV5 | Construction noise and vibration | Construction work to be undertaken in accordance with Transport's *Construction Noise and Vibration Guideline – Public Transport Infrastructure* (Transport for NSW, 2023) | Contractor | Construction | Standard safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| NV6 | Construction noise – Work scheduling | The following work scheduling management measures will be adopted to reduce construction noise impacts:<br>• scheduling noise intensive work and respite periods to reduce annoyance<br>• respite periods could include restricting very noisy activities to time periods that least affect the nearby noise sensitive locations<br>• restricting the number of nights that OOHW is conducted near residences or by determining any specific requirements<br>• work generating high vibration levels should be scheduled during non-sensitive or less sensitive time periods<br>• optimising the number of deliveries to the site by amalgamating loads where possible and scheduling arrivals within designated hours<br>• planning deliveries and access to the site to occur quietly and efficiently and organising parking only within designated areas located away from sensitive receivers<br>• planning construction traffic flow, parking and loading/unloading areas to minimise reversing movements. | Contractor | Construction | Standard safeguard |
| NV7 | Construction hours | Work would generally be carried out during standard construction hours (i.e. 7.00 am to 6.00 pm Monday to Friday; 8.00 am to 1.00 pm Saturdays). Any work outside these hours may be undertaken if approved by Transport and the community is notified prior to these works commencing. An Out of Hours Work application form would need to be prepared by the Construction Contractor and submitted to the Transport's Environment Manager for review and approval prior to the works commencing. | Contractor | Construction | Standard safeguard |
| NV8 | Out of Hours Work | OOHW during evening and night-time periods will be managed in accordance with relevant Transport's guidelines and policies for managing construction noise and vibration, to provide respite from construction noise.<br>High noise activities, such as saw cutting and jack hammering will be completed before 11pm. | Contractor | Construction | Standard safeguard |
| NV9 | Construction noise – standard work practices | The following universal work practices are to be adopted during construction: | Contractor | Construction | Standard safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| | | • regular identification of noisy activities and adoption of improvement techniques.<br>• avoiding the use of portable radios, public address systems or other methods of site communication that may unnecessarily impact upon nearby sensitive receivers<br>• avoiding the use of equipment that generates impulsive noise, where possible<br>• minimising the need for vehicle reversing for example (particularly at night), by arranging for one-way site traffic routes<br>• minimising the movement of materials and plant and unnecessary metal-on-metal contact<br>• minimising truck movements. | | | |
| NV10 | Construction noise and vibration – plant and equipment | The following measures are to be adopted during construction to minimise noise impacts associated with plant and equipment:<br>• the noise levels of plants and equipment must have operating Sound Power or Sound Pressure Levels compliant with the criteria in Appendix H of the *Construction Noise and Vibration Guidelines – Public Transport Infrastructure*<br>• selecting quieter plant and equipment based on the optimal power and size to most efficiently perform the required tasks, where feasible and reasonable<br>• operating plant and equipment in the quietest and most efficient manner<br>• avoiding simultaneous operation of noisy plant, where feasible<br>• plant used intermittently to be throttled down or shut down<br>• maximising the offset distance between noisy plant and adjacent sensitive receivers<br>• noise-emitting plant to be directed away from sensitive receivers<br>• site-based vehicles and mobile plant used on-site must be fitted with broadband reversing alarms to reduce tonal noise impacts<br>• reducing noise from mobile plant through additional fittings, such as silencers | Contractor | Construction | Standard safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| NV11 | Construction noise – behavioural practices | The following good behavioural practices are to be implemented during construction:<br>• no swearing or unnecessary shouting or loud stereos/radios on site<br>• no dropping of materials from height, throwing of metal items and slamming of doors. | Contractor | Construction | Standard safeguard |
| NV12 | Construction noise – monitoring | The following construction noise monitoring is to be undertaken:<br>• attended noise level measurements of typical demolition and ground work activities should be undertaken at site.<br>• attended construction noise surveys of the site and surrounding impacts on neighbours should be undertaken during the following as a minimum:<br>– start of demolition<br>– commencement of any rock breaking or sawing on the site.<br>– in response to any ongoing complaints received from neighbours<br>• any noise monitoring will be carried out by an appropriately trained person in the measurement and assessment of construction noise and vibration, familiar with applicable standards and procedures the statistical parameters to be measured should include the following noise descriptors: $L_{Amin}$, $L_{A90}$, $L_{A10}$, LA1, $L_{Amax}$ and $L_{Aeq}$.<br>• any unattended noise measurements should be conducted over consecutive 15-minute periods<br>• monitoring methodology and any equipment required should comply with the requirements in Standard AS 1055.1-1997. | Contractor | Construction | Standard safeguard |
| NV13 | Vibration – general measures | Vibration mitigation measures will be outlined in the NVMP. The following measures will be included to minimise vibration impacts:<br>• Undertaking a plant and vibration assessment to identify potential vibration risks to human comfort and cosmetic and structural damage<br>• Where identified as being required, undertake a pre-construction building survey for structures prior to the | Contractor | Pre-construction/ Construction | Standard safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| | | commencement of activities with the potential to cause property damage<br>• Conducting vibration monitoring at high-risk receptors during construction<br>• Consideration of feasible alternative construction methodologies or equipment where vibration intensive equipment is expected to exceed the criteria. | | | |
| NV14 | Vibration – safe working distances | The following safe working distance measures are to be adopted:<br>• recommended indicative safe working distances for vibration intensive plant are to be complied with<br>• construction vibration safe distances will be validated prior to the start of construction work by undertaking operator-attended measurements of vibration levels generated by construction equipment to be used on-site. | Contractor | Pre-construction/ Construction | Site specific safeguard |
| NV15 | Vibration – plant and equipment | The following measures are to be adopted during construction to minimise vibration impacts associated with plant and equipment:<br>• selecting plant and equipment with low vibration generation characteristics<br>• any vibration generating plant and equipment is to be in areas within the site to lower the vibration impacts<br>• using lower vibration generating items of construction plant and equipment; that is, smaller capacity plant<br>• undertaking the removal of concrete using saw cutting or pulverising where possible. | Contractor | Construction | Site specific safeguard |
| NV16 | Vibration – work scheduling | The following work scheduling management measures will be adopted to reduce construction noise impacts:<br>• Work generating high vibration levels should be scheduled during non-sensitive or less sensitive time periods Investigate the feasibility of rescheduling the hours of operation of major vibration generating plant and equipment<br>Minimise conducting vibration generating work consecutively in the same area (if applicable). | Contractor | Pre-construction/ Construction | Site specific safeguard |
| NV17 | Vibration monitoring | Vibration monitoring is required to confirm vibration magnitudes are within the expected levels. Short-term attended vibration measurements of activities with the potential to generate | Contractor | Pre-construction | Site specific safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| | | maximum vibration are required to be undertaken on commencement at the site, including the following:<br>• Measurements to be undertaken at a representative location from the activity being conducted with a similar distance to the potentially affected receiver.<br>Activities with the potential to generate the greatest magnitudes of vibration include hydraulic hammering of concrete slabs and hydraulic hammering during ground works within rock. | | | |
| AQ1 | Air quality | An Air Quality Management Plan (AQMP) will be prepared and implemented as a sub-plan to the CEMP. The AQMP will include, but not be limited to:<br>• potential sources of air pollution<br>• air quality management objectives consistent with any relevant published EPA guidelines<br>• mitigation and suppression measures to be implemented<br>• methods to manage work during strong winds or other adverse weather conditions<br>• a progressive rehabilitation strategy for exposed surfaces.<br>The AQMP will include the following requirements:<br>• plant and equipment will be maintained in good condition and in accordance with manufacturers' specifications<br>• plant and machinery will be turned off when not in use<br>• work activities will be reprogrammed if the management measures are not adequately restricting dust generation<br>• disturbed areas will be minimised in extent and rehabilitated progressively<br>• dust will be suppressed on stockpiles and unsealed or exposed area using methods such as water trucks/hoses, temporary stabilisation methods, soil binders or other appropriate practices<br>• no burning of material on site will be undertaken<br>• visual monitoring of air quality will be undertaken to verify the effectiveness of controls and enable early intervention<br>• vehicles transporting materials and equipment will have their loads covered. | Contractor | Detailed design / Pre-construction | Standard safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| AQ2 | Air quality | Work will be undertaken in accordance with all safeguards included in Transport's *Air Quality Management Guideline EMF-AQ-GD-0063* (Transport for NSW, 2022). | Contractor | Construction | Standard safeguard |
| ~~SE1~~ | ~~Socio-economic - Social infrastructure~~ | ~~Conduct a survey of existing bike path usage within the proposal area and explore alternative existing bike routes and possible bike path relocation opportunities.~~ | ~~Transport~~ | ~~Detailed design~~ | ~~Additional safeguard~~ |
| SE2 | Socio-economic – Business access | Access to businesses will be maintained during construction. Where temporary changes to access arrangements may be necessary to accommodate work at 1 Talavera Road, prior to any changes in access, consultation will be undertaken with tenants of 1 Talavera Road to determine access requirements and whether out of hours work is required to mitigate the impacts associated with the driveway modifications work at Talavera Road. | Contractor | Pre-construction/ Construction | Site specific safeguard |
| WR1 | Waste management | A Waste Management Plan (WMP) will be prepared and implemented as a sub-plan of the CEMP. The WMP will include but not be limited to:<br>• measures to avoid and minimise waste associated with the proposal<br>• classification of wastes and management options (re-use, recycle, stockpile, disposal)<br>• statutory approvals required for managing both on and off-site waste, or application of any relevant resource recovery exemptions<br>• procedures for storage, transport and disposal<br>• management of any lead waste in accordance with Australian Standard *AS4361.1- 1995 Guide to Lead Paint Management* (Standards Australia, 1995)<br>• monitoring, record keeping and reporting<br>The WMP will align with Transport's Waste Management Guideline (Transport for NSW, 2023) and relevant Transport Waste fact sheets.<br>The following resource management hierarchy principles will be followed:<br>• avoid unnecessary resource consumption as a priority<br>• avoidance will be followed by resource recovery (including reuse of materials reprocessing and recycling and energy recovery | Contractor | Detailed design/ Pre-construction/ Construction | Standard safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
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| | | Disposal will be undertaken as a last resort (in accordance with the *Waste Avoidance and Resource Recovery Act 2001*) | | | |
| WR2 | Waste management | All wastes will be managed in accordance with Transport's *Waste Management Guideline* and the *Protection of the Environment Operations Act 1997*. | Contractor | Pre-construction/ Construction | Site specific safeguard |
| WR3 | Asbestos waste management | Asbestos waste identified on-site must either be disposed of to a landfill licensed to accept asbestos waste, or alternatively safely encapsulated on-site. Transport's *Asbestos in soils management procedure EMF-LM-PR-0020* (Transport for NSW, 2023) provides guidance on how to manage asbestos in soils, including guidance on when encapsulation versus off-site disposal is warranted. | Contractor | Construction | Site specific safeguard |
| WR4 | Asbestos waste management | Approval to be sought from Transport for any encapsulation of asbestos on-site. The approval must provide safety, financial, environmental, legal, and reputational justification for the proposed encapsulation. | Contractor | Pre-construction | Site specific safeguard |
| WR5 | Asbestos waste management | If on-site encapsulation of asbestos containing material is proposed, a Long-term Environmental Management Plan (LTEMP) containing mitigation measures and/or monitoring requirements will be prepared and implemented. The LTEMP will be submitted to Transport for review and endorsement.<br>The LTEMP will include the following details:<br>• the nature and location of asbestos encapsulations on site<br>• what long-term site management is needed to ensure the ongoing protection of human health and the environment on- and offsite from the encapsulation<br>• a mechanism for legal enforcement of the LTEMP | Contractor | Pre-construction/ Construction | Site specific safeguard |
| WR6 | Waste classification | Preliminary waste classification of materials on-site to be undertaken prior to construction.<br>Where asbestos is mixed with other wastes on-site (e.g. in a soil matrix), further waste classification is required by chemical testing. | Contractor | Construction | Site specific safeguard |
| WR7 | Asbestos waste management | In line with the EPA's requirements:<br>• asbestos waste must be securely packaged at all times<br>• friable asbestos material must be kept in a sealed container<br>• asbestos-contaminated soils (where not securely packaged or sealed) must be wetted down<br>• all asbestos waste must be transported in a covered, leak-proof vehicle | Contractor | Construction | Site specific safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| | | • asbestos waste must be disposed of at a landfill site that can lawfully receive this waste. | | | |
| WR8 | Asbestos waste management | Records of the following must be kept:<br>• amount and type of asbestos waste generated, stored, treated or disposed of amount and type of asbestos waste transported<br>• name of transporter and transporter's vehicle registration number<br>• date of transportation<br>• name and location of the waste disposal facility | Contractor | Construction | Site specific safeguard |
| WR9 | Waste management | Targets for diversion of waste from landfill and optimisation of reuse and recycling to be confirmed in accordance with Transport's *Sustainable Design Guidelines v4.0* (Transport for NSW, 2017). | Contractor | Detailed design/ Pre-construction | Site specific safeguard |
| WR10 | Use of recycled materials | Materials with high recycle content (such as concrete with high Supplementary cementitious materials (SCMs) to be adopted.<br>Recycled aggregates to be used where possible.<br>Maximise recycled materials in road base and bedding material. | Contractor | Detailed design/ Construction | Site specific safeguard |
| WR11 | Reuse of materials | Detailed design should consider the beneficial re-use of suitable materials onsite to minimise the quantity of waste disposed to landfill.<br>100% of usable spoil, by weight, to be re-used on-site.<br>Maximise reused materials in road base and bedding material. | Contractor | Detailed design/ Construction | Site specific safeguard |
| WR12 | Storage of waste | Detailed design to allow for dedicated and appropriately sized waste segregation and storage areas for at least five waste streams. These areas need to be safe and have efficient access for both occupants and waste and resource collection contractors. | Contractor | Detailed design | Site specific safeguard |
| CC1 | Climate change risks | The Climate Risk Assessment (CRA) will be updated during detailed design. Detailed design will consider suitable adaptation measures to address all high and very high risks identified in the CRA, which may include flood hazard, power outages, ember attack, heat hazard, thermal performance, solar reflectivity, and future proofing. | Contractor | Detailed design | Site specific safeguard |
| CC2 | Staff and asset protection | Detailed design to consider provision of cool spaces for staff to work/rest to avoid heat stress. | Contractor | Detailed design | Site specific safeguards |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| CC3 | Energy network resilience | Energy supply resilience and redundancy measures to be applied to reduce the likelihood of power outages on site. | Contractor | Construction/ Operation | Site specific safeguards |
| GG1 | Greenhouse gas emissions | Measures to demonstrate energy efficient construction and operations from Green Star Buildings and Transport's Sustainable Development Goals (SDGs) to be implemented. | Contractor | Detailed design/ Pre-construction | Site specific safeguard |
| GG2 | Greenhouse gas emissions | The procurement strategy developed for the construction phase will demonstrate value for money and consideration for opportunities to procure goods and services:<br>• from local suppliers<br>• that are energy efficient and have low embodied carbon<br>• that minimise generation of waste<br>• that make use of recycled materials | Contractor | Construction | Site specific safeguard |
| GG3 | Greenhouse gas emissions | Greenhouse Gas emissions modelling and reporting using the Transport Carbon Tool.<br>Achieve target of 15% reduction in construction greenhouse gas emissions. | Contractor | Detailed design/ Construction | Site specific safeguard |
| GG4 | Greenhouse gas emissions | Utilise renewable energy to ensure net zero emissions during operations. | Transport / Contractor | Detailed design/ Operations | Site specific safeguard |
| GG5 | Greenhouse gas emissions | Measures included in the ZEB Macquarie Park Bus Depot Sustainability Plan to be implemented. | Contractor | Construction | Site specific safeguard |
| GG6 | Greenhouse gas emissions | Building design to incorporate Environmental Sustainable Design measures and utilise passive building design to reduce energy demand associated with heating and cooling. | Contractor | Detailed design/ Construction | Site specific safeguard |
| OI1 | Utilities | Utility adjustments required to accommodate the proposal will be refined during detailed design in consultation with the relevant utilities providers. | Contractor | Detailed design/ Pre-construction | Site specific safeguard |
| OI2 | Hazards and Risks | A Hazard and Risk Management Plan (HRMP) will be prepared and implemented as part of the CEMP. The HRMP will include, but not be limited to<br>• details of hazards and risks associated with the activity (including consideration of bushfire)<br>• measures to be implemented during construction to minimise these risks<br>• record keeping arrangements, including information on the materials present on the site, material safety data sheets, and personnel trained and authorised to use such materials | Contractor | Construction | Site specific safeguard |

| No. | Impact | Environmental safeguards | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| | | • a monitoring program to assess performance in managing the identified risks<br>• contingency measures to be implemented in the event of unexpected hazards or risks arising, including emergency situations.<br>The HRMP will be prepared in accordance with relevant guidelines and standards, including relevant Safe Work Australia Codes of Practice and EPA publications. | | | |
| OI3 | Hazards and Risks - Fire risk during operation | Fire risk associated with the operation of the proposal would be managed in accordance with the *Zero Emission Buses Greater Sydney Tranche 1 - Macquarie Park Asset Fire Life Safety Strategy Report* (WSP Australia Pty Ltd, 2024) and in consultation with Fire and Rescue NSW. | Transport | Operation | Site specific safeguard |
| OI4 | Bushfires | To minimise risks associated with bushfires non-combustible materials are to be incorporated into the detailed design. | Contractor | Detailed design | Site specific safeguard |
| OI5 | Bushfires | A maintenance regime is required to reduce the build-up of debris and rubbish on-site during construction and operation to minimise bushfire risk | Contractor/ Transport | Construction/ Operation | Site specific safeguard |
| OI6 | Bushfires | In the event of a bushfire impacting the operation of the depot, suitable diversion routes are to be identified and utilised to minimise impact on bus operations. | Transport | Detailed design/ Operation | Site specific safeguard |
| OI7 | Bushfires – ember attack | During detailed design, the requirements of Bushfire Attack Level (BAL) BAL-12.5 are to be followed to mitigate the risk from ember attack. This would include the use of non-combustible materials, such as steel and concrete, which is already envisaged for many of the built elements. | Contractor | Detailed design | Site specific safeguard |
| CI1 | Cumulative impacts | Current and upcoming projects with the potential to interact with the proposal will be monitored, as further information regarding the location and timing of surrounding potential developments is released.<br>Where potential cumulative impacts are identified, the scheduling of work will be coordinated with interacting projects where feasible to minimise potential impacts. This will include:<br>• scheduling work to allow suitable respite periods for construction noise<br>• scheduling of work to minimise consecutive construction noise impacts, where feasible<br>• coordinating lane closures and pedestrian/cyclist diversions to minimise the overall number of occasions where disruption occurs. | Contractor | Detailed design/ Pre-construction | Site specific safeguard |

## 5.3 Licensing and approvals

Table 5-2 provides a summary of the licensing and approval requirements relevant to the proposal.

Table 5-2: Summary of licensing and approval required

| Instrument | Requirement | Timing |
|---|---|---|
| EP&A Act | Determination under Division 5.1 of the EP&A Act. | Prior to start of the activity. |
| Roads Act 1993 (Section 138) | Road occupancy licence to carry out work that would impact on the operational efficiency of the road network. | Prior to work on public roads. |

# 6. Definitions

Table 6-1: Terms and acronyms used in this report

| Term | Definition |
|---|---|
| AS/NZS | Australian/New Zealand Standard |
| AVAS | Acoustic vehicle alert system |
| BEB | Battery Electric Buses |
| BESS | Battery Energy Storage System |
| BoM | Bureau of Meteorology |
| CECR | Construction Environmental Compliance Report |
| CEMP | Construction Environmental Management Plan |
| CRA | Climate Risk Assessment |
| CTMP | Construction Traffic Management Plan |
| DCCEEW | Department of Climate Change, Energy, the Environment and Water |
| DCP | Development Control Plan |
| DPHI | NSW Department of Planning, Housing and Industry |
| DPIE | NSW Department of Planning, Industry and Environment |
| ECM | Environmental Control Map |
| EP&A Act | Environmental Planning and Assessment Act 1979 |
| EPA | Environment Protection Authority |
| ESCP | Erosion and Sediment Control Plan |
| EV | Electric Vehicles |
| FCEB | Fuel Cell Electric Buses |
| HRMP | Hazard Risk Management Plan |
| LGA | Local Government Area |
| LOS | Level of Service |
| LTEMP | Long-term Environmental Management Plan |
| NML | Noise Management Levels |
| NSW | New South Wales |
| NVMP | Noise and Vibration Management Plan |
| OOHW | Out of Hours Works |
| OSD | On-site stormwater detention |
| PFAs | Perfluoroalkyl and Polyfluoroalkyl Substances |
| PMF | Probable Maximum Flood |
| PV | Photovoltaic |
| REF | Review of Environmental Factors |

| Term | Definition |
|---|---|
| SCM | Supplementary cementitious material |
| SDG | Sustainable Development Goals |
| SES | State Emergency Services |
| SRZ | Structure Root Zone |
| SWMP | Soil and Water Management Plan |
| TPZ | Tree Protection Zone |
| Transport | Transport for NSW |
| TTA | Traffic and Transport Assessment |
| UN | United Nations |
| WMP | Waste Management Plan |
| WSUD | Water Sensitive Urban Design |
| ZEB | Zero Emission Buses |

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