

# Appin Road Safety Improvements from Brian Road to Gilead

Submission report

Roads and Maritime Services | February 2019





# **Appin Road Safety Improvements from Brian Road, Appin to Gilead**

## **Submission report**

Roads and Maritime Services | February 2019

Prepared by Advisian and Roads and Maritime Services

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# Document controls

## Approval and authorisation

Title	Appin Road Safety Improvements Brian Road, Appin to Gilead – Submissions Report
Accepted on behalf of NSW Roads and Maritime Services by:	Richard McHenery Project Development Manager
Signed:	
Dated:	28 February 2019

## Document status

Document status	Date	Prepared by	Reviewed by
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Final draft for Roads and Maritime Services review	8 February 2019	GT	GT
Final	28 February 2019	GT	GT

# Executive summary

## The proposal

Roads and Maritime Services (Roads and Maritime) is planning road safety improvements along Appin Road between Brian Road, Appin and Gilead (the proposal).

Key features of the proposal include:

- Establishing temporary site compound and lay down locations required to carry out the proposal
- Widening traffic lanes to a minimum of 3.5 metres for the length of the proposal
- Providing five metre wide clear zones at points along each side of the roadway where required
- Providing about a three metre wide shoulder with a sealed width of between two and three metres along Appin Road between about 200 metres north of the intersection of Appin Road and Brian Road, Appin, and extending to about 360 metres north of Beulah Reserve, Gilead to allow a safer area for vehicles to pull off the road
- Building a new northbound overtaking lane at about chainage 2930 to chainage 3600. The overtaking lane would include traffic separation (e.g. safety barrier and/or painted median)
- Installing traffic separation (e.g. safety barrier and/or painted median) for the length of the existing southbound overtaking lane at about chainage 1240 to chainage 1660
- Building a U-turn facility to the north and south of the existing southbound overtaking lane to provide safe access to and from properties along Appin Road that would be restricted by proposed traffic separation arrangements
- Realigning the existing curve at about chainage 3100 to chainage 3550 (near the Hume-Hovell Expedition memorial)
- Widening the shoulder along Appin Road near and to the north of Beulah Reserve to about three metres. The offset between the shoulder and safety barrier on both sides of Appin Road would be to avoid property acquisition at the property directly east of Appin Road which contains an endangered ecological community and at Beulah Reserve which is a biobank site
- Installing new line marking and signposting where required
- Providing fauna fencing in some sections along Appin Road.

The location of the proposal is shown in Figure 1-1 and an overview of the proposal is provided in Figure 1-2.

A more detailed description of the proposal is found in the *Appin Road Safety Improvements, Brian Road, Appin to Gilead Review of Environmental Factors* prepared by Advisian on behalf of Roads and Maritime November 2018.

## Display of Review of Environmental Factors

This submissions report relates to the Review of Environmental Factors (REF) prepared for the Appin Road Safety Improvements from Brian Road, Appin to Gilead and should be read in conjunction with that document. The REF was placed on public display from 19 November 2018 to Friday 14 December 2018, with some late submissions received and accepted until 19 December 2018. The Appin Road Upgrade, Mount Gilead to Ambarvale REF was displayed at the same time and joint public information sessions were held. During the display, a total of 46 submissions were received in response to the Appin Road Safety Improvements REF from the community. A further four submissions received by the Appin Road Upgrade raised issues relevant to the Appin Road Safety Improvements proposal. Of the 50 submissions received, Campbelltown City Council and Wollondilly Shire Council provided a submission each, two submissions

received were from utility service providers (Sydney Water and Telstra), 45 from the community and one from Total Environment Centre as a community interest group. The key issues raised in the submissions and a summary of Roads and Maritime's responses are outlined below and in chapter 2 of this report.

## Overview of issues raised

### Issues raised by the community and community interest groups

Issues raised by the community included:

- The impact on local biodiversity and the use of fauna fencing for local fauna
- Potential air quality and Aboriginal and non-Aboriginal heritage impacts stemming from the proposal
- Traffic and transport delays during construction of the proposal
- Landscape character and visual and socio-economic impacts as a result of the proposal
- Additional road network upgrades outside of the scope of the proposal which included duplication of the roadway from Gilead to Appin and provision of the bypass of Appin.

The community raised several concerns about the planning and approval requirements of the proposal and the community and stakeholder consultation engagement process that was carried out by Roads and Maritime during the REF display period. Several submissions also raised issues out of the scope of this proposal, including the Mount Gilead development, and the proposed Appin Road Upgrade north of this study area.

### Issues raised by government agencies

Campbelltown City Council drew attention to several issues in their submission, including:

- Recommendations that specific design requirements of the proposal be reviewed to consider future integrated transport planning needs within the area such as options to connect Appin Road to the M31 Hume Motorway be assessed
- Requests to consider the need for integrated transport planning within the area
- Concerns about environmental impacts such as biodiversity, traffic and transport.

Campbelltown City Council also raised concern about the community and stakeholder engagement process during the display of the REF and the lack of ecological road design solutions to mitigate impacts on biodiversity values and the management of fauna connectivity within the area.

About one kilometre of the southern end of the investigation area to Brian Road, Appin of the proposed safety improvements upgrades is within the Wollondilly Local Government Area (LGA). Wollondilly Shire Council raised several issues in their submission, including:

- Highlighting the need for continued safety improvements on Appin Rd to be pursued independently from any development proposals
- Requests for information regarding the location of environmental offsets for impacts to Critically Endangered Ecological Communities of Cumberland Plain Woodland and Shale Sandstone Transition Forests to be made public
- Council requests a scope of measures for koala protection, including 'road furniture' or culverts
- Council requests information on the locations and proposed environmental offset strategies for the hollow bearing trees that would be removed, including hollows considered to be 'live'
- Assessment of the potential salinity impact should be further explored and potentially mitigated.

Wollondilly Shire Council also suggested the relationship between the proposed upgrades and the planned growth in the Greater Macarthur area should be articulated.



## Issues raised by utility providers

Sydney Water and Telstra have existing and/or proposed assets within and near the proposal. Issues raised included:

- Highlighting important utility assets that either cross under or run alongside the proposal and for the protection of assets during the construction phase if the proposal was to proceed
- If required assets are to be replaced like for like, unless otherwise advised
- Sydney Water have requested to be consulted regarding the proposals design and the impact to their services and to advise of mitigations and additional work required to protect / maintain their assets. Roads and Maritime have identified Sydney Water as a key Stakeholder and will consult with them through detailed design and delivery of the proposal
- Telstra would like to maintain their existing networks along the study area
- Access would be required to be retained throughout the life of the proposal. Consideration in regard to staging and timing would need to be carried out as part of the design work and construction work if the proposal was to proceed.

In their submission, Sydney Water and Telstra outlined procedures Roads and Maritime must follow and standards to which construction on assets must be adhere to. This would be carried out during development of detail design and in the delivery readiness phase of the proposal.

## Response to submissions

All issues raised in the submissions to the Appin Road Safety Improvements have been addressed in this submissions report. Issues raised during consultation which were relevant to the Appin Road Upgrade, Mount Gilead to Ambarvale will be responded to in the submission report for that proposal.

The main issues raised in the submissions included:

### ***Adequacy of the Environmental Impact Assessment***

Issue:

Concerns have been raised regarding the adequacy of the Environmental Impact Assessment particularly why a Biodiversity Development Assessment Report (BDAR) under the *Biodiversity Conservation Act 2016* was not undertaken with a particular focus on the local koala population.

*Response:*

Consideration of fauna species potentially occurring in the area in the biodiversity assessment was based on the habitat profile for the species and other habitat information in the Threatened Species Profile Database (Office of Environment & Heritage 2016).

The impacts of the proposal on the koala, including loss of habitat and recognised corridors were subject to a detailed Assessment of Significance (AoS) in accordance with the following State and Commonwealth legislative guidelines. The biodiversity assessment considered the information from government and key stakeholders and the results of relevant studies undertaken in the area.

These studies included further consideration of the regional koala population, including population densities, sex, breeding and regional movements. The results of these studies were incorporated into the conclusions on the proposals potential impacts to koalas, and the identified management and mitigation strategies.

### ***Impact to secondary Koala movement corridors***

Issue:

Fauna fencing installed to minimise animal mortality, in particular koala's, on Appin Road will impact the existing east-west fauna corridors across Appin Road.

*Response:*

Roads and Maritime is proposing to establish fauna exclusion fencing to reduce the current levels of road kill on this section of Appin Road. This should protect koalas from vehicle strikes and direct koala movement to the south and south west and within primary habitat corridors mapped by OEH.

The provision of connectivity structures in the short term is not currently supported. The need for connectivity needs to be fully investigated for possible provision as part of future upgrades to Appin Road and properly located to meet long term conservation koala management outcomes. This would ensure that a suitably secure and preserved corridor is provided which is consistent with the proposed Greater Macarthur strategy and incorporated within the proposed Cumberland Plain Conservation Strategy.

### ***Requests for additional network upgrades***

Issue:

Requests have been made for additional network upgrades including duplication of Appin Road from Campbelltown to Appin and also for an Appin Bypass.

*Response:*

These issues are outside of the scope of the Appin Road Safety Improvements. The Greater Macarthur 2040 plan being prepared by the Department of Planning and Environment is analysing solutions for network upgrades and the integration of these into broader transport planning.

The issues raised during the public display of the REF have been adequately summarised and responded to. All potential environmental impacts have been assessed adequately with appropriate safeguards and management measures identified to avoid, minimise and mitigate impacts. The implementation of the safeguards and management measures identified in the submissions report would appropriately manage and mitigate the potential impacts.

### **Comment**

The submissions report is suitable to be made publically available on the Roads and Maritime website.

## **Environmental management**

The REF for the Appin Road Safety Improvements from Brian Road to Gilead proposal identified the framework for environmental management, including safeguards and management measures that would be adopted to avoid or reduce environmental impacts.

After consideration of the issues raised in the public submissions, the safeguard and management measures outlined in the REF are considered appropriate and remain unchanged. There have been no changes to the proposal since the REF was prepared.

Should the proposal proceed, environmental management would be guided by the framework and measures outlined in the REF.



# Contents

<b>Executive summary .....</b>	<b>i</b>
<b>Contents .....</b>	<b>v</b>
<b>1. Introduction and background .....</b>	<b>1</b>
1.1 The proposal .....	1
1.2 Statutory context .....	4
1.3 REF display .....	4
1.4 Purpose of the report .....	5
<b>2. Response to issues .....</b>	<b>6</b>
2.1 Respondents and overview of issues raised .....	6
2.2 Statutory and planning framework .....	10
2.3 Need and options considered .....	11
2.4 Preferred option .....	14
2.5 Proposal alternatives and suggestions .....	16
2.6 Construction activities .....	17
2.7 Consultation .....	18
2.8 Biodiversity .....	19
2.9 Soils and geology .....	27
2.10 Traffic and transport .....	28
2.11 Aboriginal heritage .....	30
2.12 Non-aboriginal heritage .....	31
2.13 Landscape character and visual impact .....	32
2.14 Socio-economic and land use .....	33
2.15 Air quality .....	35
2.16 Cumulative impacts .....	35
2.17 Other general comments and suggestions .....	36
<b>3. Environmental management .....</b>	<b>42</b>
3.1 Environmental management plan (or system) .....	42
3.2 Summary of safeguards and management measures .....	42
3.3 Licensing and approvals .....	59
<b>4. References .....</b>	<b>60</b>

Tables

Table 1-1: Display locations..... 5

Table 1-2: Consultation activities during the public display period ..... 5

Table 2-1: Summary of the main issues by respondent group ..... 6

Table 2-2: Respondents ..... 8

Table 3-1: Summary of environmental safeguards and management measures ..... 43

Table 3-2: Summary of licensing and approval required ..... 59

Figures

Figure 1-1: Location of the proposal ..... 2

Figure 1-2: The proposal ..... 3

Figure 2-1: Percentage of submissions raising key issues ..... 7

# 1. Introduction and background

## 1.1 The proposal

Roads and Maritime Services (Roads and Maritime) is planning road safety improvements along Appin Road between Brian Road, Appin and Gilead (the proposal).

Key features of the proposal include:

- Establishing temporary site compound and lay down locations required to carry out the proposal
- Widening traffic lanes to a minimum of 3.5 metres for the length of the proposal
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- Building a new northbound overtaking lane at about chainage 2930 to chainage 3600. The overtaking lane would include traffic separation (e.g. safety barrier and/or painted median)
- Installing traffic separation (e.g. safety barrier and/or painted median) for the length of the existing southbound overtaking lane at about chainage 1240 to chainage 1660
- Building a U-turn facility to the north and south of the existing southbound overtaking lane to provide safe access to and from properties along Appin Road that would be restricted by proposed traffic separation arrangements
- Realigning the existing curve at about chainage 3100 to chainage 3550 (near the Hume-Hovell Expedition memorial)
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- Installing new line marking and signposting where required
- Providing fauna fencing in some sections along Appin Road.

The location of the proposal is shown in Figure 1-1 and an overview of the proposal is provided in Figure 1-2.

A more detailed description of the proposal is found in the *Appin Road Safety Improvements, Brian Road, Appin to Gilead Review of Environmental Factors* prepared by Advisian on behalf of Roads and Maritime November 2018.



Figure 1-1: Location of the proposal

Figure 1-1: Location of the proposal

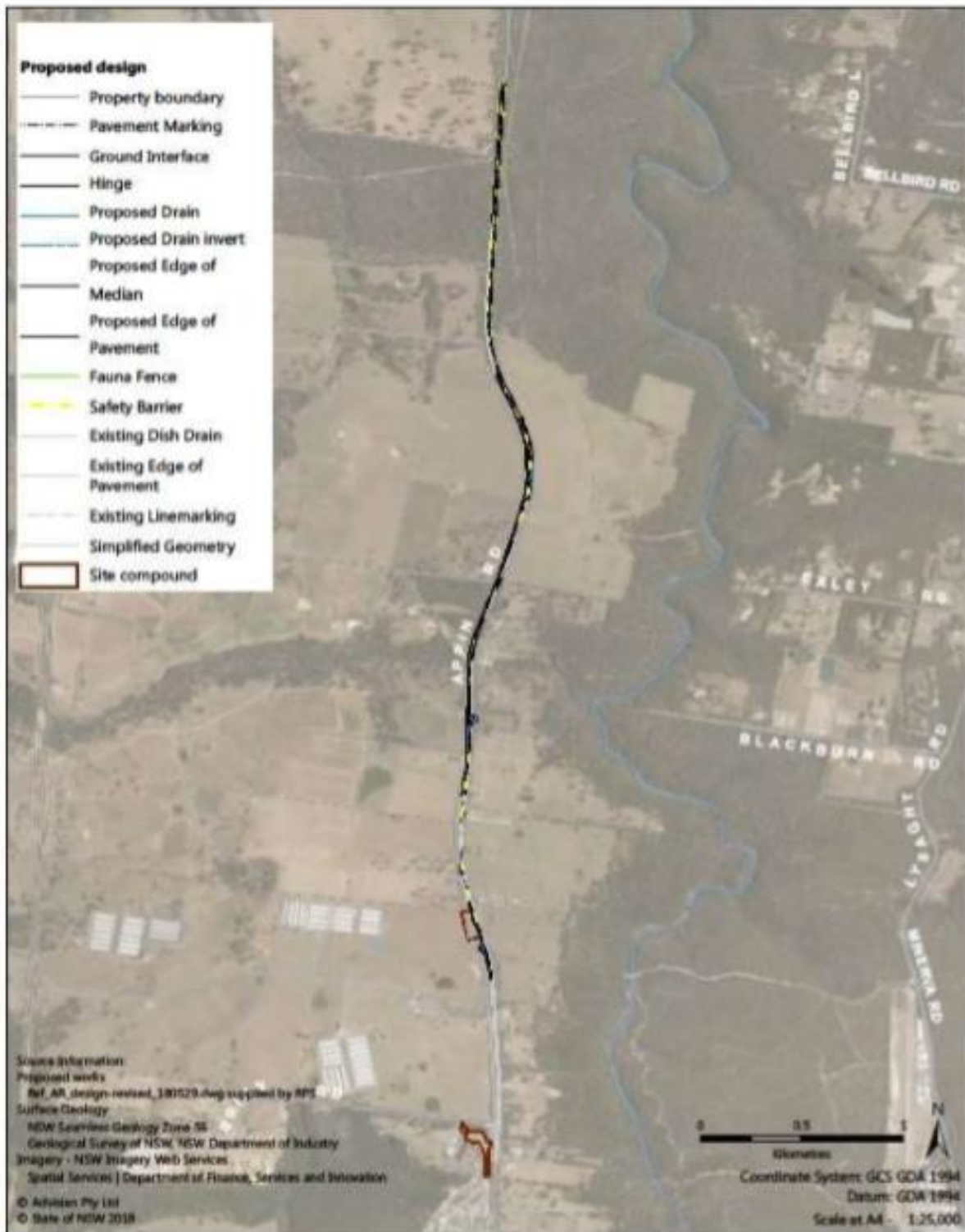


Figure 1-2: The proposal

Figure 1-2: The proposal

## 1.2 Statutory context

### 1.2.1 NSW Environmental Planning and Assessment Act 1979

Roads and Maritime is seeking project approval for road safety improvements along Appin Road between Brian Road, Appin and Gilead under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Clause 94 of the *State Environmental Planning Policy (Infrastructure) 2007* (the Infrastructure SEPP) applies to development for the purpose of a road or road infrastructure facilities and provides that these types of works are development which is permissible without consent (except land authorised under the *National Parks and Wildlife Act 1974*. As the proposal would not be carried out on land reserved under the *National Parks and Wildlife Act 1974*, the proposal is appropriately classified as being for the purpose of a 'road' and a 'road infrastructure facility' under the Infrastructure SEPP.

Roads and Maritime formed the opinion that the proposal is not State significant infrastructure or State significant development. The proposal can be assessed under Division 5.1 of the EP&A Act.

Roads and Maritime has prepared this submissions report to respond to issues raised in submissions received during the exhibition of the REF, as well as to describe and assess proposed changes and design refinements to the proposal.

## 1.3 REF display

Roads and Maritime prepared a Review of Environmental Factors (REF) for the Appin Road Safety Improvements from Brian Road to Gilead to assess the potential environmental impacts of the proposed work. The REF was publicly displayed between 19 November 2018 and Friday 14 December 2018 at four locations, as detailed in Table 1-1. The REF was placed on the Roads and Maritime project website and made available for download. The display location website link and invitation to attend one of the three information sessions was advertised in the Macarthur Advertiser and Campbelltown-Macarthur Chronicle on Tuesday 13 November 2018.

In addition to the above public display, there were several events and activities undertaken during the consultation period to give the community a chance to learn more about the project, meet the project team and 'have their say' (refer to Table 1-2).

The purpose of the community consultation was to:

- Inform community members and stakeholders about the REF and strategic design for Appin Road Safety Improvements work
- Seek comments and submissions from the community and stakeholders
- Continue to build a database of community members and stakeholders for Roads and Maritime to engage with through the development and delivery of the proposal.



Community members and stakeholders were asked to make submissions via email, mail and phone or at the information sessions directly to the project team. The community could contact Roads and Maritime and leave comments and submissions by:

- Email [appinroadsafety@rms.nsw.gov.au](mailto:appinroadsafety@rms.nsw.gov.au)
- Phone 1800 411 588
- Mail Appin Road Safety Improvements  
Roads and Maritime Services  
PO Box 973 Parramatta CBD NSW 2124

Table 1-1: Display locations

Location	Address
Camden Library	40 John Street, Camden
Campbelltown Civic Centre	91 Queen Street, Campbelltown
Narellan Library	Corner Queen and Elyard Street, Narellan
Wollondilly Shire Council	62-64 Menangle Street, Picton

Table 1-2: Consultation activities during the public display period

Activity	Details
Community Information Session	Saturday 24 November 2018, 10am to 1pm, Appin Public School Hall, 97 Appin Road, Appin
Community Information Session	Wednesday 28 November 2018, 5pm to 8pm, Hurley Park Community Hall, 161 Dumaresq Street, Campbelltown
Community Information Session	Wednesday 5 December 2018, 5pm to 8pm, Rosemeadow Community Hall, 5 Glendown Street, Rosemeadow

## 1.4 Purpose of the report

This submissions report relates to the REF prepared for the Appin Road Safety Improvements from Brian Road, Appin to Gilead and should be read in conjunction with that document.

The REF was placed on public display and submissions relating to the proposal and the REF were received by Roads and Maritime.

The following is an outline of the structure of this report:

- Chapter 1 - provides an overview of the proposal, its statutory context, outlines the consultation process prior to, during and post exhibition of the REF, and outlines the purpose of this report
- Chapter 2 - summarises the issues raised and provides responses to each issue raised in community submissions on the REF and presents responses to those issues
- Chapter 3 - identifies environmental management measures for the proposal.

## 2. Response to issues

### 2.1 Respondents and overview of issues raised

Roads and Maritime Services received a total of 50 in response to the display of the review of environmental factors. This included a submission from Campbelltown City Council and Wollondilly Shire Council, two from utility service providers (Sydney Water and Telstra), 45 from the community and one from Total Environment Centre, a community interest group.

Table 2-1 lists the main comments and issues from the community and special interest groups, council and utility companies.

Table 2-1: Summary of the main issues by respondent group

Respondent group	Main comments or issues
Community	<ul style="list-style-type: none"><li>Concerns about environmental and social impacts such as biodiversity and the use of fauna fencing for local fauna, traffic and transport, Aboriginal and non-Aboriginal heritage, landscape character and visual impact, socio-economic and safety</li><li>Concerns about the adequacy of the planning approval process</li><li>Concerns about the project team's engagement with stakeholders and the community during the public consultation period</li><li>Clarification about specific design elements</li><li>Request for proposal alternates and other suggestions.</li></ul>
Community interest group	<ul style="list-style-type: none"><li>Concerns about environmental and social impacts such as biodiversity and the use of fauna fencing for local fauna, traffic and transport, Aboriginal and non-Aboriginal heritage, landscape character and visual impact, socio-economic and safety.</li></ul>
Government agencies (i.e. local Council)	<ul style="list-style-type: none"><li>Recommendations that specific design requirements of the proposal be reviewed to consider future integrated transport planning needs within the area such as options to connect Appin Road to the M31 Hume Motorway be assessed</li><li>Requests to consider the need for integrated transport planning within the area</li><li>Concerns about environmental impacts such as biodiversity, traffic and transport</li><li>Raised concern about the community and stakeholder engagement process during the display of the REF and the lack of ecological road design solutions to mitigate impacts on biodiversity values and provide improved fauna connectivity within the area.</li></ul>
Utility providers	<ul style="list-style-type: none"><li>Highlighted important utility assets that either cross under or run alongside the proposal and for the protection of assets during the construction phase if the proposal was to proceed</li></ul>

Respondent group	Main comments or issues
	<ul style="list-style-type: none"> <li>• Raised requirements for assets are to be replaced like for like, unless otherwise advised</li> <li>• Request the right to assess, based on final project layout &amp; construction design prepared by the project team and/or their contractors, the impacts on our assets located within the project scope, &amp; the potential needs for adjustments funded by the project to accommodate accessibility of our pipes for operational and maintenance purposes, new pavement locations &amp; changes to structures</li> <li>• Raised the need to maintain their existing networks along the study area</li> <li>• Highlighted the need for access to utilities to be retained throughout the life of the proposal. Consideration in regard to staging and timing would need to be carried out as part of the design work and construction work if the proposal was to proceed.</li> <li>• Requested the need for on-going consultation during the development of the proposal. They also highlighted procedures Roads and Maritime must follow and standards to which construction on assets must be adhere to.</li> </ul>

Details of the issues raised by the public can be found in section 2.2 to section 2.17 of this submissions report. A summary of the percentages of submissions raising key issues is provided in Figure 2-1.

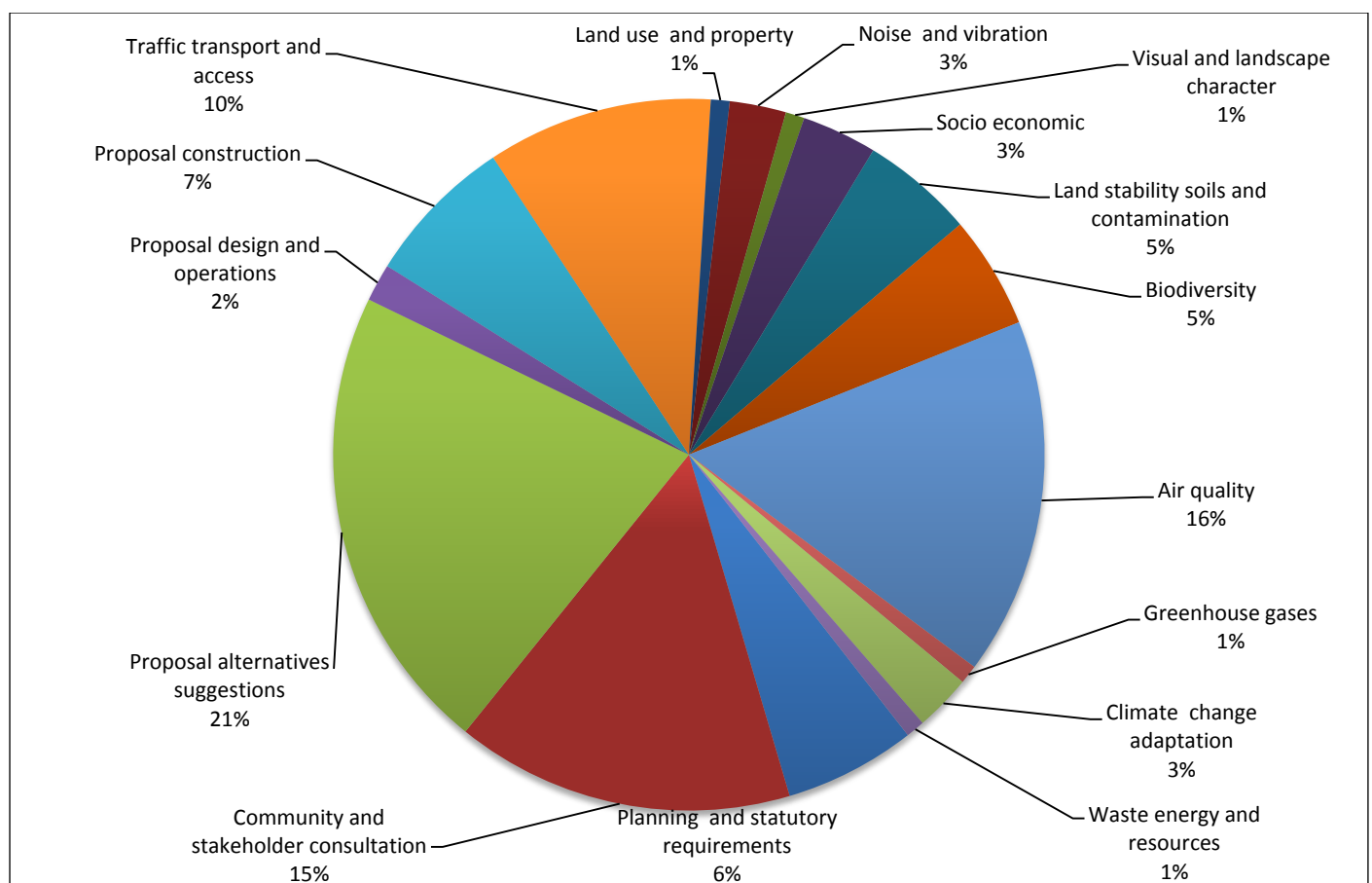


Figure 2-1: Percentage of submissions raising key issues

Each submission has been examined individually to understand the issue 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.

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

Table 2-2: Respondents

<b>Respondent</b>	<b>Submission No.</b>	<b>Section where issues are addressed</b>
Community member: individual	AS01	2.5.1
Community member: individual	AS02	2.17.2
Community member: individual	AS03	2.6.1
Community member: individual	AS04	2.3.3, 2.5.1, 2.17.2
Community member: individual	AS05	2.5.1, 2.10.3, 2.17.2
Community member: individual	AS06	2.17.2
Community member: individual	AS07	2.17.2, 2.17.4
Community member: individual	AS08	2.5.1, 2.17.5
Community member: individual	AS09	2.7.1, 2.17.2
Community member: individual	AS10	2.5.1, 2.17.4, 2.17.6
Community member: individual	AS11	2.5.1, 2.3.2, 2.3.3, 2.17.1
Community member: individual	AS12	2.17.2
Community member: individual	AS13	2.5.1, 2.4.4, 2.17.4
Community member: individual	AS14	2.8.4
Community member: individual	AS15	2.7.2, 2.8.4
Utility provider: Sydney Water	AS16	2.7.2
Utility provider: Telstra	AS17	2.7.2
Community member: individual	AS18	2.12.2
Community member: individual	AS19	2.3.1, 2.4.3, 2.8.3, 2.14.3, 2.17.4, 2.17.6
Community member: individual	AS20	2.3.2, 2.4.3, 2.8.3, 2.11.1, 2.12.1, 2.17.4, 2.17.6
Community member: individual	AS21	2.3.1, 2.3.2, 2.5.1, 2.8.4, 2.17.4
Community member: individual	AS22	2.3.1, 2.8.4, 2.17.2, 2.17.4, 2.17.6
Community member: individual	AS23	2.3.1, 2.4.2, 2.5.1, 2.8.2, 2.4.4, 2.10.4, 2.11.1, 2.17.4, 2.17.5, 2.17.6
Community member: individual	AS24	2.3.1, 2.3.3, 2.5.1, 2.8.3, 2.10.4, 2.17.4, 2.17.5
Community member: individual	AS25	2.3.1, 2.3.4, 2.5.1, 2.8.3, 2.10.4, 2.17.4, 2.17.5
Community member: individual	AS26	2.3.1, 2.5.1, 2.8.3, 2.17.4, 2.17.5

Respondent	Submission No.	Section where issues are addressed
Community member: individual	AS27	2.3.1, 2.4.4, 2.8.3, 2.8.4, 2.17.5
Community member: individual	AS28	2.2.1, 2.5.1, 2.8.4, 2.14.1
Community member: individual	AS29	2.8.4
Community member: individual	AS30	2.17.2
Council: Campbelltown City Council	AS31	2.7.1, 2.8.1, 2.8.4, 2.10.1, 2.17.2, 2.17.4
Community member: individual	AS32	2.3.1, 2.17.4, 2.17.5
Community member: individual	AS33	2.3.1, 2.4.2, 2.5.1, 2.8.4, 2.10.1, 2.13.1, 2.14.2, 2.15.1, 2.17.2, 2.17.4, 2.17.5, 2.17.6
Community member: individual	AS34	2.3.1, 2.5.1, 2.8.3, 2.8.4, 2.11.1, 2.17.4, 2.17.5
Community member: individual	AS35	2.3.1, 2.8.3, 2.17.4, 2.17.5
Community member: individual	AS36	2.2.1, 2.4.2, 2.8.3, 2.8.4, 2.10.1, 2.15.1
Community member: individual	AS37	2.4.1, 2.4.2, 2.8.4, 2.11.1, 2.14.2, 2.15.1, 2.17.5, 2.17.6
Community member: individual	AS38	2.4.1, 2.4.2, 2.5.1, 2.14.2, 2.17.5, 2.17.6
Community member: individual	AS39	2.2.2, 2.4.1, 2.4.2, 2.5.1, 2.7.1, 2.8.1, 2.8.4, 2.9.1, 2.11.1, 2.13.2, 2.14.3, 2.15.1, 2.17.1
Community member: individual	AS40	2.3.3, 2.3.4, 2.4.1, 2.5.1, 2.7.1, 2.8.3, 2.8.4, 2.10.2, 2.10.4, 2.12.1, 2.13.2, 2.14.2, 2.14.3, 2.17.3, 2.17.4, 2.17.5
Community member: individual	AS41	2.5.1, 2.8.4, 2.11.1, 2.17.4
Community member: individual	AS42	2.12.2, 2.17.1
Community member: individual	AS43	2.17.6
Community member: individual	AS44	2.8.4
Community member: individual	AS45	2.3.1, 2.8.3, 2.17.5
Community member: individual	AS46	2.3.1, 2.5.1, 2.8.4, 2.15.1, 2.16.1, 2.17.2
Community member: individual	AS47 (AU33)	2.3.2, 2.5.1, 2.8.1, 2.8.3, 2.10.4, 2.14.3
Community member: individual	AS48 (AU35)	2.3.1, 2.3.4, 2.5.1, 2.5.2, 2.8.3, 2.8.4, 2.11.1, 2.14.3
Council: Wollondilly City Council	AS49 (AU42)	2.3.4, 2.8.1, 2.8.3, 2.8.4, 2.9.1
Total Environment Centre	AS50 (AU45)	2.8.2, 2.8.4

## 2.2 Statutory and planning framework

### 2.2.1 Adequacy of the REF

#### **Submission number(s)**

AS28, AS36

#### **Issue description**

The following issues were raised:

- Concern that the REF documents are written to provide support for Roads and Maritime carrying out the project
- Suggestions that there is a lack of planning and process.

#### **Response**

The REF has been carried out in accordance with the provisions of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000*. As the current proposal is for a road and is to be carried out on behalf of Roads and Maritime, it can be assessed under Division 5.1 of the EP&A Act. As Roads and Maritime is the relevant determining authority they are required to assess the activity under Part 5 of the EP&A Act. In particular, prior to granting an approval for such an activity, Roads and Maritime is obliged under section 5.5 of the EP&A Act to examine all matters that affect or are likely to affect the environment by reason of the activity.

The REF has examined and considered impacts affecting or likely to affect the environment from building and operating the proposal. The proposal's impacts are not likely to be significant and therefore preparation of an EIS under Division 5.2 of the EP&A Act is not required.

A strategic assessment has been prepared to examine how Roads and Maritime's commitments and related procedures for environmental impact assessment and decision-making address nationally listed threatened species, ecological communities and listed migratory species. The strategic assessment was approved by the Federal Minister for the Environment in 2015.

The strategic assessment ensures that Roads and Maritime activities currently assessed under Division 5.1 of the EP&A Act will no longer require an additional Commonwealth approval.

### 2.2.2 Statutory planning approval process

#### **Submission number(s)**

AS39

#### **Issue description**

The following issues were raised:

- Concerns for the lack of statutory planning considerations as part of the technical assessments that supported the REF.



## **Response**

The REF was supported by a range of comprehensive technical studies (contained in Appendices C to G of the REF). These technical studies were prepared in accordance to applicable NSW and Commonwealth assessment requirements and the proposed scope of work to assess the potential impact of the proposal. Safeguards and management measures that would be implemented to account for the impact identified in section 6 of the REF are provided in section 7 of the REF.

Technical studies were carried out with current information (as current and available at the time of preparation) and included an assessment of the practical implications of the proposal on the existing environment.

The REF fulfils the requirements of Division 5.5 of the EP&A Act to 'take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity' and has been prepared in accordance with Clause 228 of the Environmental Planning and Assessment Regulation 2000.

## **2.3 Need and options considered**

### **2.3.1 Proposal objectives and development criteria**

#### **Submission number(s)**

AS19, AS21, AS22, AS23, AS24, AS25, AS26, AS32, AS33, AS34, AS35, AS45, AS46, AS48, AS49

#### **Issue description**

The following issues were raised:

- Benefits provided by the proposal to improve the safety of road users
- Suggests that the proposal is unable to provide long-term benefits to the local and regional community and economy.

## **Response**

The Appin Road safety improvements has been developed to meet the objectives of the Federal Government funding commitment to improve road safety and support housing development. This was initiated by safety issues identified in the Roads and Maritime *Appin Road Safety Review* (2014). The review identified lane widths are narrow at some locations within the proposal length, access issues in relation to adjoining properties, road shoulders range from adequate to very narrow in places, clear zones need to be provided and safety barrier installed where required. A strategic design was carried out for the proposed road safety improvements and the proposed design the subject of a Value Management, Health and Safety in Design and Constructability review process. Together with traffic modelling and economic appraisal the proposal was selected as the optimum solution to meet the objectives.

Section 6.9 of the REF addressed the socio-economic impact of the proposal. The proposal objectives are to carry out road safety improvements on Appin Road, which would improve road safety and efficiency. This would have associated economic benefits locally and regionally, improving travel times and reducing congestion. The proposal would improve safety such as reducing the number and severity of crashes, in doing so also reduces a range of associated costs to the community.

## 2.3.2 Adequacy of alternatives and options considered

### **Submission number(s)**

AS20, AS21, AS47

### **Issue description**

The following issues were raised:

- Safety improvements do not address the needs of the area
- Suggests that the improvements do not improve safety to road users.

### **Response**

As identified in section 2.4 of the REF, an analysis of the identified options for the Appin Road safety improvements was carried out with the preferred option allowing for the best technical design to deliver road safety improvements while minimising the environmental and social impacts of the proposed work.

As identified in the REF, a number of alternatives and options were identified and considered in developing the proposal and selecting the preferred option. The requests for upgrades of other portions of the road network and/or new roads is considered outside of the scope of the current proposal but have been noted by Roads and Maritime. The Department of Planning & Environment (DP&E), Campbelltown Council, Wollondilly Council, Transport for NSW (TfNSW) and Roads and Maritime are working together to develop a strategic road network to identify road upgrade funding priorities for the existing and future needs of the Greater Macarthur land release precincts.

The Appin Road safety improvements do not include a scheme for the future widening of Appin Road to four and six lanes however the proposed road safety improvements on Appin Road have taken into consideration that the existing road will likely form one of the carriageways of a future upgrade. Provisions are being made on the location of the utilities and fauna fencing.

Public transport is being considered as a key action within the *Greater Macarthur 2040: An interim plan for the Greater Macarthur Growth Area* (2018) and includes collaboration with TfNSW and DP&E on business cases for public transport and road improvements. The broader transport planning across Sydney is being considered as part of TfNSW *Future Transport Strategy 2056* (2018) which sets out a vision, strategic directions and customer outcomes, with infrastructure and services plans for Greater Sydney and Regional NSW. The strategy will guide transport investment over the longer term. More information on the Future Transport Strategy is available on the Future Transport website at <http://future.transport.nsw.gov.au/>.

## 2.3.3 Adequacy of existing infrastructure

### **Submission number(s)**

AS04, AS11, AS24, AS25, AS40

### **Issue description**

The following issues were raised:

- Comments regarding the proposed safety improvements are not adequate to alleviate existing congestion on Appin Road

## **Response**

As detailed in section 2.1 of the REF, Appin Road is currently used by more than 10,000 vehicles per day, and safety issues have been raised regarding the relatively high volume of traffic on the road. Roads and Maritime completed a safety review of Appin Road in 2014 and recommended that a number of improvements be carried out to the road. The objectives of the proposal are to improve road safety and to support housing development in the Greater Macarthur Growth Area for all road users with enhanced travel time reliability, traffic flow and efficiency along the road.

A review of the existing road network performance was carried out for the proposal (refer to section 6.4.1 of the REF). The assessment of the network performance identified that the proposal area operates at an acceptable performance level. The road network performance is expected to continue to operate at an acceptable level post safety improvement work.

The proposed Appin Road safety improvements are intended to improve the safety of Appin Road while minimising the environmental and social impacts of the proposed work. This proposal is being carried out independently of other road upgrades and developments in the area. For more information on upgrades to other sections of Appin Road please visit: <https://www.rms.nsw.gov.au/projects/sydney-west/appin-road/index.html>.

## **2.3.4 General comments**

### **Submission number(s)**

AS40, AS48, AS49

### **Issue description**

The following issues were raised:

- The proposal is not in the public interest

## **Response**

In 2014, Roads and Maritime completed a safety review of Appin Road, which included the proposal. The review was developed in anticipation of future priorities and identified several recommendations to develop options to improve road user safety.

A number of alternatives and options were identified and considered in developing the proposal and selecting the preferred option. Options considered are outlined in Table 2-3 of the REF, and comparison of the options is outlined in section 2.4 of the REF. The preferred option was selected based on its ability to deliver the best road safety improvement outcomes, while minimising environmental and social impacts.

This proposal is being carried out independently of other road upgrades and developments in the area. For more information on upgrades to other sections of Appin Road please visit: <https://www.rms.nsw.gov.au/projects/sydney-west/appin-road/index.html>.

## 2.4 Preferred option

### 2.4.1 Ability to meet proposal objectives

#### ***Submission number(s)***

AS37, AS38, AS39, AS40

#### ***Issue description***

The following issues were raised:

- The proposal's ability to meet the future needs of the area
- Suggests that the proposal will be unable to improve the safety of the road users.

#### ***Response***

The Appin Road Safety Improvement proposal is proposed to improve safety for all road users and support housing development in the Greater Macarthur Growth Area by enhancing travel time reliability and efficiency along the Road. The objectives and the preferred option for road safety improvements address the recommendations outlined in the Roads and Maritime *Appin Road Safety Review* (2014), while minimising social and environmental impacts within the study area. The socio-economic assessment prepared for the proposal (section 6.9 of the REF) determined that the proposal would likely benefit the local and regional economy, would have associated economic benefits locally and regionally, improving travel times and reducing congestion.

### 2.4.2 Emergency management

#### ***Submission number(s)***

AS23, AS33, AS36, AS37, AS38, AS39

#### ***Issue description***

The following issues were raised:

- Comment that in the event of an accident or bush fires significant congestion occurs on Appin Road and results in extended travel times for emergency services to respond.

#### ***Response***

As detailed in section 6.9.4 of the REF, access for emergency vehicles will be maintained at all times during construction. Any site-specific requirements will be determined in consultation with the relevant emergency services agency.

During operation of the proposal, the additional northbound overtaking lane together with travel lane and shoulder widening would improve the ability of emergency services to travel along Appin Road in the event of an emergency.

## 2.4.3 Integration with existing public transport

### **Submission number(s)**

AS19, AS20

### **Issue description**

The following issues were raised:

- Comment that there is a lack of public transport in the area
- Comment that the buses that run along Appin Road are infrequent.

### **Response**

Subject to planning approval safety improvements once completed would not impact on existing bus services along Appin Road.

Public transport is being considered as a key action within the *Greater Macarthur 2040: An interim plan for the Greater Macarthur Growth Area* (2018) and includes collaboration with TfNSW and DP&E on business cases for public transport and road improvements. The broader transport planning across Sydney is being considered as part of TfNSW *Future Transport Strategy 2056* (2018) which sets out a vision, strategic directions and customer outcomes, with infrastructure and services plans for Greater Sydney and Regional NSW. The strategy will guide transport investment over the longer term. More information on the Future Transport Strategy is available on the Future Transport website at <http://future.transport.nsw.gov.au/>.

## 2.4.4 Pedestrian and cycling infrastructure

### **Submission number(s)**

AS13, AS27

### **Issue description**

The following issues were raised:

- Request for a shared path along the length of Appin Road between Appin and Campbelltown.

### **Response**

As detailed in section 6.4.1 of the REF, Appin Road currently has no pedestrian footpath or shoulder within the proposal footprint, with pedestrians required to use the road verge and cyclists utilising trafficable lanes. A key traffic and safety feature of the proposal includes providing generally about a three metre wide shoulder with a sealed width of between two and three metres for on-road cyclists and pedestrians to utilise within the proposal footprint.

## 2.5 Proposal alternatives and suggestions

### 2.5.1 Adequacy of analysis of options

#### ***Submission number(s)***

AS11, AS47, AS48

#### ***Issue description***

The following issues were raised:

- The proposal does not address road user behaviour.

#### ***Response***

The objective is to improve road safety, the design has considered this and prioritised the safety of road users. Section 2.4 of the REF, an analysis of the identified options for the Appin Road safety improvements was carried out with the preferred option allowing for the best technical design to deliver road safety improvements while minimising the environmental and social impacts of the proposed work.

### 2.5.2 Request for other road and network upgrade options

#### ***Submission number(s)***

AS01, AS04, AS05, AS08, AS10, AS11, AS13, AS21, AS23, AS24, AS25, AS26, AS28, AS33, AS34, AS38, AS39, AS40, AS41, AS46, AS48

#### ***Issue description***

The following issues were raised:

- Requests the upgrade of the entire length of Appin Road
- Request for Appin Road to become a dual carriageway from Campbelltown to Brian Road
- Requests an alternate road connecting from Appin Road to the Hume Highway (M31)
- Suggests that a bypass of Appin is required
- Comment that the public transport along Appin Road are infrequent
- Request for a rail line between Macarthur and Wollongong.

#### ***Response***

As identified in section 2.4 of the REF, a number of alternatives and options were identified and considered in developing the proposal and selecting the preferred option. The requests for upgrades of other portions of the road network and/or new roads and rail line is considered outside of the scope of the current proposal but have been noted by Roads and Maritime. DP&E, Campbelltown Council, Wollondilly Council, TfNSW and Roads and Maritime are working together to develop a strategic road network to identify road upgrade funding priorities for the existing and future needs of the Greater Macarthur land release precincts.



The Appin Road safety improvements do not include a scheme for the future widening of Appin Road to four and six lanes however the proposed road safety improvements on Appin Road have taken into consideration that the existing road will likely form one of the carriageways of a future upgrade.

Public transport is being considered as a key action within the *Greater Macarthur 2040: An interim plan for the Greater Macarthur Growth Area* and includes collaboration with TfNSW and DP&E on business cases for public transport and road improvements. The broader transport planning across Sydney is being considered as part of TfNSW *Future Transport Strategy 2056* (2018) which sets out a vision, strategic directions and customer outcomes, with infrastructure and services plans for Greater Sydney and Regional NSW. The strategy will guide transport investment over the longer term. More information on the Future Transport Strategy is available on the Future Transport website at <http://future.transport.nsw.gov.au/>.

## 2.6 Construction activities

### 2.6.1 Construction methodology, hours and duration

#### **Submission number(s)**

AS03

#### **Issue description**

The following issues were raised:

- Alternate construction staging program.

#### **Response**

A detailed construction plan would be prepared once the proposal's design is finalised. The actual construction work methodology may vary from the indicative construction activities provided in section 3.2 of the REF. Roads and Maritime anticipates the proposal would be built over a period of approximately two years, which is subject to project approval. As stated in section 3.3.2 of the REF, continuous construction cannot be guaranteed as the proposal is subject to additional approvals including a Road Occupancy Licence from the Transport Management Centre prior to the work being carried out. The construction program would also be affected by the need to coordinate with utility and services providers and property owners affected by the proposal.

The proposed road safety improvements are designed to allow the existing Appin Road to remain operational during construction. Subject to planning approval a Traffic Management Plan would be developed and would identify interim traffic controls prior to the commencement of construction work.

The posted speed limit for Appin Road during construction is set and consistent with Roads and Maritime relevant road design standards and is subject to approval of the Transport Management Centre. Roads and Maritime's Customer Charter (2012) includes a commitment to make safety a priority.

## 2.7 Consultation

### 2.7.1 Community and stakeholder involvement

#### **Submission number(s)**

AS09, AS31, AS39, AS40

#### **Issue description**

The following issues were raised:

- Concern that insufficient consultation has been carried out for the proposal
- Comment regarding Roads and Maritimes engagement with the community and key stakeholders
- Concerns about the length of the exhibition period
- Comment that members of the Roads and Maritimes community engagement team at the community information sessions were not aware of other proposals within the surrounding area.

#### **Response**

A detailed overview of consultation activities carried out by Roads and Maritime for the proposal both prior to and during the preparation of the REF are provided in Chapter 5 of the REF. The Roads and Maritime Appin Road improvements website (<http://www.rms.nsw.gov.au/projects/sydney-west/appin-road/index.html>) provides details of all updates and announcements for the Appin Road safety improvements.

Community consultation for the proposal has been carried out since July 2017 via notifications and the Roads and Maritime website. Roads and Maritime also informed the community of the consultation period by door knocking, media releases, and the distribution of email updates to community members who have signed up to the project database.

The REF was publicly displayed for 26 days between 19th November 2018 and 14th December 2018 at 4 locations (refer to Table 1-1) and placed on the Roads and Maritime project website, late submissions were received and accepted until 19 December 2018. Roads and Maritime considers that the timing and duration of the display of the REF to be sufficient for the public to comment on the proposal.

Any additional feedback can be provided via the Roads and Maritime website (<http://www.rms.nsw.gov.au/projects/sydney-west/appin-road/index.html>), the project phone number (1800 411 588) or email address ([appinroadupgrade@rms.nsw.gov.au](mailto:appinroadupgrade@rms.nsw.gov.au)).

### 2.7.2 Ongoing and future consultation

#### **Submission number(s)**

AS15 AS16 AS17

#### **Issue description**

The following issues were raised:

- Request for additional consultation regarding the proposal

- Suggests that Roads and Maritime consult with other government agencies.

### **Response**

Roads and Maritime acknowledges the feedback provided by the respondents. Roads and Maritime is committed to continuous improvement and welcomes any feedback on how to improve its communication with the community. Any additional feedback can be provided via the Roads and Maritime website (<http://www.rms.nsw.gov.au/projects/sydney-west/appin-road/index.html>), the project phone number (1800 411 588) or email address ([appinroadupgrade@rms.nsw.gov.au](mailto:appinroadupgrade@rms.nsw.gov.au)).

As identified in section 5.4 of the REF, Campbelltown City Council, Wollondilly Shire Council and Sydney Water have been consulted with about the proposal as per the requirements of Clause 14 and Clause 15 of *State Environmental Planning Policy (Infrastructure) 2007*.

As identified in section 5.5 of the REF, various government agencies and stakeholders have been consulted about the proposal, including:

- Department of Planning and Environment
- Campbelltown City Council
- Office of Environment and Heritage
- Other service providers
- Subsidence Advisory NSW
- Sydney Water
- Wollondilly Shire Council

Roads and Maritime have worked with these agencies through the preparation of the concept design, REF and specialist reports including actively participating in proposal workshops and technical reviews. Roads and Maritime is also exploring opportunities to work with community interest groups during detailed design, construction and operation of the proposal.

Roads and Maritime is committed to community and stakeholder engagement beyond the planning phase and will continue consultation through detailed design, construction and operation of the project.

## **2.8 Biodiversity**

### **2.8.1 Assessment methodology**

#### **Submission number(s)**

AS31, AS39, AS41, AS47, AS49

#### **Issue description**

The following issues were raised:

- Adequacy of the assessment of the proposal
- Raises concern of the methodology of the biodiversity assessment

- Adequacy of the assessment of cumulative impacts to the area as a result of other proposals and projects in the area.

## **Response**

### Adequacy of the assessment

Field investigations were conducted on the 25, 28 and 29 June and the 3 July 2018 by Principal Ecologist Dr Meredith Henderson, and Ecologists Bronwyn Horsley and Cameron Crawford. The survey effort was approximately 55-person hours in total, which exceeds the requirement listed in Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (DEC 2004). The weather was fine with temperatures up to 21 degrees Celsius.

The site inspection involved traversing the study area to:

- Assess flora
  - Identify the presence, extent and condition of any native vegetation communities
  - Record flora species present within the study area, including any threatened flora species
- Assess fauna
  - Opportunistic sightings of fauna were undertaken throughout the survey period
  - A dawn bird survey was conducted throughout the subject area
  - Fauna habitat assessments were undertaken to assess the likelihood of threatened species of animals identified during the desktop assessment occurring within the study area
  - Evidence of animal activity, such as scats, diggings, scratch marks, nests/dreys, burrows, etc. was recorded

Mammal survey consisted of a visual assessment of tree canopy and base / branches for scratches and presence of koala. A scat survey was not undertaken, as based on findings from the desktop study and from incidental observation, it was assumed that Koalas were present within the study area. This ecological impact assessment has been undertaken to identify biodiversity values within the study area and assess the impact of the proposal on these values. The following key biodiversity values were identified within the study area:

- Two Critically Endangered Ecological Communities:
  - Cumberland Plain Woodland listed under both the BC and EPBC Act
  - Shale Sandstone Transition Forest listed under both the BC and EPBC Act
- Two Threatened fauna species:
  - Koala (*Phascolarctos cinereus*) listed as Vulnerable under both the BC and EPBC Act
  - Little Lorikeet (*Glossopsitta pusilla*) listed as vulnerable under the BC Act
- Two Koala habitat corridors, connecting primary and secondary Koala habitat east and west of Appin Road
- 23 habitat trees, including 25 hollows and four nests
- Potential habitat for:
  - 31 threatened fauna species listed under the BC Act
  - Five threatened fauna listed under the EPBC Act

- Five migratory species listed under the EPBC Act
- The proposal has the following key impacts:
  - The development would result in the removal of 4.75 hectares of vegetation, of which 3.31 hectares is listed under the EPBC and BC Acts
  - The clearing of threatened vegetation and loss potential habitat for threatened species is the main impact of the proposal, particularly for the Koala
  - The proposed fauna fencing would reduce the incidence of road kill, particularly for the koala.

#### Consideration of impact to the koala, including expert reports

The impacts of the proposal on the koala, including loss of habitat and recognised corridors were subject to a detailed Assessment of Significance (AoS) in accordance with the following State and Commonwealth legislative guidelines:

- Threatened species assessment guidelines – assessment of significance for BC Act listed biodiversity (Department of Environment and Climate Change 2007)
- Significant Impact Guidelines 1.1 – Matters of National Environmental Significance for EPBC Act listed biodiversity (Department of the Environment 2013)
- Referral guidelines for species listed under the EPBC Act (Department of the Environment and Energy 2017).

The biodiversity assessment considered the following information in considering impacts to the koala, including:

- Consultation with government and key stakeholders
- Detailed results of the field surveys undertaken for the proposal (Eco Logical Australia 2018) and locality (Eco Logical Australia 2015, Eco Logical Australia 2016)
- Relevant literature (Phillips and Callaghan 2000) (Phillips and Callaghan 2011), (Biolink Ecological Consultants 2016), (Department of Environment and Climate Change 2008), (Department of the Environment 2009) (Office for Environment & Heritage 2017)
- Current NSW OEH atlas database records (OEH 2018)
- Governments expert (OEH) advice (Office for Environment & Heritage 2018).

These studies included further consideration of the regional koala population, including population densities, sex, breeding and regional movements. The results of these studies were incorporated into the conclusions on the proposals potential impacts to koalas, and the identified management and mitigation strategies.

At the time of the preparation of the REF, several significant koala studies were under way and being completed by DP&E, Campbelltown Council and OEH, including two independent expert reports (Biolink Ecological Consultants 2018) (Crowther 2018). Subsequently further consideration of the impacts of the proposal has been undertaken below.

Assessments of impact significance were conducted for all threatened fauna species and ecological communities considered likely to be affected by the proposal. Through these assessments and in consideration of proposed mitigation measures, it was concluded that the proposal is unlikely to have a significant impact on any threatened species, population or ecological community except for the koala.

#### Assessment of the significance of impact for koala

The South-west Sydney koala population is acknowledged to be stable, largely disease free and showing signs of recovery and expansion.

The population is centred on higher fertility soils on the Wedderburn Plateau and the shale transitional forests fringing large expanses of water catchment lands. These large areas of contiguous habitat have been mapped as primary koala habitat by Office of Environment and Heritage (OEH) and border Campbelltown Local Government Area (LGA) to the east and south and continue into Wollondilly and Wingecarribee LGAs.

Animals are understood to be dispersing from these areas to the south and west including into remnant bushland west of Appin Road, north of the township of Appin and south of Rosemeadow. This section of Appin Road currently bisects known koala habitat at a number of locations between Rosemeadow and Appin. These areas have been mapped by OEH as secondary koala habitat corridors based on remnant size and fragmentation.

This area is locally known as a koala road kill hotspot with an increasing number of reports of koala road kill along Appin Road north of Appin.

The environmental impact assessment by Roads and Maritime recognises the proposal would have a further impact on the local koala population through the direct loss of a small proportion of habitat in the locality and increased barrier effects arising from the upgraded road. Without mitigation, this is likely to result in increased koala road kill and injury. The impact of the proposal is not likely to result in the local extinction of the local koala population (and therefore is not considered to be a likely significant impact) due to the size and wide distribution of the local koala population.

Consequently, Roads and Maritime is proposing to establish fauna exclusion fencing to reduce the current levels of road kill on this section of Appin Road. This should protect koalas from vehicle strike and direct koala movement to the south and south west and within primary habitat corridors mapped by OEH. Roads and Maritime has considered whether this fence could trap koalas in the event of bushfires whether they are preventative burning, wildfire or unintentionally ignited arising from within the catchment lands to the east. Roads and Maritime considers that this is unlikely due to the presence of a cleared easement parallel and to the east to the proposed fence alignment.

Roads and Maritime has also considered whether connectivity should be provided in this location. Roads and Maritime considers that there is significant uncertainty regarding the long-term value of any connectivity structure provided to Noorumba or Beulah Reserves due to the residential development plans to the west. This uncertainty should be resolved once the Greater Macarthur 2040 strategy and the supporting Cumberland Plain Conservation Strategy are finalised and Roads and Maritime will continue to work with DP&E and OEH on these strategies.

Given the well documented evidence of koala harm in urban environments (Koala Expert Panel 2017, McAlpine et al. 2015, McAlpine et al 2006b), the current advice from OEH is that koalas should be separated from road and urban areas in the Greater Macarthur Growth Area by appropriate fencing that also excluded dogs from the koala corridors.

A preliminary examination of the feasibility of fauna underpasses indicated that the provision of such structures is significantly limited due to the topography and underground services networks. An overpass or underpass at the currently preferred locations would likely require substantial additional clearing of good condition endangered ecological communities including within the BioBank site.

The provision of connectivity structures in the short term is not currently supported. Connectivity needs to be fully investigated for possible provision as part of future upgrades to Appin Road and properly located to meet long term conservation koala management outcomes. This would ensure that a suitably secure and preserved corridor is provided which is consistent with the proposed Greater Macarthur strategy and incorporated within the proposed Cumberland Plain Conservation Strategy.

#### Consideration of impact to species other than the koala

Consideration of fauna species potentially occurring in the area in the biodiversity assessment was based on the habitat profile for the species and other habitat information in the Threatened Species Profile



Database (Office of Environment & Heritage 2016). This was compared to the habitat types identified during the field surveys to determine the potential for a species to occur. The assessment also included consideration of the dates and locations of nearby records and information about species populations in the locality.

Species such as the gang-gang cockatoos, glossy black-cockatoos, powerful owls, squirrel gliders and the heath monitor were identified as having a moderate or higher potential for occurrence within the study area. It is noted that the potential occurrence of the brush tailed wallaby was considered to be low for the proposal, as it generally occurs in inland and sub-coastal south eastern Australia where it inhabits rock slopes.

The impact from the proposal to the area potential habitat of threatened fauna species with a moderate or higher potential to occur within the locality was considered in the biodiversity assessment and it was concluded that the area of impact would not be significant to the overall habitat in the region for any species. It is noted that further discussion of the impact to koala habitat is provided in section 2.16.3.

Consideration of corridors and other biobanking sites for the koala on the western side of Appin Road includes which should be considered in the assessment

As discussed above, the biodiversity assessment included consideration of the corridors and other areas of habitat for the koala on the western side of Appin Road. Further consideration of these corridors is provided in the section above.

## 2.8.2 Construction impacts

### ***Submission number(s)***

AS31, AS39, AS50

### ***Issue description***

The following issues were raised:

- Comments that construction will impact on threatened species habitat such as the Koala.

### ***Response***

Impacts to biodiversity from construction of the proposal are discussed in section 6.1 and Appendix C of the REF.

The proposal would impact on about 4.75 hectares of native vegetation including habitat potentially supporting threatened fauna species, including the koalas. about 3.69 hectares of woodland that supports flowering tree species such as Eucalypts, about 0.04 hectare of vegetation supporting shrubland and about 0.3 hectare of grassland. As identified in section 6.1.3 of the REF, the proposal would also result in the loss of about 19 hollow-bearing trees that support hollow-dependant species such as the Little Lorikeet.

Safeguards and management measures identified in section 6.1.4 of the REF will be implemented to account for the impacts during construction, including the preparation of a Flora and Fauna Management Plan and fencing plan for koalas.

The proposal would not impact on vegetation within the Beulah Reserve BioBanking site.

## 2.8.3 Operational impacts

### ***Submission number(s)***

AS19, AS20, AS24, AS25, AS26, AS27, AS34, AS35, AS36, AS40, AS45, AS47, AS48

### ***Issue description***

The following issues were raised:

- Suggestions that the migration of fauna across Appin Road will be impacted as a result of the proposal
- Concerns that the heritage value of the area will be impacted as a result of vegetation clearing
- Removal of fauna habitat.

### ***Response***

The South-west Sydney koala population is acknowledged to be stable, largely disease free and showing signs of recovery and expansion.

The population is centred on higher fertility soils on the Wedderburn Plateau and the shale transitional forests fringing large expanses of water catchment lands. These large areas of contiguous habitat have been mapped as primary koala habitat by OEH and border Campbelltown LGA to the east and south and continue into Wollondilly and Wingecarribee LGAs.

Animals are understood to be dispersing from these areas to the south and west including into remnant bushland west of Appin Road, north of the township of Appin and south of Rosemeadow. This section of Appin Road currently bisects known koala habitat at a number of locations between Rosemeadow and Appin. These areas have been mapped by OEH as secondary koala habitat corridors based on remnant size and fragmentation.

This area is locally known as a koala road kill hotspot with an increasing number of reports of koala road kill along Appin Road north of Appin.

The environmental impact assessment by Roads and Maritime recognises the proposal would have a further impact on the local koala population through the direct loss of a small proportion of habitat in the locality and increased barrier effects arising from the upgraded road. Without mitigation, this is likely to result in increased koala road kill and injury. The impact of the proposal is not likely to result in the local extinction of the local koala population (and therefore is not considered to be a likely significant impact) due to the size and wide distribution of the local koala population.

Consequently, Roads and Maritime is proposing to establish fauna exclusion fencing to reduce the current levels of road kill on this section of Appin Road. This should protect koalas from vehicle strike and direct koala movement to the south and south west and within primary habitat corridors mapped by OEH. Roads and Maritime has considered whether this fence could trap koalas in the event of bushfires whether they are preventative burning, wildfire or unintentionally ignited arising from within the catchment lands to the east. Roads and Maritime considers that this is unlikely due to the presence of a cleared easement parallel and to the east to the proposed fence alignment.

Roads and Maritime has also considered whether connectivity should be provided in this location. Roads and Maritime considers that there is significant uncertainty regarding the long-term value of any connectivity structure provided to Noorumba or Bueluah Reserves due to the residential development plans to the west. This uncertainty should be resolved once the Greater Macarthur 2040 strategy and the

supporting Cumberland Plain Conservation Strategy are finalised and Roads and Maritime will continue to work with DP&E and OEH on these strategies.

Given the well documented evidence of koala harm in urban environments (Koala Expert Panel 2017, McAlpine et al. 2015, McAlpine et al 2006b), the current advice from OEH is that koalas should be separated from road and urban areas in the Greater Macarthur Growth Area by appropriate fencing that also excluded dogs from the koala corridors.

A preliminary examination of the feasibility of fauna underpasses indicated that the provision of such structures is significantly limited due to the topography and underground services networks. An overpass or underpass at the currently preferred locations would likely require substantial additional clearing of good condition endangered ecological communities including within the BioBank Site.

The provision of connectivity structures in the short term is not currently supported. A long-term strategy for movements of koala across Appin Road will be developed as part of a whole of government approach and, in consultation with key stakeholders. The aim is to ensure that the need for connectivity is fully investigated for possible provision as part of future upgrades to Appin Road and properly located to meet long term conservation koala management outcomes. This would ensure that a suitably secure and preserved corridor is provided which is consistent with the proposed Greater Macarthur strategy and incorporated within the proposed Cumberland Plain Conservation Strategy.

## 2.8.4 Safeguards and management measures

### ***Submission number(s)***

AS14 AS15 AS21 AS22 AS23 AS27 AS28 AS29 AS31 AS33 AS34 AS36 AS37 AS39 AS40 AS41 AS44 AS46, AS49, AS50

### ***Issue description***

The following issues were raised:

- Concerns that the use of fauna fencing will impact the movement of native fauna across Appin Road
- Concern over management strategies for Koalas and other fauna in the event of a bushfire
- Comments that the fauna fence should be on both sides of Appin Road
- Suggestion proposed safety improvements will result in additional fauna strikes along Appin Road.

### ***Response***

#### **Connectivity**

The South-west Sydney koala population is acknowledged to be stable, largely disease free and showing signs of recovery and expansion.

The population is centred on higher fertility soils on the Wedderburn Plateau and the shale transitional forests fringing large expanses of water catchment lands. These large areas of contiguous habitat have been mapped as primary koala habitat by OEH and border Campbelltown LGA to the east and south and continue into Wollondilly and Wingecarribee LGAs.

Animals are understood to be dispersing from these areas to the south and west including into remnant bushland west of Appin Road, north of the township of Appin and south of Rosemeadow. This section of Appin Road currently bisects known koala habitat at a number of locations between Rosemeadow and

Appin. These areas have been mapped by OEH as secondary koala habitat corridors based on remnant size and fragmentation.

This area is locally known as a koala road kill hotspot with an increasing number of reports of koala road kill along Appin Road north of Appin.

The environmental impact assessment by Roads and Maritime recognises the proposal would have a further impact on the local koala population through the direct loss of a small proportion of habitat in the locality and increased barrier effects arising from the upgraded road. Without mitigation, this is likely to result in increased koala road kill and injury. The impact of the proposal is not likely to result in the local extinction of the local koala population (and therefore is not considered to be a likely significant impact) due to the size and wide distribution of the local koala population.

Consequently, Roads and Maritime is proposing to establish fauna exclusion fencing to reduce the current levels of road kill on this section of Appin Road. This should protect koalas from vehicle strike and direct koala movement to the south and south west and within primary habitat corridors mapped by OEH. Roads and Maritime has considered whether this fence could trap koalas in the event of bushfires whether they are preventative burning, wildfire or unintentionally ignited arising from within the catchment lands to the east. Roads and Maritime considers that this is unlikely due to the presence of a cleared easement parallel and to the east to the proposed fence alignment.

Roads and Maritime has also considered whether connectivity should be provided in this location. Roads and Maritime considers that there is significant uncertainty regarding the long-term value of any connectivity structure provided to Noorumba or Beulah Reserves due to the residential development plans to the west. This uncertainty should be resolved once the Greater Macarthur 2040 strategy and the supporting Cumberland Plain Conservation Strategy are finalised and Roads and Maritime will continue to work with DP&E and OEH on these strategies.

Given the well documented evidence of koala harm in urban environments (Koala Expert Panel 2017, McAlpine et al. 2015, McAlpine et al 2006b), the current advice from OEH is that koalas should be separated from road and urban areas in the Greater Macarthur Growth Area by appropriate fencing that also excluded dogs from the koala corridors.

A preliminary examination of the feasibility of fauna underpasses indicated that the provision of such structures is significantly limited due to the topography and underground services networks. An overpass or underpass at the currently preferred locations would likely require substantial additional clearing of good condition endangered ecological communities including within the BioBank site.

The provision of connectivity structures in the short term is not currently supported. A long-term strategy for movements of koala across Appin Road will be developed as part of a whole of government approach and, in consultation with key stakeholders. The aim is to ensure that the need for connectivity is fully investigated for possible provision as part of future upgrades to Appin Road and properly located to meet long term conservation koala management outcomes. This would ensure that a suitably secure and preserved corridor is provided which is consistent with the proposed Greater Macarthur strategy and incorporated within the proposed Cumberland Plain Conservation Strategy.

### Fauna fences

Roads and Maritime are committed in the short term to providing mitigation aimed at minimising the existing impacts on the koala population from road mortality along Appin Road, while developing a long-term strategy to establish a koala crossing supporting the east-west movement of koalas across Appin Road in the most appropriate location.

Details of fauna fencing will be developed during the detailed design phase. The proposal also includes the installation of fauna fencing on both sides of Appin Road at the two known koala corridors (Figure 22, pg 48, Appendix C of the REF). The provision of exclusion fencing is an intrusive mitigation measure, with or without the provision of associated crossing structures and as such is likely to result in changes to the existing threats and the creation of new threats to the local koala population and other associated wildlife. These threats may include but not be limited to; changes to existing home territories, intra species conflict, resource competition, hazard and risk such as bushfires. However, despite the likely impacts associated with the provision of fauna fencing, maintaining the current arrangement without any fauna fencing and corresponding increase in koala road mortality is widely considered to be more detrimental (OEH 2018, Crowther 2018).

The final design and implementation of the fauna exclusion fencing will be developed prior to construction as part of the detailed design of associated infrastructure (e.g. fencing) and landscaping and the preparation of construction environmental management documentation and in consultation with key stakeholders to ensure koala road mortality along Appin Road is minimised.

The extension of the final fence locations adjoining cleared lands will also consider the local understanding of the maximum crossing distance of 220 m that a koala had been recorded from a patch of vegetation (Biolink 2018).

An appropriate long-term maintenance program and management agreement plan would be established under the terms of the Roads Act for the fauna fence.

## 2.9 Soils and geology

### 2.9.1 Acid sulphate soils

#### ***Submission number(s)***

AS39, AS49

#### ***Issue description***

The following issues were raised:

- Raised the impact on soils in the local area as a result of the proposal
- Suggested the assessment of potential salinity impacts should be further explored and potentially mitigated.

#### ***Response***

Acid sulphate soils are typically found on coastal lowlands, with elevations below five metres. There is no known occurrence of acid sulphate soil with the study area as identified by acid sulphate soil risk mapping.

The majority of the proposal footprint has been mapped as having a moderate salinity potential, with a small section being identified as having a very low salinity potential (Department of Infrastructure, Planning and Natural Resources 2003).

## 2.10 Traffic and transport

### 2.10.1 Assessment methodology

#### ***Submission number(s)***

AS31, AS33, AS36

#### ***Issue description***

The following issues were raised:

- Questioned the adequacy of the traffic and transport assessment
- The assessment did not consider impacts in other sections of Appin Road or vehicles not originating from the Mount Gilead subdivision.

#### ***Response***

The traffic and transport assessment are provided in section 6.4 of the REF. The traffic estimations used in the assessment were based on survey data collected as part of the REF. Traffic counts to the north and south of the proposal area provided in the REF are an indication of the existing traffic distribution along the road within and near the proposal.

The assessment takes into the consideration of other areas of the road network outside of the proposal, as this is outside the scope of the proposal. However, Roads and Maritime will continue to investigate the need for further upgrades to Appin Road and other roads in the area to improve the operation of the overall road network.

### 2.10.2 Existing network arrangements

#### ***Submission number(s)***

AS40

#### ***Issue description***

The following issues were raised:

- Comment regarding existing traffic impacts conditions along Appin Road.

#### ***Response***

The proposed Appin Road safety improvements are intended to improve the safety of Appin Road while minimising the environmental and social impacts of the proposed work.

A review of the existing road network performance was carried out for the proposal (refer to section 6.4.1 of the REF). The assessment of the network performance identified that the proposal area operates at an acceptable performance level. The road network performance is expected to continue to operate at an acceptable level post safety improvement work.

This proposal is being carried out independently of other road upgrades and developments in the area. For more information on upgrades to other sections of Appin Road please visit:

<https://www.rms.nsw.gov.au/projects/sydney-west/appin-road/index.html>.

## 2.10.3 Construction impacts

### ***Submission number(s)***

AS05

### ***Issue description***

The following issues were raised:

- Alternate construction staging for the proposal
- Raises concern over the impact on traffic during construction due to existing traffic delays.

### ***Response***

A construction plan would be prepared once the detailed design of the proposal is finalised. The actual construction work methodology may vary from the indicative construction activities provided in section 3.2 of the REF. Roads and Maritime anticipates the proposal would be built over a period of approximately two years, which would include property acquisition and is subject to project approval. As stated in section 3.3.2 of the REF, continuous construction cannot be guaranteed as the proposal is subject to additional approvals including a Road Occupancy Licence from the Transport Management Centre prior to the work being carried out. The construction program would also be affected by the need to coordinate with utility and services providers as well as property owners affected by the proposal.

A review of the existing road network performance was carried out for the proposal (refer to section 6.4.1 of the REF). The assessment of the network performance identified that the proposal area operates at an acceptable performance level. The road network performance is expected to continue to operate at an acceptable level post safety improvement work. Impacts to traffic during construction of the proposal were assessed in section 6.4.2 of the REF. During construction, the potential impact would be generally associated with an increase in traffic volume as well as a change in the general type of traffic using the road.

Traffic delays along Appin Road would be expected during the construction phase due to the increase in vehicle movements, speed limit reductions and traffic control. Traffic and transport safeguards and management measures that would be implemented to account for the impact identified in section 6.4.2 of the REF are detailed in section 6.4.3 and Chapter 7 of the REF.

The proposed road safety improvement design allows the existing Appin Road to remain operational during construction. Subject to planning approval a Traffic Management Plan would be developed and would identify interim traffic controls prior to the commencement of construction work.



## 2.10.4 Operational impacts

### **Submission number(s)**

AS03, AS23, AS24, AS40, AS47

### **Issue description**

The following issues were raised:

- Suggestion of alternate speed limit along Appin Road
- Raises concern over operational traffic impacts.

### **Response**

The posted speed limit for Appin Road is set and consistent with relevant Roads and Maritime road design standards. Roads and Maritime's *Customer Charter* (2012) includes a commitment to make safety a priority. All options developed for the proposal, including the preferred option, considered improving safety and travel time reliability and efficiency for all road users.

## 2.11 Aboriginal heritage

### 2.11.1 Assessment methodology

#### **Submission number(s)**

AS20, AS23, AS34, AS37, AS39, AS41, AS48

#### **Issue description**

The following issues were raised:

- Questioned the adequacy of the Aboriginal heritage assessment
- The assessment does not consider all existing Aboriginal sites along Appin Road.

#### **Response**

An Aboriginal Heritage assessment was undertaken in accordance with *Roads and Maritime Procedure for Aboriginal Cultural Heritage and Consultation Investigation* guidelines. Details of the Aboriginal Heritage assessment methodology can be found in Appendix G and section 6.6.1 of the REF. No registered Aboriginal Heritage sites or items are located within or nearby the study area, and no Aboriginal objects were identified during surveys of the study area. In addition, as per section 5.3 of the REF, consultation with the Aboriginal community was undertaken and no issues were raised. The study area is contained within the boundaries of the Tharawal Local Aboriginal Land Council (LALC) and Tharawal LALC did not advise that any areas of cultural significance were present in the study area.

## 2.12 Non-Aboriginal heritage

### 2.12.1 Assessment methodology

#### **Submission number(s)**

AS20, AS40

#### **Issue description**

The following issues were raised:

- The assessment does not consider all existing non-Aboriginal sites along Appin Road
- Suggests that the historical significance of trees along Appin Road have not been considered.

#### **Response**

As part of the proposal, a Statement of Heritage Impact (SoHI) has been prepared (refer to Appendix H of the REF). This is in accordance with the NSW Heritage Office & Department of Urban Affairs and Planning *NSW Heritage Manual (1996)* and NSW Heritage Office *Statements of Heritage Impact* (NSW Heritage Office 2002). Detailed site studies were carried out by heritage specialists and recommendations and mitigation strategies have been developed for each non-Aboriginal heritage site identified.

Summary of the findings and strategies developed from the SoHI are detailed in section 6.7 of the REF. The Hume-Hovell Monument functions as a local landmark that marks the location of Hamilton Hume's homestead (Brookdale site) and the beginning of his historically significant expeditions. Further, the Hume Monument is of historic, cultural and social significance within the Local Government Area. The proposed realignment of the bend near the monument will result in the roadway being moved to the west away from the monument. This would allow a continuation and enhancement of practices that contribute to and allow visitors to experience the cultural significance of place near Hume monument and Brookdale site. The trees along Appin Road are not listed heritage items, however a visual assessment of the trees along Appin Road was carried out as part of the Landscape and Visual Impact Assessment (refer to Appendix G of the REF) and safeguards and management measures to mitigate potential impacts can be found in section 6.8.4 of the REF.

### 2.12.2 Safeguards and management measures

#### **Submission number(s)**

AS18, AS42

#### **Issue description**

The following issues were raised:

- Access to the Hume-Hovell Monument is dangerous without a layby.

#### **Response**

The Hume-Hovell Monument functions as a local landmark that marks the location of Hamilton Hume's homestead (Brookdale site) and the beginning of his historically significant expeditions. Further, the Hume

Monument is of historic, cultural and social significance within the Local Government Area. The proposed realignment of the bend near the monument will result in the roadway being moved to the west away from the monument. This would allow a continuation and enhancement of practices that contribute to and allow visitors to experience the cultural significance of place near Hume monument and Brookdale site.

## 2.13 Landscape character and visual impact

### 2.13.1 Assessment methodology

#### ***Submission number(s)***

AS39, AS40

#### ***Issue description***

The following issues were raised:

- The assessment does not meet the objectives for the proposal.

#### ***Response***

The REF has been carried out in accordance with the provisions of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000*.

The REF was supported by a range of comprehensive technical studies (contained in Appendices C to G of the REF, the Landscape Character and Visual Impact Assessment is included in Appendix G of the REF). These technical studies were prepared in accordance to applicable NSW and Commonwealth assessment requirements and the proposed scope of work to assess the potential impact of the proposal. Safeguards and management measures that would be implemented to account for the impact identified in section 6 of the REF are provided in section 7 of the REF.

Technical studies were carried out with current information (as current and available at the time of preparation) and included an assessment of the practical implications of the proposal on the existing environment.

The REF fulfils the requirements of Division 5.5 of the EP&A Act to 'take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity' and has been prepared in accordance with Clause 228 of the Environmental Planning and Assessment Regulation 2000.

Safeguards and management measures to minimise the visual impact of the proposal are outlined in section 6.8.4 of the REF.

### 2.13.2 Operational impacts

#### ***Submission number(s)***

AS33

### **Issue description**

The following issues were raised:

- Comment that safety improvements proposal will have a detrimental visual impact.

### **Response**

The REF was supported by a range of comprehensive technical studies (contained in Appendices C to G of the REF). The landscape and visual impact assessment (Appendix G of the REF) was carried out in accordance with the Environmental Impact Assessment Practice Note: *the Guidelines for Landscape Character and Visual Impact Assessment* (EIA-N04, Roads and Maritime 2013) guided the landscape character and visual impact assessment.

Overall, it is concluded that the landscape character would be impacted the greatest where the removal of vegetation would occur along Appin Road as part of the proposed safety improvement work. The impact to landscape character in other zones would not change significantly as it would continue to be dominated by a road. New road infrastructure, including the widened Appin Road and associated vegetation removal, would negatively impact the visual amenity of surrounding receivers. The impact is generally greatest where fauna fencing may be required for the proposal. However, these receivers would also benefit from the safety enhancements along the road.

Visibility for much of the alignment is limited to road users, which would have temporary views as road users pass through the area

Safeguards and management measure to minimise the visual impact of the proposal are outlined in section 6.8.4 of the REF.

## **2.14 Socio-economic and land use**

### **2.14.1 Assessment methodology**

#### **Submission number(s)**

AS40

### **Issue description**

The following issues were raised:

- Comment that socio-economic and land use assessment was not carried out for the proposal.

### **Response**

To inform the REF for this proposal, a socio-economic impact assessment was carried out on the communities surrounding the study area (refer to section 6.9 of the REF). This assessment was prepared in accordance with the Environmental Impact Assessment Practice Note: *Socio-economic assessment: EIA-N05* (Roads and Maritime, 2013c). The assessment also considered, to a limited extent, the wider local government area of Campbelltown City Council and the Greater Sydney Region.

Safeguards and management measure to account for the impact identified in section 6.9.3 of the REF are outlined in section 6.9.4 of the REF.

For documents relating to the proposed Appin Road Safety Improvements from Brian Road to Gilead please visit <https://www.rms.nsw.gov.au/projects/sydney-west/appin-road/project-documents.html>.

## 2.14.2 Construction impacts

### **Submission number(s)**

AS28

### **Issue description**

The following issues were raised:

- Comment that socio-economic impacts during construction have not been adequately considered in the assessment.

### **Response**

To inform the REF for this proposal, a socio-economic impact assessment was carried out on the communities surrounding the study area (refer to section 6.9 of the REF). This assessment was prepared in accordance with the *Environmental Impact Assessment Practice Note: Socio-economic assessment: EIA-N05* (Roads and Maritime 2013c). The assessment also considered, to a limited extent, the wider local government area of Campbelltown City Council and the Greater Sydney Region.

Potential construction impacts are detailed in section 6.9.3 of the REF. The socio-economic assessment prepared for the REF acknowledges that travel delays along Appin Road while the proposal is being built are described above. The local community would be affected by the proposal's amenity impact as a direct result of work activities taking place.

Safeguards and management measure to account for the impact identified in section 6.9.3 of the REF are outlined in section 6.9.4 of the REF.

## 2.14.3 Operational impacts

### **Submission number(s)**

AS19, AS28, AS47, AS48

### **Issue description**

The following issues were raised:

- Comment that lost time to road users has not been addressed as part of socio-economic operation impacts.

### **Response**

To inform the REF for this proposal, a socio-economic impact assessment was carried out on the communities surrounding the study area (refer to section 6.9 of the REF). This assessment was prepared in accordance with the *Environmental Impact Assessment Practice Note: Socio-economic assessment: EIA-N05* (Roads and Maritime 2013c). The assessment also considered, to a limited extent, the wider local government area of Campbelltown City Council and the Greater Sydney Region.

Potential construction impacts are detailed in section 6.9.3 of the REF. The socio-economic assessment prepared for the REF acknowledges safety barriers on a painted median near the southbound overtaking lane would prevent right turn in/turn out access for about nine properties adjoining Appin Road. U-turn

facilities would be constructed on both sides of Appin Road to compensate for loss of right turn movements. This arrangement is not proposed for the northbound overtaking lane due to no identified access impacts.

Safeguards and management measure to account for the impact identified in section 6.9.3 of the REF are outlined in section 6.9.4 of the REF.

## 2.15 Air quality

### 2.15.1 Operational impacts

#### ***Submission number(s)***

AS33, AS36, AS37, AS39, AS46

#### ***Issue description***

The following issues were raised:

- Comments that the proposal will impact on existing air quality of the area
- Suggestion of additional air quality impacts as a result of the proposal.

#### ***Response***

Potential health impacts to the community were considered under the air quality (section 6.11 of the REF) assessment.

The air quality assessment conducted for the REF found that the volume and concentration of traffic generated air pollutants, in combination with those generated from the existing traffic and other air quality impacts within the area would not cause health impacts to those living in the area, including people who suffer from associated health related illnesses (refer to Table 6-30 of the REF).

## 2.16 Cumulative impacts

### 2.16.1 Assessment methodology

#### ***Submission number(s)***

AS46

#### ***Issue description***

The following issues were raised:

- Adequacy of the assessment
- Raised concern over the increase in coal trucks on Appin Road due to West Cliff Coal Washery project
- Raised concern over the rate at which infrastructure projects in the area are affecting wildlife.

## **Response**

The West Cliff Colliery Washery Upgrade was completed in June 2011. Resulting increases in traffic on Appin Road have been taken into account in the traffic assessments along Appin Road and the Roads and Maritime *Appin Road Safety Review* (2014).

A cumulative impacts assessment was undertaken as part of the environmental assessment that informed the REF for this proposal. Table 6-32 of the REF outlines projects that are currently being built, or plan to be built near the proposal over the next few years. Safeguards and management measures include all environmental management plans considering other developments in the area.

A number of safeguards and management measures were identified in the REF to minimise adverse impacts on wildlife. These mitigation measures include a Construction Environmental Management Plan, a Flora and Fauna Management Plan in accordance with Roads and Maritime's *Biodiversity Guidelines: Protecting and Managing Biodiversity on Roads and Maritime Projects* (Roads and Maritime 2016) and a Biodiversity Offset Strategy in accordance with the *Guidelines for Biodiversity Offsets* (Roads and Maritime 2011) and the *Biodiversity Assessment Methodology* (Office of Environment and Heritage 2018). Biodiversity mitigation measures are detailed in Table 6-11 of the REF.

## 2.17 Other general comments and suggestions

### 2.17.1 Support for the proposal

#### **Submission number(s)**

AS11, AS33, AS42

#### **Issue description**

The following issues were raised:

- Expresses support for the proposed road safety improvements.

#### **Response**

Roads and Maritime acknowledges your support for the proposed road upgrades.

### 2.17.2 Appin Road upgrade

#### **Submission number(s)**

AS02, AS04, AS05, AS06, AS07, AS09, AS12, AS22, AS30, AS31, AS33, AS46

#### **Issue description**

The following issues were raised:

- Concern that roundabouts should not be replaced with traffic lights
- Suggestion that no other construction should be allowed to commence until Appin Road upgrade is completed



- Request for construction plans for the Kellerman Drive and Fitzgibbon Lane intersection as a slip lane was previously constructed as part of the 7-Eleven service station
- Suggestion that parking/service lane on the western side of Appin road near Oswald reserve park be provided
- Comment on the maintenance of the area between the noise wall and property fences
- Comment on whether there would be any protection for properties backing on to Appin Road
- Comments that the proposal will impact on views from Appin Road
- Comment on the proposed noise walls regarding height and distance to property fences
- Suggestions the six lane upgrade of Appin Road between Rosemeadow and Mount Gilead is inconsistent with Council's vision for the Campbelltown Central Business District (CBD) and does not appear to consider the role of Appin Road/Narellan Roads in carrying through traffic
- Suggestions the proposal appears absent of any bus priority or bus facilities
- Raises concerns over pedestrians crossing Appin Road at intersection of Fitzgibbon Lane and Kellerman Drive.

### **Response**

The proposed Appin Road Upgrade, Mount Gilead to Ambarvale proposal is being explored by Roads and Maritime independently from the proposed Appin Road Safety Improvements proposal. For information regarding the design, impact assessments and options assessment for the Appin Road safety improvement works please visit: <https://www.rms.nsw.gov.au/projects/sydney-west/appin-road/mt-gilead-appin.html>

Other major development in the area where required would be consulted with prior to the commencement of work for the Appin Road safety improvements. Other future major development work would need to consider scheduling of work and mitigate any potential impact via safeguards and management measures such as construction environmental management plan.

## **2.17.3 Other projects (not part of Appin Road proposal)**

### **Submission number(s)**

AS40

### **Issue description**

The following issues were raised:

- Suggests that koala fencing be considered at Deadmans Bridge along Heathcote Road
- Questions why Roads and Maritime has not undertaken roadworks on Kings Fall Bridge and the Loddon River Bridge
- Questions why a curve near Loddon River has been taken out and replaced with a sweeping curve.

### **Response**

These projects are not related to the Appin Road-Mount Gilead to Ambarvale proposal, and out of scope of the proposal. For general inquiries please visit Roads and Maritime's website

<https://www.rms.nsw.gov.au/contact-us/>.

## 2.17.4 Link Road

### ***Submission number(s)***

AS07, AS10, AS13, AS19, AS20, AS21, AS22, AS23, AS24, AS25, AS26, AS31, AS32, AS33, AS34, AS35, AS40, AS41

### ***Issue description***

The following issues were raised:

- Raises concern that the proposed Link Road will impact upon the environment and biodiversity
- Queries whether it is intended for the Link Road interchange to include both northbound and southbound access to/from Hume Motorway
- Queries the lack of northbound exit
- Expression of support for the proposed Link Road
- Raises concern that the proposed Link Road will direct high volumes of traffic onto Appin Road
- Suggests that an Appin Bypass option be explored
- Queries the level of assessment done into the environmental impacts of the proposed Link Road
- Suggests that the location of the Link Road be determined before commencement of Appin Road upgrades to model the cumulative impacts on surface water and flooding
- Comment that the vehicle movements required to build the Link Road should be considered in Appin Road traffic modelling
- Queries the direction and use of the proposed Link Road.

### ***Response***

Options for a proposed Link Road to provide a key connection between Appin Road, Gilead and Menangle Road, Menangle Park will be assessed by Roads and Maritime in 2019. This proposal is separate to the proposed Appin Road Upgrades, however is similarly intended to improve connectivity, and support affordable housing in the Greater Macarthur Growth Area. Once the options assessment has concluded, Roads and Maritime will undergo community consultation and provide an opportunity to pose queries and feedback on the location, environmental impacts, traffic and transport impact, and justification of the proposed link road.

To inquire about the link road corridor study, please visit the Appin Road improvements and Spring Farm Parkway web portal: <https://v2.communityanalytics.com.au/rms/macarthur#>.

## 2.17.5 Other

### ***Submission number(s)***

AS08, AS23, AS24, AS25, AS26, AS27, AS32, AS33, AS34, AS35, AS37, AS38, AS40, AS45

### ***Issue description***

The following issues were raised:

- Raises concern over potential contaminated land issues
- Suggests parking options be explored for schools in Appin
- Raises concern over the number of educational facilities in the area
- Suggests that the developer contribute to funding for the southern end of Appin Road
- Raises concerns over the power dynamic created by a developer owning a public road
- Suggests a united approach to Appin Road upgrades between councils and Roads and Maritime
- Suggests an alternate road to the Highway be considered to connect Appin Road to Wollongong, with an option to exit to Appin
- Suggests a rail line be established between Macarthur and Wollongong
- Queries whether the Department of Education has been offered sites in Gilead for schools
- Raises concern over the impacts to underemployment and unemployment
- Raises concern over Roads and Maritime reports changing
- Comment on the intentions of the M5 Federal highway
- Expresses concern regarding the conduct of the Greater Sydney Commission
- Queries police presence in Appin
- Comment on the funding of roads to Port Kembla and other ports being diverted to other road projects
- Queries the communication between Wollondilly and Campbelltown Council during the process of Mount Gilead land rezoning
- Suggests that traffic counter statistics from Appin Road be displayed on the Roads and Maritime website
- Query regarding the disposal of liquid waste from Sydney in Campbelltown
- Suggests that there is uncertainty within the community over plans for an Appin bypass
- Suggests that the Appin Road upgrades and Appin bypass project be displayed to the public as one project
- Raises concern over immigration
- Suggests that Roads and Maritime consider the *Investigation of the Impact of Roads on Koalas* report prepared on behalf of Australian Museum Business Services when shaping their policies.

## Response

Roads and Maritime acknowledges your concern regarding contaminated land concerns in the vicinity of the proposal. Comprehensive contaminated land assessment and mitigation development is undertaken for all road projects with a potential for contaminated land issues as part of the environmental review (refer to Appendix D of the REF).

Department of Planning and Environment have established a *Greater Macarthur 2040: An Interim Plan for the Greater Macarthur Growth Area*. More detail about the plan can be found at <https://www.planning.nsw.gov.au/Plans-for-your-area/Priority-Growth-Areas-and-Precincts/Greater-Macarthur-Growth-Area>.

For more information on the planning proposal for the Mount Gilead development, including socio-economic impact assessment, please visit the Campbelltown City Council website <https://www.campbelltown.nsw.gov.au/home>.

For queries about Roads and Maritime projects, proposals and websites not related to the proposed Appin Road upgrades, please submit an online inquiry to Roads and Maritime at <https://www.rms.nsw.gov.au/contact-us/>.

To submit feedback or complaints regarding the conduct of the Greater Sydney Commission, please visit <https://www.greater.sydney/feedback-and-complaints>.

For information, and to submit feedback or complaints regarding the NSW Police please visit [https://www.police.nsw.gov.au/online\\_services/providing\\_feedback/feedback\\_compliments\\_complaints\\_and\\_suggestions](https://www.police.nsw.gov.au/online_services/providing_feedback/feedback_compliments_complaints_and_suggestions)

The disposal of waste in Campbelltown and the surrounding area is out of the scope of this proposal. Please contact Campbelltown City Council for suggestions or queries. Similarly, to make suggestions regarding local issues and upgrades external to the Appin Road upgrades, please contact the respective council using their websites:

<https://www.campbelltown.nsw.gov.au/HaveYourSay/FeedbackAndSuggestions>  
<https://www.wollondilly.nsw.gov.au/council/contact-us/>

Immigration is out of scope of this proposal.

## 2.17.6 Mount Gilead development

### Submission number(s)

AS10, AS19, AS20, AS22, AS23, AS37, AS38, AS39, AS43

### Issue description

The following issues were raised:

- Suggests that development plans being discontinued would negate the need for road upgrades
- Comment that the road will be overburdened by the increased traffic to and from the development
- Suggests that developers be liable for the southern portion of road upgrades
- Suggests the development in Mount Gilead will negatively impact the local koala community
- Queries whether a government agency has investigated the need for the Mount Gilead development
- Suggests that the development be delayed until road upgrades are completed
- Suggests that the development is not in line with the community's values or wishes

- Queries whether new housing developments are required to be built close to public transport options
- Suggests the size of lots in the new development is too small
- Suggests the development will negatively impact the environment and biodiversity
- Suggests the development will create unemployment issues in the area
- Suggests that the subdivision for the development is on land that should be National Heritage
- Questions the timing of the Koala Scat Survey undertaken for the development application
- Suggests that there has been a lack of infrastructure projects to serve the new development
- Suggests that the rural lifestyle of the area will be changed by development.

## **Response**

The proposed upgrade of Appin Road is being undertaken independently of the Mount Gilead development, and therefore issues relating to the Mount Gilead development are out of scope of this REF.

Roads and Maritime completed a safety review of Appin Road in 2014 and a number of safety issues were identified, including the width of existing lanes and shoulders of the road at a number of locations. Upgrading Appin Road was recommended to address the safety issues and improve the safety of the road for local users, independent of the Mount Gilead development plans.

The Mount Gilead subdivision and development is out of the scope of the REF, however the proposal includes building two new intersections to provide safe access to the Mount Gilead subdivision and future housing development. The Greater Macarthur Growth Area, as outlined in the *Western City District Plan* (Greater Sydney Commission 2018) and *Greater Macarthur 2040 Interim Plan* (DPE 2018), identifies Mount Gilead as a significant area to improve housing capacity. A planning proposal to rezone a parcel of land in Mount Gilead was approved by Campbelltown City Council in September 2017. The rezoning of 210 hectares of land within Mount Gilead includes 138 hectares of previously cleared farm land and 58 hectares for open space, riparian areas, rural land and biodiversity corridors. This is supported by *A Plan for Growing Sydney* (2014) which highlights the land along Appin Road as the Macarthur South Urban Investigation Area for future growth. In line with these District Plans, traffic modelling indicates that without upgrade, Appin road would be subject to significant congestion. The Appin Road upgrades have therefore been proposed with full consideration of future increase in vehicle movements due to the Mount Gilead development.

For more information on the planning proposal for the Mount Gilead development, including biodiversity, cumulative impacts, socio-economic impacts and heritage assessment please contact Campbelltown City Council: <https://www.campbelltown.nsw.gov.au/ContactUs>

### 3. Environmental management

The REF for the proposal identified the framework for environmental management, including safeguards and management measures that would be adopted to mitigate or reduce environmental impacts (refer to Chapter 7 in the REF).

After consideration of the issues raised in the public submissions, the safeguard and management measures outlined in the REF are considered appropriate and remain unchanged. There have been no changes to the proposal since the REF was prepared.

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

#### 3.1 Environmental management plan (or system)

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

The PEMP and CEMP will be prepared prior to construction of the proposal and must be reviewed and certified by 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 PEMP and CEMP would be developed in accordance with the specifications set out in the QA Specification G36 - *Environmental Protection (Management System)*, QA Specification G38 - *Soil and Water Management (Soil and Water Plan)* and QA Specification G10 – *Traffic Management*.

#### 3.2 Summary of safeguards and management measures

The REF for the road safety improvements at Appin Road between Brian Road, Appin and Gilead 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, the environmental management measures for the proposal (refer to Chapter 7 of the REF) have been revised. Should the proposal proceed, the environmental management measures in Table 3-1 will guide the subsequent phases of the proposal. Additional and/or modified environmental safeguards and management measures to those presented in the REF have been underlined and deleted measures, or parts of measures, have been struck out.

Table 3-1: Summary of environmental safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing	Reference
Biodiversity	<p>A Flora and Fauna Management Plan will be prepared in accordance with Roads and Maritime's <i>Biodiversity Guidelines: Protecting and Managing Biodiversity on RTA Projects</i> (RTA 2011b) and implemented as part of the CEMP. It will include, but not be limited to:</p> <ul style="list-style-type: none"> <li>Plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features and revegetation areas</li> <li>Requirements set out in the <i>Landscape Guideline</i> (RTA 2008)</li> <li>Pre-clearing survey requirements</li> <li>Procedures for unexpected threatened species finds and fauna handling</li> <li>Protocols to manage weeds and pathogens.</li> </ul>	Contractor	Detailed design / Pre-construction	<p>Standard safeguard B1</p> <p>Section 4.8 of QA G36 <i>Environment Protection</i></p>
Biodiversity	Measures to further avoid and minimise the construction footprint and native vegetation or habitat removal will be investigated during detailed design and implemented where practicable and feasible.	Contractor	Detailed design / Pre-construction	Standard safeguard B2
General biodiversity mitigation	Ensure any fauna encountered onsite would be managed in accordance with <i>Biodiversity Guidelines, Guide 9</i> (fauna handling) (Roads and Maritime 2016)	Contractor	Pre-construction	Standard safeguard B3
General biodiversity mitigation	<p>The pre-clearing survey as part of the Flora and Fauna Management Plan shall:</p> <ul style="list-style-type: none"> <li>Confirm clearing boundaries, exclusion zones, protected habitat features and revegetation areas prior to starting work</li> <li>Identify, in toolbox talks, where biodiversity controls are located on the site.</li> </ul>	Contractor	Pre-construction	Standard safeguard B4



Impact	Environmental safeguards	Responsibility	Timing	Reference
Invasive and noxious weed management	<p>A Weed Management Plan will be prepared in accordance with <i>Biodiversity Guidelines, Guide 6</i> (Roads and Maritime 2016) and include:</p> <ul style="list-style-type: none"> <li>• The Identification of weeds on site (confirmed during pre-clearing survey)</li> <li>• Weed management priorities and objectives</li> <li>• Exclusion zones, protected habitat features and revegetation areas prior to starting work within or directly next to the site</li> <li>• The location of weed infested areas</li> <li>• Weed control methods</li> <li>• Measures to prevent the spread of weeds, including machinery hygiene procedures and disposal requirements</li> <li>• A monitoring program to measure the success of weed management</li> <li>• Communication with local Council noxious weed representative.</li> </ul>	Contractor	Pre-construction	Standard safeguard B5
Pathogen management	<p>Ensure the Flora and Fauna Management Plan includes management measures to control and/or prevent the introduction and/or spread of disease causing agents such as bacteria and fungi in accordance with the <i>Biodiversity Guidelines, Guide 7</i> (Roads and Maritime 2016).</p>	Contractor	Pre-construction	Standard safeguard B6
Unexpected find	<p>If unexpected flora or fauna are discovered on site stop work immediately and implement the Roads and Maritime <i>Unexpected Threatened Species Find Procedure in the Biodiversity Guidelines, Guide 1</i> (Roads and Maritime 2016b).</p>	Contractor	Construction	Standard safeguard B7
Fauna Injury and mortality management	<p>In the event of a fauna injury or mortality during building the proposal, implement the following controls:</p>	Contractor	Construction	Standard safeguard B8

Impact	Environmental safeguards	Responsibility	Timing	Reference
	<ul style="list-style-type: none"> <li>Manage fauna in accordance with <i>Biodiversity Guidelines, Guide 9</i> (Roads and Maritime 2016b)</li> <li>Remove any habitat in accordance with <i>Biodiversity Guidelines, Guide 4</i> (Roads and Maritime 2016b).</li> </ul>			
Native vegetation removal Threatened species habitat and habitat features	<p>Native vegetation removal will be minimised through detailed design</p> <p>Implement the following controls under the Flora and Fauna Management Plan:</p> <ul style="list-style-type: none"> <li>Pre-clearing survey requirements in accordance with <i>Biodiversity Guidelines, Guide 1</i> (Roads and Maritime 2016b)</li> <li>Confirm clearing boundaries, exclusion zones, in accordance with <i>Biodiversity Guidelines, Guide 2</i> (Roads and Maritime 2016b)</li> <li>Vegetation removal would be carried out in accordance with <i>Biodiversity Guidelines, Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011b)</i></li> <li>Reinstate native vegetation in accordance with <i>Biodiversity Guidelines, Guide 3</i> (Roads and Maritime 2016b)</li> <li>Reinstate habitat in accordance with <i>Biodiversity Guidelines, Guide 5 and Guide 8</i> (Roads and Maritime 2016b).</li> </ul>	Roads and Maritime Services; Contractor	Detailed design / Pre-construction / Post construction	Standard safeguard B9
Koala habitat management	A fauna fencing strategy will be implemented along Appin Road in accordance with detailed design and construction drawings. A detailed fauna fencing will be prepared and included in the CEMP for the work.	Roads and Maritime Services; Contractor	Detailed design / Pre-construction	Standard safeguard B10
Groundwater dependent ecosystems	Interruptions to water flows associated with groundwater dependent ecosystems would be minimised through detailed design.	Roads and Maritime Services; Contractor	Detailed design / Pre-construction	Standard safeguard B11

Impact	Environmental safeguards	Responsibility	Timing	Reference
Soils	A Soil and Water Management Plan (SWMP) will be prepared and implemented as part of the CEMP. 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	Detailed design / Pre-construction	Standard safeguard C1
Soils	<p>A site specific Erosion and Sediment Control Plan/s will be prepared and implemented as part of the Soil and Water Management Plan.</p> <p>The Plan 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.</p>	Contractor	Detailed design / Pre-construction	Standard safeguard C2
Contaminated land	<p>A Contaminated Land Management Plan will be prepared in accordance with the <i>Guideline for the Management of Contamination</i> (Roads and Maritime 2013) and implemented as part of the CEMP. The plan will include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Capture and management of any surface runoff contaminated by exposure to the contaminated land</li> <li>• Measures to ensure the safety of site personnel and local communities during construction</li> </ul>	Contractor	Detailed design / Pre-construction	<p>Standard safeguard C3</p> <p>Section 4.2 of QA G36 <i>Environment Protection</i></p>
Contaminated land	If contaminated areas are encountered during construction, appropriate control measures will be implemented to manage the immediate risks of contamination. 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 Roads and Maritime Environment Manager and/or EPA are carried out	Contractor	Detailed design / Pre-construction	<p>Standard safeguard C4</p> <p>Section 4.2 of QA G36 <i>Environment Protection</i></p>
Contaminated land	Areas identified as containing surface lying waste will be remediated prior to construction. All waste is to be disposed of to a suitably licenced landfill facility.	Contractor	Pre-construction	<p>Standard safeguard C5</p> <p>Section 4.2 of QA</p>

Impact	Environmental safeguards	Responsibility	Timing	Reference
				<i>G36 Environment Protection</i>
Accidental spills and leaks	A site-specific emergency spill plan will be developed, and include spill management measures in accordance with the <i>Roads and Maritime Code of Practice for Water Management</i> (RTA 1999) and relevant EPA guidelines. The plan will address measures to be implemented in the event of a spill, including initial response and containment, and notification of emergency services and relevant authorities (including Roads and Maritime and EPA officers).	Contractor	Pre-construction	Standard safeguard C6
Hydrology and flooding	The layout and detail of the drainage system including water quality treatments, discharge points, swale design and scour protection will be refined during detailed design in consultation with the Roads and Maritime Environment Branch.	Roads and Maritime	Detail design	Standard safeguard H1
Hydrology and flooding	Drainage line crossing points will be designed in accordance with <i>Guidelines for Controlled Activities: Watercourse Crossings</i> (NSW DEC 2008).	Roads and Maritime	Details design	Standard safeguard H2
Incident Reporting	In case of an incident, the <i>Environmental Incident Classification and Reporting Procedure</i> (Roads and Maritime Services 2016) will be followed. The Roads and Maritime Contract Manager and Environment Manager will be contacted immediately.	Contractor	Construction	Standard safeguard H4
Accidental spill	An emergency spill kit will be available on-site. All personnel will be trained in its use and aware of its location.	Contractor	Pre-construction	Standard safeguard H5
Stormwater Discharge	Dirty water will not be released into drainage infrastructure and/or waterways.	Construction	Stormwater Discharge	Standard safeguard H6
Stormwater Discharge and Pollutant Loads	Water quality controls will be implemented to prevent materials, including concrete and sediment, to enter drainage infrastructure or waterways.	Contractor	Detailed design / pre-construction	Standard safeguard H7
Hydrology and flooding	The layout and detail of the drainage system including water quality treatments, discharge points, swale design and scour protection will	Roads and Maritime	Detail design	Standard safeguard H1

Impact	Environmental safeguards	Responsibility	Timing	Reference
	be refined during detailed design in consultation with the Roads and Maritime Environment Branch.			
Traffic and transport	<p>A Traffic Management Plan (TMP) will be prepared and implemented as part of the CEMP. The TMP will be prepared in accordance with the Roads and Maritime Traffic Control at Work Sites Manual (Roads and Maritime 2018) and QA Specification G10 Control of Traffic (Roads and Maritime, 2015d). The TMP will include:</p> <ul style="list-style-type: none"> <li>• Confirmation of haulage routes</li> <li>• Measures to maintain access to local roads and properties</li> <li>• Site specific traffic control measures (including signage) to manage and regulate traffic movement</li> <li>• Measures to maintain pedestrian and cyclist access</li> <li>• Requirements and methods to consult and inform the local community of impacts on the local road network</li> <li>• Access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads.</li> <li>• A response plan for any construction traffic incident</li> <li>• 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</li> <li>• Monitoring, review and amendment mechanisms.</li> </ul>	Contractor	Detailed design / Pre-construction	Standard safeguard TT1 Section 4.8 of QA G36 <i>Environment Protection</i>
Property access	Property access will be maintained where feasible and reasonable and property owners will be consulted before starting any work that may temporarily restrict or control access. (Side) road and lane closures will be minimised where feasible and reasonable.	Contractor	Construction	Standard safeguard TT2

Impact	Environmental safeguards	Responsibility	Timing	Reference
Management at ancillary sites	<p>The following traffic management provisions will be provided at each ancillary facility:</p> <ul style="list-style-type: none"> <li>• Appropriate 'sight distances' to allow traffic to safely enter and exit</li> <li>• Temporary painted road lines to provide delineation</li> <li>• Suitable intersection arrangements where required</li> <li>• Other controls to separate, slow down, or temporarily stop traffic to allow for safe entry and exit</li> </ul>	Contractor	Construction	Standard safeguard TT3
Noise and vibration	<p>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 Interim Construction Noise Guideline (ICNG) (DECC 2009) and identify:</p> <ul style="list-style-type: none"> <li>• All potential significant noise and vibration generating activities associated with the activity</li> <li>• Feasible and reasonable mitigation measures to be implemented, taking into account <i>Beyond the Pavement: urban design policy, process and principles</i> (Roads and Maritime 2014)</li> <li>• A monitoring program to assess performance against relevant noise and vibration criteria</li> <li>• Arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures</li> <li>• Contingency measures to be implemented in the event of noncompliance with noise and vibration criteria.</li> </ul>	Contractor	Detailed design / preconstruction	Standard safeguard NV1 Section 4.6 of QA G36 Environment Protection
Construction noise and vibration	All sensitive receivers (e.g. local residents) likely to be affected will be notified at least seven days prior to commencement of any work associated with the activity that may have an adverse noise or	Contractor	Construction	Standard safeguard NV2

Impact	Environmental safeguards	Responsibility	Timing	Reference
	<p>vibration impact. The notification will provide details of:</p> <ul style="list-style-type: none"> <li>• The proposal</li> <li>• The construction period and construction hours</li> <li>• Contact information for project management staff</li> <li>• Complaint and incident reporting</li> <li>• How to obtain further information.</li> </ul>			
Construction noise	<p>Work will be undertaken in accordance with the <i>Construction Noise and Vibration Guideline</i> (Roads and Maritime 2016)</p> <p>Stationary and directional noise sources will be orientated away from sensitive receivers</p> <p>Vehicles, obstacles and stockpiles will be utilised on site to provide shielding to receivers, especially for static noise sources</p> <p>Equipment that has noise levels equal to or less than the sound power levels provided in Appendix F will be used</p> <p>The simultaneous use of high noise generating equipment will be limited during construction</p> <p>The use will also be limited to standard hours where possible</p> <p>Plant will be switched off when not in use</p> <p>Plant, tools and equipment will be used such that noise is reduced to the minimum required.</p>	Contractor	Construction	Standard safeguard NV3
Construction traffic noise	<p>The NVMP would include provisions to reduce the potential impact of construction traffic noise including:</p> <ul style="list-style-type: none"> <li>• Restricting travel routes to and from the site to using the main roads (e.g. arterial roads) and to avoid local roads and roads</li> </ul>	Contractor	Construction	Standard safeguard NV4



Impact	Environmental safeguards	Responsibility	Timing	Reference
	<p>where residential receivers are potentially impacted</p> <ul style="list-style-type: none"> <li>Prohibiting the use of engine / compression brakes in or near residential areas</li> <li>Promoting driving behaviour that reduces the potential noise impact</li> <li>Prohibiting idling of plant and equipment engines near residential receivers when not in use</li> <li>Strategic positioning of site accesses to minimise the chance of trucks passing by residential receivers, especially at night.</li> </ul>			
Construction vibration	<p>Lower powered equipment will be used when working in close proximity to vibration sensitive receivers where possible</p> <p>Building condition /dilapidation surveys will be completed both before and after the work and attended vibration monitoring undertaken when work is proposed within the specified safe working distances</p> <p>Where work is required within the nominated safe working distance, additional vibration mitigation measures detailed in Appendix F will be considered.</p>	Contractor	Construction	Standard safeguard NV5
Noise and vibration complaints	<p>Attended noise and/or vibration monitoring will be undertaken following a complaint. Report the monitoring results as soon as possible. In the case that exceedances of the management levels are recorded, review the situation and identify means to reduce the impacts to noise and vibration sensitive receivers. This is to include revision to the CNVMP where required.</p>	Contractor	Construction	Standard safeguard NV6
Operational noise mitigation	<p>Mitigation measures to minimise operational noise will be investigated, including:</p> <ul style="list-style-type: none"> <li>Quieter pavement surfaces and suitability of such pavement types for through lanes and areas of acceleration, deceleration</li> </ul>	Roads and Maritime	Detailed design	Standard safeguard NV7

Impact	Environmental safeguards	Responsibility	Timing	Reference
	<p>and turning movements</p> <ul style="list-style-type: none"> <li>Property treatments for residually affected receivers where feasible and reasonable</li> </ul>			
Property treatments	Where at property treatments are identified, consider implementing these at the commencement of construction. These treatments would alleviate any noise concerns/complaints during the construction period.	Contractor	Construction	Standard safeguard NV8
Aboriginal heritage finds	The Standard Management Procedure - <i>Unexpected Heritage Items</i> (Roads and Maritime 2015c) will be followed in the event that an unknown or potential Aboriginal object/s, including skeletal remains, is found during construction. This applies where Roads and Maritime 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. Work will only re-commence once the requirements of that Procedure have been satisfied.	Contractor	Detailed design / preconstruction	Standard safeguard AH1 Section 4.9 of QA G36 Environment Protection
Non-Aboriginal heritage finds	The <i>Standard Management Procedure - Unexpected Heritage Items</i> (Roads and Maritime 2015c) will be followed in the event that any unexpected heritage items, archaeological remains or potential relics of Non-Aboriginal origin are encountered.  Work will only re-commence once the requirements of that Procedure have been satisfied.	Contractor	Detail design/ Pre-construction	Standard safeguard H1  Section 4.10 of QA G36 Environment Protection
Non-Aboriginal heritage	Archival recording of listed heritage items prior to modification of any aspect of the road shall be undertaken for the proposal	Roads and Maritime	Detail design/ Pre-construction	Standard safeguard H2
Landscape character and visual impact	An Urban Design Plan will be prepared to support the final detailed design and implemented as part of the CEMP. The Urban Design Plan will present an integrated urban design for the proposal, providing practical detail on the application of design principles and objectives identified in the environmental assessment. The Plan will include design treatments for:	Contractor	Detailed design / Pre-construction	Standard safeguard UD1

Impact	Environmental safeguards	Responsibility	Timing	Reference
	<ul style="list-style-type: none"> <li>Location and identification of existing vegetation and proposed landscaped areas, including species to be used</li> <li>Built elements including retaining walls and noise walls</li> <li>Fixtures such as seating, lighting, fencing and signs</li> <li>Details of the staging of landscape work taking account of related environmental controls such as erosion and sedimentation controls and drainage</li> <li>Procedures for monitoring and maintaining landscaped areas</li> </ul> <p>The Urban Design Plan will be prepared in accordance with relevant guidelines, including:</p> <ul style="list-style-type: none"> <li>Beyond the Pavement urban design policy, process and principles (Roads and Maritime 2014)</li> <li>Landscape Guideline (RTA 2008)</li> <li>Noise Wall Design Guidelines (RTA 2006)</li> <li>Shotcrete Design Guideline (RTA 2005).</li> </ul>			
Operational light spill impact	The lighting design specification will be developed to minimise light spill and light glare in accordance with the provisions of AS4282-1997 Control of the Obtrusive Effect of Outdoor Lighting (Standards Australia 1997). This may require the use of directional lighting, cut-offs or filters.	Roads and Maritime	Detailed design	Standard safeguard UD2
Operational visual and amenity impact	Where feasible and reasonable, opportunities to reduce the visual impact of built structures would be implemented through design, and selection of materials and colours.	Roads and Maritime	Detailed design	Standard safeguard UD3
Construction light spill impact	Measures to minimise the use and spill from temporary and construction lighting will be introduced onsite.	Contractor	Construction	Standard safeguard UD4

Impact	Environmental safeguards	Responsibility	Timing	Reference
Socio-economic	<p>A Communication Plan and Stakeholder Engagement Plan (CSEP) will be prepared and implemented as part of the CEMP to help provide timely and accurate information to the community during construction. The CSEP will include (as a minimum):</p> <ul style="list-style-type: none"> <li>• Mechanisms to provide details and timing of proposed activities to affected residents, including changed traffic and access conditions</li> <li>• Contact name and number for complaints</li> </ul> <p>The CSEP will be prepared using Road and Maritimes' Stakeholder engagement toolkit .</p>	Roads Contactor	Detailed design / Pre-construction	Standard safeguard SE1
Property acquisition	All property acquisition will be carried out in accordance with the Land Acquisition Information Guide (Roads and Maritime 2012) and the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> .	Roads and Maritime	Preconstruction and construction	Standard safeguard SE2
Impact on business and the community during construction	Road users, including freight companies will be informed of changed conditions, including likely disruptions to access during construction.	Contractor	Construction	Standard safeguard SE3
Community impact during construction across the study area	Consultation will be undertaken with potentially affected residences prior to the commencement of and during work in accordance with the Roads and Maritime's Community Involvement and Communications Resource Manual. Consultation will include but not limited to door knocks, newsletters or letter box drops providing information on the proposed work, working hours and a contact name and number for more information or to register complaints.	Roads and Maritime/ Contractor	Preconstruction and construction	Standard safeguard SE4
Emergency Access	Access for emergency vehicles will be maintained at all times during construction. Any site-specific requirements will be determined in consultation with the relevant emergency services agency.	Contractor	Construction	Standard safeguard SE5
Impact to properties	Consultation will be carried out with all affected property owners during detailed design and construction to develop and implement measures to mitigate the impact on land use viability, infrastructure	Roads and Maritime	Detailed Design	Standard safeguard SE6

Impact	Environmental safeguards	Responsibility	Timing	Reference
	and severance.			
Temporary utility service interruption	Residents and businesses will be notified before any utility interruption.	Contractor	Preconstruction	Standard safeguard SE7
Utility relocation and adjustment	<p>A utility management plan will be prepared to include:</p> <ul style="list-style-type: none"> <li>• Utility company consultation</li> <li>• Maintenance and emergency access requirements</li> <li>• Construction staging and programming conflicts.</li> </ul>	Roads and Maritime / Contractor	Pre-construction / Construction	Standard safeguard SE8
General Waste Management	<p>A Waste Management Plan (WMP) will be prepared and implemented as part of the CEMP. The WMP will include but not be limited to:</p> <ul style="list-style-type: none"> <li>• Measures to avoid and minimise waste associated with the proposal</li> <li>• Classification of wastes and management options (re-use, recycle, stockpile, disposal)</li> <li>• Statutory approvals required for managing both on and off-site waste, or application of any relevant resource recovery exemptions</li> <li>• Procedures for storage, transport and disposal</li> <li>• Monitoring, record keeping and reporting</li> </ul> <p>The WMP will be prepared taking into account the Environmental Procedure - Management of Wastes on Roads and Maritime Services Land (Roads and Maritime 2014) and relevant Roads and Maritime Waste Fact Sheets.</p>	Contactor	Detailed design / preconstruction	Standard safeguard WM1
General waste impact	Waste accumulation, littering and general tidiness will be monitored during routine site inspections	Contactor	Construction	Standard safeguard WM2

Impact	Environmental safeguards	Responsibility	Timing	Reference
Resource minimisation	Recycled, durable, and low embodied energy products will be used to reduce primary resource demand in instances where the materials are cost and performance competitive and comparable in environmental performance (e.g. where quality control specifications allow).	Contractor	Construction	Standard safeguard WM3
Air quality	<p>The CEMP will incorporate an Air Quality Management Plan (AQMP) for the proposal. The AQMP will include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• A procedure for monitoring dust onsite and weather conditions</li> <li>• An identification procedure for potential sources of air pollution and mitigation measures for likely scenarios such as imposing speed limits throughout the proposal footprint and site compounds</li> <li>• Maintaining air quality management objectives consistent with any relevant published EPA and/or OEH guidelines</li> <li>• Compliance with Stockpile Site Management Guidelines (Roads and Maritime 2015b)</li> <li>• Methods to manage work during strong winds or other adverse weather conditions such as reducing active earthwork on hot windy days</li> <li>• Implement a vehicle, plant and machinery maintenance program to comply with manufacturers specifications and ensure compliance with the <i>NSW Protection of Environment Operations Act 1997</i></li> <li>• A progressive rehabilitation strategy for exposed surfaces.</li> </ul>	Contractor	Pre-construction	AQ1
Greenhouse gas and climate change	<p>Detailed design will consider opportunities to reduce building and construction material quantities and use appropriate materials wherever reasonable and feasible.</p> <p>Pavement design will ensure resilience against extreme</p>	Contractor	Detailed design / pre-construction	GHG1

Impact	Environmental safeguards	Responsibility	Timing	Reference
	temperature and intense and more frequent rainfall events.			
Hazard and Risk	<p>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:</p> <ul style="list-style-type: none"> <li>• Details of hazards and risks associated with the activity</li> <li>• Measures to be implemented during construction to minimise these risks</li> <li>• 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</li> <li>• A monitoring program to assess performance in managing the identified risks</li> <li>• Contingency measures to be implemented in the event of unexpected hazards or risks arising, including emergency situations.</li> </ul> <p>The HRMP will be prepared in accordance with relevant guidelines and standards, including relevant Safe Work Australia Codes of Practice, and EPA or Office of Environment and Heritage publications.</p>	Contractor	Detailed design / pre-construction	HAZ1
Hazard and Risk	<p>Where possible, hazardous materials and dangerous goods, avoided or substituted for less hazardous alternatives throughout the construction process. Where this is not possible, in the case for necessary fuels, oils and fluids required for activities in the proposal for example, the appropriate management and handling procedures will be implemented as part of the CEMP.</p> <p>This will include a Hazard and Risk Management Plan (HRMP) and Waste Management Plan (WMP) which will include, but not be limited to measures to avoid the generation of hazardous wastes, and the appropriate procedures for their storage, transport and disposal. The WMP will be prepared taking into account the</p>	Contractor	Pre-construction	HAZ2



Impact	Environmental safeguards	Responsibility	Timing	Reference
	Environmental Procedure - Management of Wastes on Roads and Maritime Services Land (Roads and Maritime 2014f), and other relevant Roads and Maritime hazardous materials and dangerous goods handling procedures to reduce environmental and worker risk such as Managing the risks of working with bitumen and bituminous products (Roads and Maritime 2013). The appropriate management and removal of existing hazardous materials and dangerous goods identified adjacent to the proposed work in the form of asbestos containing materials (ACM) and synthetic fibre materials (SFM) is addressed in section 6.11 of the REF.			
Cumulative impacts	<p>Other major developments within the area will be consulted with prior to the commencement of work. This may include:</p> <ul style="list-style-type: none"> <li>• Obtaining construction work information including the duration of proposed work activities and the likely impact</li> <li>• Identifying and implementing safeguards and management measures (e.g. dust and traffic management controls) to minimise the cumulative impact</li> <li>• Managing the interfaces of the proposal's staging and programming in combination with other planning proposal occurring in the area.</li> </ul>	Roads and Maritime	Pre-construction/ construction	C11
Cumulative impact	All environmental management plans will be prepared to consider other developments that are in progress in the area.	Contractor	Pre-construction	C12

### 3.3 Licensing and approvals

Should the proposal proceed, the licenses and approvals as outlined in Table 3-2 may be required prior to the commencement of construction.

Table 3-2: Summary of licensing and approval required

Instrument	Requirement	Timing
<i>Biodiversity Conservation Act 2016</i>	Licence to harm or pick threatened species, populations or ecological communities or damage habitat from the Chief Executive of OEH.	Prior to start of the activity
<i>Roads Act 1993 (s138)</i>	Road occupancy licence to dig up, erect a structure or carry out work in, on or over a road.	Prior to start of the activity
<i>Biodiversity Conservation Act 2016</i>	Licence to harm or pick threatened species, populations or ecological communities or damage habitat from the Chief Executive of OEH.	Prior to start of the activity

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