Australian Government

BUILDING OUR FUTURE

ARTC

CABRAMATTA LOOP PROJECT

SUBMISSIONS REPORT

FEBRUARY 2020

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDIX

APPENDIX A REGISTER OF COMMUNITY SUBMISSIONS

THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK

1 INTRODUCTION

This section provides the background to the project and approval process, as well as the purpose and structure of this report.

1.1 Background

The Australian and NSW governments have identified clear objectives to increase the share of freight moved by rail – from 17.5 per cent in 2016 to 28 per cent by 2021 (Transport for NSW, 2018b; Infrastructure Australia, 2016).

Over the next 20 years, container rail freight volumes on Sydney's rail freight network are predicted to increase substantially. The major drivers of this increase will be population growth, economic growth (resulting in increases in freight movements over and above the rate of population growth) and growth in global community demand (Transport for NSW, 2018b). This will put more pressure on existing rail infrastructure, which includes the Southern Sydney Freight Line (SSFL).

In May 2018, the Prime Minister announced the Australian Government's commitment of $400 million to the Port Botany Rail Line Duplication Project and the Cabramatta Loop Project. These projects aim to achieve the Government's objective of increasing the share of freight moved by rail.

ARTC ('the proponent') proposes to construct and operate a passing loop (the Cabramatta Loop Project) for up to 1,300 metre length trains on the SSFL, which would allow freight trains travelling in opposite directions to pass and provide additional rail freight capacity along the SSFL.

The Cabramatta Loop Project (the project) would be partly located within the existing rail corridor between the Hume Highway and Cabramatta Road East road overbridges, in the suburbs of Warwick Farm and Cabramatta (see Figure 1.1). In addition, the project includes works in Broomfield Street and Jacquie Osmond Reserve, adjacent to the rail corridor.

Further detail regarding the project is provided in section 2.1.

Figure 1.1 Location of the project

1.2 The assessment and approval process

The project is State significant infrastructure in accordance with Division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), by operation of State Environmental Planning Policy (State and Regional Development) 2011 (the State and Regional Development SEPP) and State Environment Planning Policy (Infrastructure) 2007 (the Infrastructure SEPP). As per State significant infrastructure, the project is permissible without development consent and is subject to assessment and approval by the NSW Minister for Planning and Public Spaces. A request for the project to be declared Critical State significant infrastructure (CSSI) pursuant to section 5.13 of the EP&A Act and clause 16 of the State and Regional Development SEPP was submitted on 29 July 2019. This request was made based on the project being considered to be essential to the State for economic environmental or social reasons. The request for declaration of the project as CSSI is currently with the Minister of Planning and Public Spaces for consideration.

An Environmental Impact Statement (EIS) was prepared to support ARTC's application for approval of the project in accordance with the requirements of Division 5.2 of the EP&A Act. The EIS was placed on public exhibition by the Department of Planning, Industry and Environment (formerly known as the Department of Planning and Environment) for a period of 31 days, commencing on 30 August 2019, and concluding on 28 September 2019.

During the exhibition period, interested stakeholders and members of the community were able to review the EIS online or at display locations (described in section 3.2.1 of this report), participate in consultation and engagement activities (described in section 3.2.2 of this report), and make a written submission to the Department of Planning, Industry and Environment for consideration in its assessment of the project.

The key steps in the planning approval process for the project are shown in Figure 1.2.

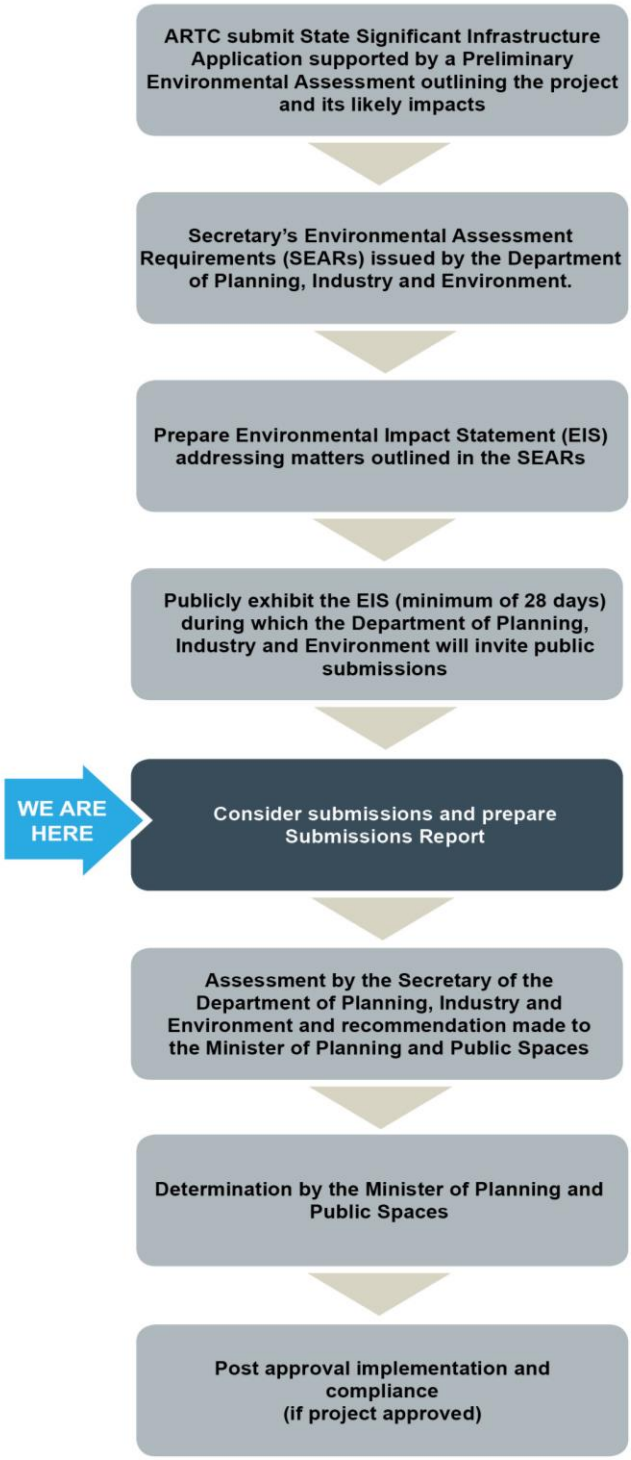


Figure 1.2 NSW planning approvals process for State significant infrastructure

1.3 Purpose and structure of this report

This report comprises the Submissions Report for the project. It has been prepared in accordance with the requirements for State significant infrastructure under Division 5.2 and, more specifically, section 5.17(6) of the EP&A Act. This Section specifies that:

'The Secretary may require the proponent to submit to the Secretary:

a) a response to the issues raised in those submissions, and

b) a preferred infrastructure report that outlines any proposed changes to the State significant infrastructure to minimise its environmental impact or to deal with any other issue raised during the assessment of the application concerned.'

On 3 October 2019 ARTC received a request prepared under section 5.17(6) from the Department of Planning, Industry and Environment to provide a response to the submissions received during exhibition of the EIS.

The responses to submissions are provided in Chapters 6 to 8 of this report.

No changes are proposed to the exhibited project and therefore a preferred infrastructure report is not required.

The report is structured as follows:

- an introduction to the report (Chapter 1)
- an overview of the project as exhibited (Chapter 2)
- a description of the consultation actions that were undertaken during the exhibition period and would continue to be undertaken (Chapter 3)
- an overview analysis of the submissions received, including numbers, types of submitters and key issues raised (Chapter 4)
- clarifications to the EIS, and further environmental assessment undertaken to refine project design (Chapter 5)
- a summary of the issues raised in community, public authority and organisation submissions (Chapters 6 to 8) and responses to the issues raised
- updated mitigation measures for the project (Chapter 9)
- a synthesis of the findings of the Submissions Report and concluding statement (Chapter 10).

THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK

2 OVERVIEW OF EXHIBITED PROJECT

This section provides an overview of the project as described in the EIS. It includes an overview of the key features, the project need and benefits, and the main potential impacts identified by the EIS.

2.1 Overview of the project as described by the EIS

The project would comprise the construction and operation of a passing loop on the SSFL to enable freight trains, up to 1,300 metres long and travelling in either direction, to pass each other. The project would be partly located within the existing rail corridor between the Hume Highway and Cabramatta Road East road overbridges, in the suburbs of Warwick Farm and Cabramatta. In addition, the project includes works in Broomfield Street and Jacquie Osmond Reserve, adjacent to the rail corridor.

The location of the project is shown on Figure 1.1.

The project would operate as part of the SSFL and would continue to be managed by ARTC. ARTC manages and maintains the SSFL as part of its rail network across five states. ARTC works with rail operators to provide access to rail for businesses and producers across Australia. Freight train services and rolling stock which utilise the ARTC network are currently, and would continue to be, owned and operated by a variety of operators.

It is estimated that once the project is operational, there may be an increase in freight train movements from typically 48 movements prior to the project, up to 72 per day by 2033.

Further information on the project features and how the project will be constructed and operated is included in Chapter 6 (Project features and operation) and Chapter 7 (Construction) of the EIS.

2.1.1 Key features

Key features of the project include:

- new rail track – providing a 1.65 kilometre long section of new track adjacent to the existing track, with connections to the existing track at the northern and southern ends
- track realignment – moving about 550 metres of existing track sideways (slewing) to make room for the new track
- bridge works – constructing two new bridge structures adjacent to the existing rail bridges over Sussex Street and Cabramatta Creek
- road works – reconfiguring Broomfield Street for a distance of about 680 metres between Sussex and Bridge streets.

Ancillary work would include communication, signalling and power upgrades, works to existing retaining and noise walls, drainage work and protecting/relocating utilities. In addition, minor works in the form of new signalling would be installed at a number of locations within the rail corridor.

The key features of the project are shown on Figure 2.1.

Figure 2.1 Key features of the project

2.1.2 Delivery of the project

The project as described in the EIS is based on the outcomes of the reference design for the project. Subject to approval of the project, detailed design is proposed to commence following approval and the main construction work would likely commence in early to mid 2021 and is expected to take about two years.

In order to minimise the impact to Sydney's freight network, it is anticipated the project would be constructed while the existing rail line continues to operate. Some features of the project would need to be constructed during programmed rail possession periods when rail services along the SSFL and, in some cases, adjacent commuter train lines, do not operate. Possession periods typically occur for 48 hours over a weekend, four times per year.

2.2 Justification of the project

2.2.1 Summary of project justification.

Australia's freight task is set to experience significant growth over the coming decades. The existing freight infrastructure cannot support this projected growth, with increasing pressure on already congested roads and rail lines through Sydney, and increasing use of heavy trucks. The Australian and NSW Governments have identified clear objectives to increase the share of freight moved by rail – from 17.5 per cent in 2016 to 28 per cent by 2021 (Transport for NSW 2018b; Infrastructure Australia, 2018).

Over the next 20 years, container rail freight volumes on Sydney's rail freight network are predicted to increase substantially. This will put more pressure on existing rail infrastructure, which includes the SSFL. Efficient access to and from Port Botany is critical to the economic growth and prosperity of Sydney.

ARTC's *Sydney Metropolitan Freight Strategy* (ARTC, 2015) considers rail freight capacity issues at the time of writing and identifies priority actions to respond to rail freight demands on Sydney's rail freight network, including the SSFL. This includes the Cabramatta Loop Project.

The project is one of a number of initiatives proposed to increase the capacity of Sydney's rail freight network. In addition to the project, ARTC is also proposing to undertake the Botany Rail Duplication Project, which would involve duplicating the remaining single-track section of the Botany Line.

The Australian Government has recognised the need for the Cabramatta Loop and Botany Rail Duplication projects and announced a funding commitment of $400 million in the 2018 budget for both projects.

2.2.2 Summary of project benefits

The project is one of a number of initiatives proposed to improve freight rail transport from Port Botany through the Sydney Metropolitan Freight Network in response to a growing economy and policy objectives to increase the rail modal share for container freight.

The primary objective of the project is to increase the capacity of the freight rail network to meet the forecast demand for container freight transport along the SSFL.

Secondary benefits of the project would include:

- provide increased operational efficiency, flexibility and reliability for freight customers
- increase rail market share for containerised freight
- support connection to, and operation of, intermodal terminals to meet their targeted freight capacity.

It is intended that the project would:

- alleviate constraints and increase the capacity of Sydney's freight rail network to meet existing and future demands

- support the operation of intermodal terminals, including Enfield, Chullora and Moorebank
- encourage a shift in freight transport from road to rail, and support a reduced rate of growth in truck movements and associated traffic congestion around Sydney.

2.3 Summary of key potential impacts

The key potential adverse impacts identified in the EIS for the project are summarised in Table 2.1. Further information on these impacts is provided in Chapters 8 to 21 of the EIS.

Table 2.1 Summary of key potential impacts

Issue	Key potential impacts
Traffic, transport and access	During construction there would be local traffic disruptions and short-term access restrictions and detours for road users, pedestrians and cyclists during road and bridge works. Access diversions would be in place for pedestrians and cyclists during works on Cabramatta Creek bridge. There may be temporary access restrictions to properties along Broomfield Street due to utility works. Up to about 46 on-street parking spaces (consisting of both formalised angled parking and informal kerbside parallel parking) would be unavailable during construction works on Broomfield Street, however options are being considered to provide an accessible temporary at-grade parking area during construction with provision for about 40 parking spaces within 800 metres of Cabramatta Station. Once operational, the project would result in the loss of some parking spaces on the western side of the road as a result of angled parking converted to parallel parking. Up to 11 spaces are anticipated to be impacted.
Noise and vibration	Given the nature and duration of works and close proximity of receivers, airborne noise during construction is expected to exceed noise management levels along the alignment. Receivers located along Railway Parade, Broomfield Street, Station Street, Lawrence Hargrave Road, Todman Road and Sappho Road would be expected to experience the worst-case noise impacts as they are located directly adjacent to the construction works. Construction works would be required outside standard construction hours, due to the need to minimise impacts on the road network. During the night time period, airborne noise levels are expected to exceed the criteria at some locations during certain activities. The existing noise wall would be replaced as part of the project. The predicted noise levels would be exceeded for one sensitive receiver with the replacement noise wall in place during operation. This receiver will be considered for mitigation.
Air quality	In general, air quality impacts are expected to be minor and manageable through established mitigation and management measures. Potential impacts would result from the generation of dust from construction works and the movement of equipment and machinery. Once operational, the increase in the number of diesel freight trains has the potential to increase levels of pollutants such as nitrogen oxides and particulate matter.
Biodiversity	The project would remove small areas of native vegetation which could provide some nesting and foraging habitat anticipated to total about half a hectare. This would not result in a significant impact on threatened species.

Issue	Key potential impacts
Hydrology, flooding and water quality	The majority of construction activities and the presence of construction compounds and work sites have the potential to impact local overland flows and flood behaviour. Runoff or rainfall within the project site has the potential to cause localised flooding issues and adverse downstream impacts. There may be impacts on downstream water quality as a result of key activities such as earthworks. The inclusion of structures such as the bridges will increase flood levels by up to 75 mm during a PMF flood event. This would only be in areas where the rail formation is predicted to be flooded by several metres depth. Works to the drainage design along Broomfield Street have the potential to increase existing flooding levels at a number of properties along Broomfield Street. The design of Broomfield Street would be refined during detailed design with the aim of not worsening the existing flooding conditions.
Soils and water quality	Erosion and sedimentation during construction could result in the contamination of soils and surface waters. This may impact on downstream water quality. Leaks and spills during construction and operation may cause contamination impacts to soil and water. During the operation of the project, maintenance and repair activities may require excavation and ground disturbance, which could result in short-term impacts such as exposure of soil to runoff and wind.
Heritage	During construction, there is potential for vibration impacts to two locally listed bridges adjacent to the proposed bridges (Cabramatta (Cabramatta Creek), Railway Parade and Sussex Street Underbridge (I19) and the archaeological remains of a locally listed federation cottage (Federation cottage (I10)). There is also the potential for disturbance to possible archaeological remains of the Federation cottage (I10) due to construction vibration. Impacts to the area of moderate archaeological potential within Jacquie Osmond Reserve cannot be avoided as utility works are required.
Land use and property	Within the project site, some areas of land would need to be temporarily leased or occupied to locate some of the proposed compounds and work sites and to relocate the Sydney Waters main. As a result, the use of this land would change from its existing use (mainly transport and public recreation) to use as a partial and temporary construction site. Where the compound and work sites are proposed, the recreational use of Jacquie Osmond Reserve and Warwick Farm Recreation Reserve would be temporarily restricted during construction. The partial acquisition of land at the southern extent of the project may impact on the businesses ability to access buildings adjacent to the acquired land. Additionally, the partial acquisition of Jacquie Osmond Reserve and construction of the embankment may require the movement of up to three of the existing softball diamonds up to ten metres to the east. This would be further refined during detailed design.
Landscape and visual amenity	Adverse impacts during construction and operation would occur where the project is located within or adjacent areas of landscape or visual sensitivity, such as heritage or natural landscapes (such as Cabramatta Creek), open spaces (such as Jacqui Osmond Reserve) or key urban landscapes (such as along Broomfield Street). In most cases this impact is due to the loss of established trees or vegetation. Urban design responses through plantings and selection of finishes to be determined during detailed design, would minimise the permanent impacts on landscape and visual setting; however, some adverse impacts would remain.

Issue	Key potential impacts
Socio-economic	Changes in existing access arrangements and connectivity along Broomfield Street, Sussex Street and the shared path could result in a temporary increase in the distance travelled, increased travel times, inconvenience and delays for some community members. There may be impacts on the amenity of the local community as a result of an increase in noise levels, traffic movements and congestion, dust, and changes in visual outlook. There are beneficial impacts of the project during construction. This includes employment (an estimated average workforce of 220 people), and flow on local and regional economic benefits. Once the project is in operation, there will be changes to access and connectivity due to parking losses along Broomfield Street. There may be potential impacts on the amenity of the local community due to the increased train volumes. There may also be potential impacts to the use of the softball fields in Jacquie Osmond Reserve.
Health, safety and hazards	Adjustments or protection works would be carried out with the involvement of the asset owner, and potential impacts are manageable through established mitigation and management measures. During construction, there would be public health and safety risks due to the proximity of sensitive receivers to the project site. This may result in traffic confusion, injury, potential exposure to contaminated land, access issues, air quality impacts and noise and vibration impacts. During construction and operation, the storage and handling of dangerous goods and hazardous materials could cause leaks and spills, with resultant contamination and health impacts. Once operational, there may be potential security risks associated with unauthorised access to the rail corridor.

3 STAKEHOLDER AND COMMUNITY CONSULTATION

This section describes the community and stakeholder consultation undertaken during the exhibition period of the EIS, and the ongoing consultation proposed.

3.1 Overview

ARTC is committed to active engagement with the community and key stakeholders in the projects it undertakes. ARTC's approach to consultation for this project aims to:

- build relationships with the community and key stakeholders
- ensure that the local community and key stakeholders are informed about the project and given the opportunity to provide feedback
- demonstrate an understanding of community concerns and values
- manage community and key stakeholder feedback and complaints in a timely, respectful way
- build community and stakeholder confidence in ARTC and the decisions it makes.

ARTC has been consulting with the community and key stakeholders since early 2018. Feedback from this consultation has played an important role in informing and refining the design of the project.

ARTC's approach to consultation for the project is described in section 4.1 of the EIS. The consultation activities undertaken prior to exhibition of the EIS are described in sections 4.2 to 4.3 of the EIS.

The following sections describe the consultation undertaken just prior to public exhibition, consultation undertaken in conjunction with public exhibition, and the consultation that would be undertaken during future project stages.

3.2 Consultation associated with public exhibition of the EIS

3.2.1 EIS exhibition

The Department of Planning, Industry and Environment placed the EIS on public exhibition between 30 August 2019 and 28 September 2019. During this time, the project team undertook further consultation with stakeholders.

During the exhibition period, government agencies, stakeholders (including interest groups and organisations), and the community were invited to make written submissions.

The EIS exhibition was advertised in the following newspapers:

- Liverpool City Champion – Wednesday 14 August 2019
- Fairfield City Champion – Wednesday 14 August 2019
- The Sunrise (Vietnamese) – Thursday 5 September 2019 (translated material).

The advertisements included details regarding the community information drop-in session and how to make a submission. Copies of the advertisements are provided in Figure 3.1 (in the Liverpool City Champion and Fairfield City Champion) and Figure 3.2 (in The Sunrise).

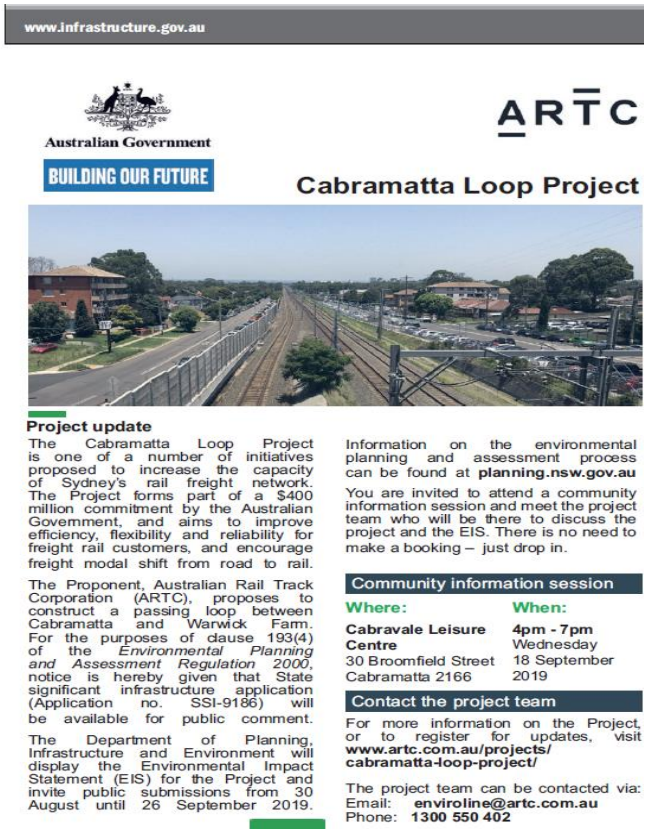
The EIS was made available to the public at the following locations:

- Fairfield City Council Administration Centre, 86 Avoca Road, Wakeley
- Whitlam Library Cabramatta, 165 Railway Parade, Cabramatta

- Liverpool Council Administration Centre, 33 Moore Street, Liverpool
- Liverpool Library, 170 George St, Liverpool.

The document was available to be viewed on the Department of Planning, Industry and Environment's website - planningportal.nsw.gov.au/major-projects - and link to this page was available on the ARTC project webpage - artc.com.au/projects/cabramatta-loop-project/.

The EIS was available at the community information session (described in the following section).


www.infrastructure.gov.au

Australian Government

BUILDING OUR FUTURE

ARTC

Cabramatta Loop Project

Project update

The Cabramatta Loop Project is one of a number of initiatives proposed to increase the capacity of Sydney's rail freight network. The Project forms part of a $400 million commitment by the Australian Government, and aims to improve efficiency, flexibility and reliability for freight rail customers, and encourage freight modal shift from road to rail.

The Proponent, Australian Rail Track Corporation (ARTC), proposes to construct a passing loop between Cabramatta and Warwick Farm. For the purposes of clause 193(4) of the *Environmental Planning and Assessment Regulation 2000*, notice is hereby given that State significant infrastructure application (Application no. SSI-9186) will be available for public comment.

The Department of Planning, Infrastructure and Environment will display the Environmental Impact Statement (EIS) for the Project and invite public submissions from 30 August until 26 September 2019.

Information on the environmental planning and assessment process can be found at **planning.nsw.gov.au**

You are invited to attend a community information session and meet the project team who will be there to discuss the project and the EIS. There is no need to make a booking – just drop in.

Community information session

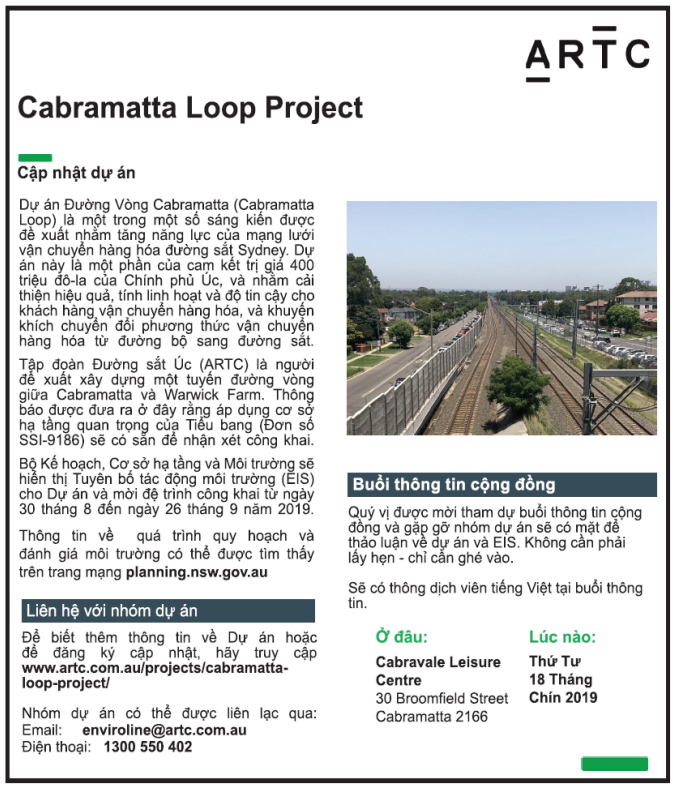
Where:	When:
Cabravale Leisure Centre 30 Broomfield Street Cabramatta 2166	**4pm - 7pm** Wednesday 18 September 2019

Contact the project team

For more information on the Project, or to register for updates, visit **www.artc.com.au/projects/cabramatta-loop-project/**

The project team can be contacted via:
Email: **enviroline@artc.com.au**
Phone: **1300 550 402**

Figure 3.1 Newspaper advertisement provided in Liverpool City Champion and Fairfield City Champion


ARTC

Cabramatta Loop Project

Cập nhật dự án

Dự án Đường Vòng Cabramatta (Cabramatta Loop) là một trong một số sáng kiến được đề xuất nhằm tăng năng lực của mạng lưới vận chuyển hàng hóa đường sắt Sydney. Dự án này là một phần của cam kết trị giá 400 triệu đô-la của Chính phủ Úc, và nhằm cải thiện hiệu quả, tính linh hoạt và độ tin cậy cho khách hàng vận chuyển hàng hóa, và khuyến khích chuyển đổi phương thức vận chuyển hàng hóa từ đường bộ sang đường sắt.

Tập đoàn Đường sắt Úc (ARTC) là người đề xuất xây dựng một tuyến đường vòng giữa Cabramatta và Warwick Farm. Thông báo được đưa ra ở đây rằng áp dụng cơ sở hạ tầng quan trọng của Tiểu bang (Đơn số SSI-9186) sẽ có sẵn để nhận xét công khai.

Bộ Kế hoạch, Cơ sở hạ tầng và Môi trường sẽ hiển thị Tuyên bố tác động môi trường (EIS) cho Dự án và mời đệ trình công khai từ ngày 30 tháng 8 đến ngày 26 tháng 9 năm 2019.

Thông tin về quá trình quy hoạch và đánh giá môi trường có thể được tìm thấy trên trang mạng **planning.nsw.gov.au**

Liên hệ với nhóm dự án

Để biết thêm thông tin về Dự án hoặc để đăng ký cập nhật, hãy truy cập **www.artc.com.au/projects/cabramatta-loop-project/**

Nhóm dự án có thể được liên lạc qua:
Email: **enviroline@artc.com.au**
Điện thoại: **1300 550 402**

Buổi thông tin cộng đồng

Quý vị được mời tham dự buổi thông tin cộng đồng và gặp gỡ nhóm dự án sẽ có mặt để thảo luận về dự án và EIS. Không cần phải lấy hẹn - chỉ cần ghé vào.

Sẽ có thông dịch viên tiếng Việt tại buổi thông tin.

Ở đâu:	Lúc nào:
Cabravale Leisure Centre 30 Broomfield Street Cabramatta 2166	**Thứ Tư** **18 Tháng Chín 2019**

Figure 3.2 Newspaper advertisement provided in The Sunrise

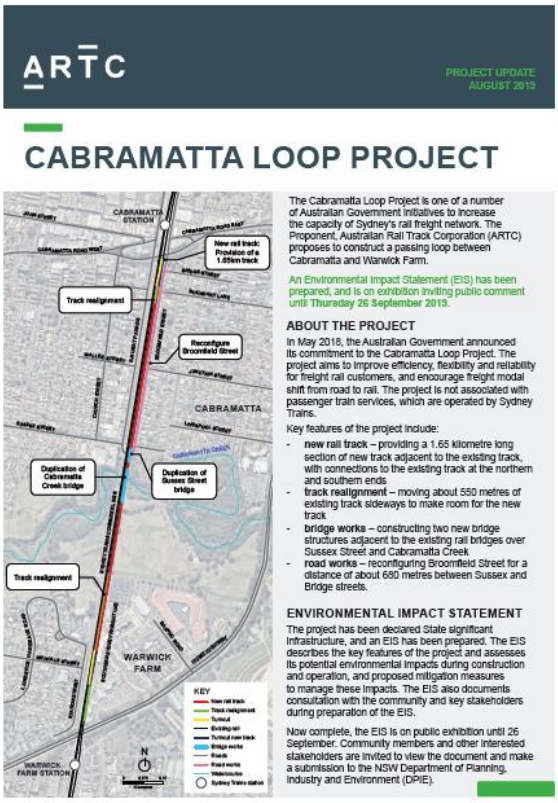
3.2.2 Consultation activities

Table 3.1 lists the engagement activities undertaken in relation of exhibition of the EIS. Given the cultural diversity within the Fairfield and Liverpool local government areas, guidance on how to access translation and interpretative services were provided on all flyers, posters and on the project website, in English, Vietnamese, Mandarin and Arabic.

Table 3.1 Consultation undertaken for exhibition of the EIS

Activity	Detail
Pop-ups and conversation booths	• The project team hosted pop-up information sessions about the EIS outside the nearby train stations. Copies of the EIS Summary and flyers detailing how to make a submission were made available. • Cabramatta Station on Broomfield Street on Tuesday 3 September from: - 7.00 am – 9:30 am and - 4:30 pm to 6:30 pm • Outside Warwick Farm Station on Thursday 5 September from 7.00 am – 9:00 am. • Translation services were available at the pop-up information sessions.
Door knocks	• Door knocked 93 properties on 3 and 4 September 2019 to confirm receipt of the EIS Summary document and provide information on the community information session. Also provided overview of project and details on how to make a submissions.
Printed information: • Notification flyer • EIS summary booklet • How to make a submission flyer • Posters	• Notification flyers included a brief project update, information on the community information session, and how to make a submission on the EIS. Copies of these flyers are shown in Figure 3.3 and Figure 3.4. The flyers were sent to 7,450 addresses within proximity to the project site on 30 August 2019. The flyer was available on the ARTC project webpage. • An EIS summary booklet (16 page guide to the EIS) and notification flyer were sent to 1,610 properties within close proximity to the project site on 30 August 2019. A copy of the EIS summary booklet front page is shown in Figure 3.5. The EIS summary document provided a brief overview of the project and key impacts, to be read in conjunction with the EIS, and provide a navigation tool to the EIS document. The booklet is available on the ARTC project webpage. • Posters were displayed at Cabramatta and Warwick Farm stations, providing a project update and information about the community information session. • The EIS documents on display were accompanied by a project poster and flyers with information about the community information session, EIS summary booklets, and How to Make a Submission flyers.
Social media update	• Three updates were posted to social media platforms to announce the commencement of the public exhibition, promote the community drop in information session, and notify the end of submission period. These posts were geographically targeted posts to the local area: - 4 September 2019 - Facebook - 13 September 2019 – Facebook - 30 August 2019 – Linkedin

Activity	Detail
Stakeholder briefings	• A number of stakeholders were contacted to provide a project briefing and give an update of the status of the project and EIS findings including: - Fairfield City Council - Liverpool City Council - State and Federal Members - neighbouring businesses - nearby Places of Worship.
Community information session	• A community information session was held at the Cabravale Community Centre in Cabramatta on 18 September 2019. • Members of the community were invited to attend this session; view display material and the EIS; and ask questions of technical experts, and the project team. Visitors were not required to make a booking and were able to drop in anytime within the advertised period. • A range of display materials were prepared and made available at the community information session including a hard copy of the EIS, copies of the EIS summary document, information boards with posters providing information regarding the planning process and key impacts identified in the EIS. • An interpreter attended the session. • The session was held following pop-up, conversation sessions, and door knocking. Nine people attended the community information session.
Email alerts	• Emails were sent on 30 August 2019 to 37 stakeholders who had previously registered their interest in being kept informed about the project. The email updated recipients of the EIS public exhibition, including details on how to make a submission. • Emails were sent to local schools, sporting groups, bike user groups, Chamber of Commerce, environment groups, community services group, and aged care facilities. • All key stakeholders identified in the Stakeholder Engagement Strategy were notified of the public exhibition.



ARTC

PROJECT UPDATE
AUGUST 2019

CABRAMATTA LOOP PROJECT

The Cabramatta Loop Project is one of a number of Australian Government initiatives to increase the capacity of Sydney's rail freight network. The Proponent, Australian Rail Track Corporation (ARTC) proposes to construct a passing loop between Cabramatta and Warwick Farm.

An Environmental Impact Statement (EIS) has been prepared, and is on exhibition inviting public comment until Thuraday 26 September 2019.

ABOUT THE PROJECT

In May 2018, the Australian Government announced its commitment to the Cabramatta Loop Project. The project aims to improve efficiency, flexibility and reliability for freight rail customers, and encourage freight modal shift from road to rail. The project is not associated with passenger train services, which are operated by Sydney Trains.

Key features of the project include:

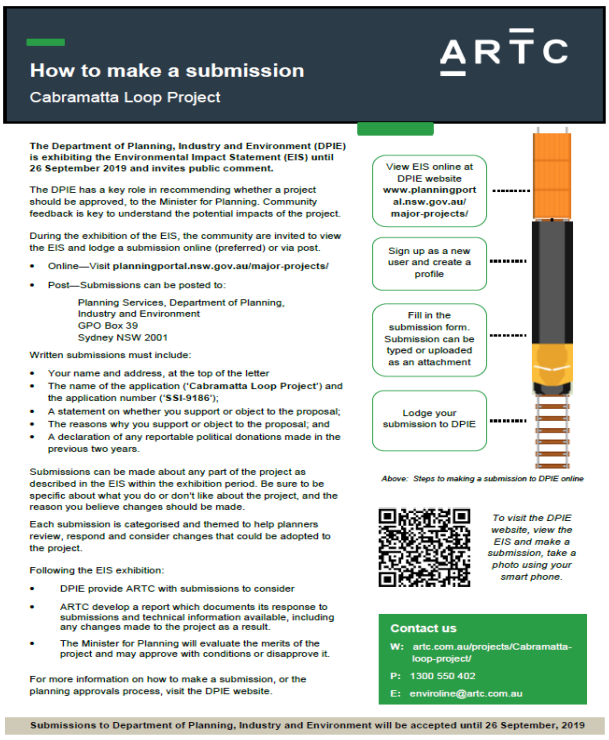
- **new rail track** – providing a 1.65 kilometre long section of new track adjacent to the existing track, with connections to the existing track at the northern and southern ends
- **track realignment** – moving about 550 metres of existing track sideways to make room for the new track
- **bridge works** – constructing two new bridge structures adjacent to the existing rail bridges over Sussex Street and Cabramatta Creek
- **road works** – reconfiguring Broomfield Street for a distance of about 680 metres between Sussex and Bridge streets.

ENVIRONMENTAL IMPACT STATEMENT

The project has been declared State significant infrastructure, and an EIS has been prepared. The EIS describes the key features of the project and assesses its potential environmental impacts during construction and operation, and proposed mitigation measures to manage these impacts. The EIS also documents consultation with the community and key stakeholders during preparation of the EIS.

Now complete, the EIS is on public exhibition until 26 September. Community members and other interested stakeholders are invited to view the document and make a submission to the NSW Department of Planning, Industry and Environment (DPIE).

Figure 3.3 Community notification



How to make a submission

Cabramatta Loop Project

ARTC

The Department of Planning, Industry and Environment (DPIE) is exhibiting the Environmental Impact Statement (EIS) until 26 September 2019 and invites public comment.

The DPIE has a key role in recommending whether a project should be approved, to the Minister for Planning. Community feedback is key to understand the potential impacts of the project.

During the exhibition of the EIS, the community are invited to view the EIS and lodge a submission online (preferred) or via post.

- Online—Visit **planningportal.nsw.gov.au/major-projects/**
- Post—Submissions can be posted to:

  Planning Services, Department of Planning, Industry and Environment
  GPO Box 39
  Sydney NSW 2001

Written submissions must include:

- Your name and address, at the top of the letter
- The name of the application ('**Cabramatta Loop Project**') and the application number ('**SSI-9186**');
- A statement on whether you support or object to the proposal;
- The reasons why you support or object to the proposal; and
- A declaration of any reportable political donations made in the previous two years.

Submissions can be made about any part of the project as described in the EIS within the exhibition period. Be sure to be specific about what you do or don't like about the project, and the reason you believe changes should be made.

Each submission is categorised and themed to help planners review, respond and consider changes that could be adopted to the project.

Following the EIS exhibition:

- DPIE provide ARTC with submissions to consider
- ARTC develop a report which documents its response to submissions and technical information available, including any changes made to the project as a result.
- The Minister for Planning will evaluate the merits of the project and may approve with conditions or disapprove it.

For more information on how to make a submission, or the planning approvals process, visit the DPIE website.

Above: Steps to making a submission to DPIE online

To visit the DPIE website, view the EIS and make a submission, take a photo using your smart phone.

Contact us

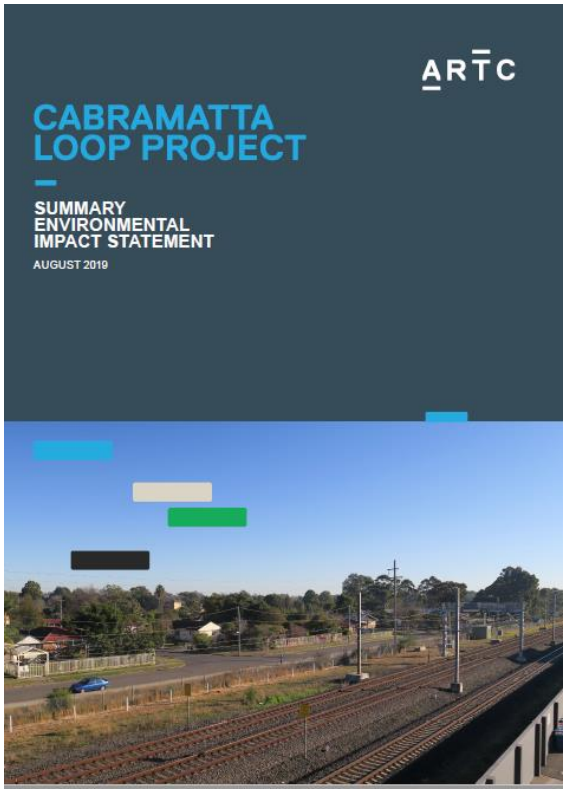
W: artc.com.au/projects/Cabramatta-loop-project/

P: 1300 550 402

E: enviroline@artc.com.au

Submissions to Department of Planning, Industry and Environment will be accepted until 26 September, 2019

Figure 3.4 How to make a submission flyer



ARTC

CABRAMATTA LOOP PROJECT

SUMMARY ENVIRONMENTAL IMPACT STATEMENT

AUGUST 2019

Figure 3.5 EIS summary front cover

3.3 Ongoing consultation activities

Consultation with the community and key stakeholders would continue in the lead up to and during construction.

The community contact mechanisms would continue to be available during construction, together with a 24-hour complaints management mechanism. Targeted consultation methods, including notifications, signage and face-to-face communication, would continue to occur. ARTC's project website would also include updates on the progress of the project. These consultation methods would be detailed in a community and stakeholder engagement plan which would be prepared prior to the commencement of main construction works and would detail the approach to communicate between ARTC and its Construction Contractor(s), and the community and government authorities.

A complaints management and handling procedure would also be implemented and would be defined within the construction environmental management plan (CEMP) that would be prepared by the Construction Contractor(s).

Further information regarding the consultation activities that would be implemented during future stages of the project, including the community and stakeholder engagement plan and complaints management and handling procedure, is provided in section 4.4 of the EIS.

4 OVERVIEW OF SUBMISSIONS

This section provides an overview of the submissions received, including a breakdown of the types of submitters, the number of submissions received, and the key issues raised in submissions.

4.1 Submissions received

During the exhibition period, submissions were invited from the community and other stakeholders. The receipt of submissions was coordinated and managed by the Department of Planning, Industry and Environment. Submissions were received and registered by the Department of Planning, Industry and Environment, and uploaded onto the Department of Planning, Industry and Environment's website. Submissions were accepted by electronic online submissions or post and were forwarded to ARTC for review and consideration.

A total of 17 submissions were received and registered by the Department of Planning, Industry and Environment. A breakdown of submissions by type of stakeholder is provided in Table 4.1.

Table 4.1 Breakdown of submissions received

Submitter type	Number of submissions received
Public submissions	
Community member/individual	7
Organisations and public authorities	
Organisations	3
Councils	2
State government departments/agencies	5
Total	**17**

4.2 Analysis of submissions

The analysis of submissions involved identifying the issues raised and coding the issues into key issues (eg construction noise) and sub-issue categories (eg noise from construction compounds), that were generally consistent with the categories assessed in the EIS.

The issues raised in the submissions were summarised and grouped according to the key issue and sub-issue categories, and responses to the issues raised are provided in Chapter 6 (Response to public authority submissions), Chapter 7 (Response to organisation submissions) and Chapter 8 (Responses to community submissions) according to these categories. Where relevant, input to the responses was sought from the specialists who assisted with preparation of the EIS.

4.2.1 Review of public authority and organisation submissions

Each public authority and organisation submission was reviewed in detail, and the issues raised were categorised according to the main issue categories identified (as described in section 4.2). Summaries of the key issues raised in each submission in relation to the project, and responses to the issues raised, are provided in Chapter 6 (Response to public authority submissions) and Chapter 7 (Response to organisation submissions) of this report.

Submissions have been received from the following public authorities:

- NSW Environmental Protection Authority
- Transport for NSW
- NSW Heritage Council
- Environment, Energy and Science Group
- Water and the Natural Resources Access Regulator
- Liverpool City Council
- Fairfield City Council.

Submissions have been received from the following organisations:

- NSW Ports
- Southern Districts Softball Association (SDSA)
- Restore Inner West Line.

4.2.2 Review of community submissions

Of the seven submissions received from the community, three submissions objected to the project, and four submissions provided comments on the project

A total of 11 key issue and 19 sub-issue categories were identified and coded during the community submission review process. These categories form the basis for the structure of issue specific responses to the issues raised, which is provided in Chapter 8 (Response to community submissions) of this report.

An assessment of each community submission received during exhibition of the EIS was undertaken, with each submission individually reviewed to understand the issues raised. All submissions received from community members were unique submissions, with no form letters received.

Each issue identified in Chapter 8 is presented as a summary of the issues raised by individual submissions. This means that, while the exact wording of a particular submission may not be presented in the summary of the issue, the intent of each individual issue raised has been captured. A response has been provided to each grouped issue summary.

Table A.1 in Appendix A identifies the key issues raised in community submissions, according to the order in which the submissions were presented on the major projects website, and a reference to where a response to the key issues is provided in Chapter 6.

A breakdown of the issues raised in community submissions is provided in Table 4.2 and in Figure 4.1. As most of the submissions raised more than one issue, the number of issues identified is greater than the total number of submissions received.

Table 4.2 Summary of key community issues raised

Key issue category	Sub-issue	Number of times issue was raised in community submissions
Project need and background	Need for the project	1
	Alternatives/options	3
	Consultation	2
Project features and design	Design key features	4
	Construction details	1
Traffic, transport and access	Operation impacts – parking	4
	Operation impacts – other	1
	Construction impacts – access	1
	Construction impacts – parking	1
Noise and vibration	Operation impacts (noise)	3
	Operation impacts (vibration)	2
	Construction	2
Air quality impacts	Operation impacts	2
Health and safety	Operation	3
Social	Construction impacts	1
Land use and property	Property values and compensation	1
Landscape and visual	Operation – urban design and landscape plan	1
Heritage	Impacts to heritage items	1
Water resources	Flooding and hydrology	1
Total		**35**

As shown in in Table 4.2 and Figure 4.1 the key issues raised were related to:

- noise and vibration, with operational noise being a key concern
- traffic, transport and access, with parking impacts during operation being a key concern
- project need and background, with alternatives/options to the project being a key issue raised.

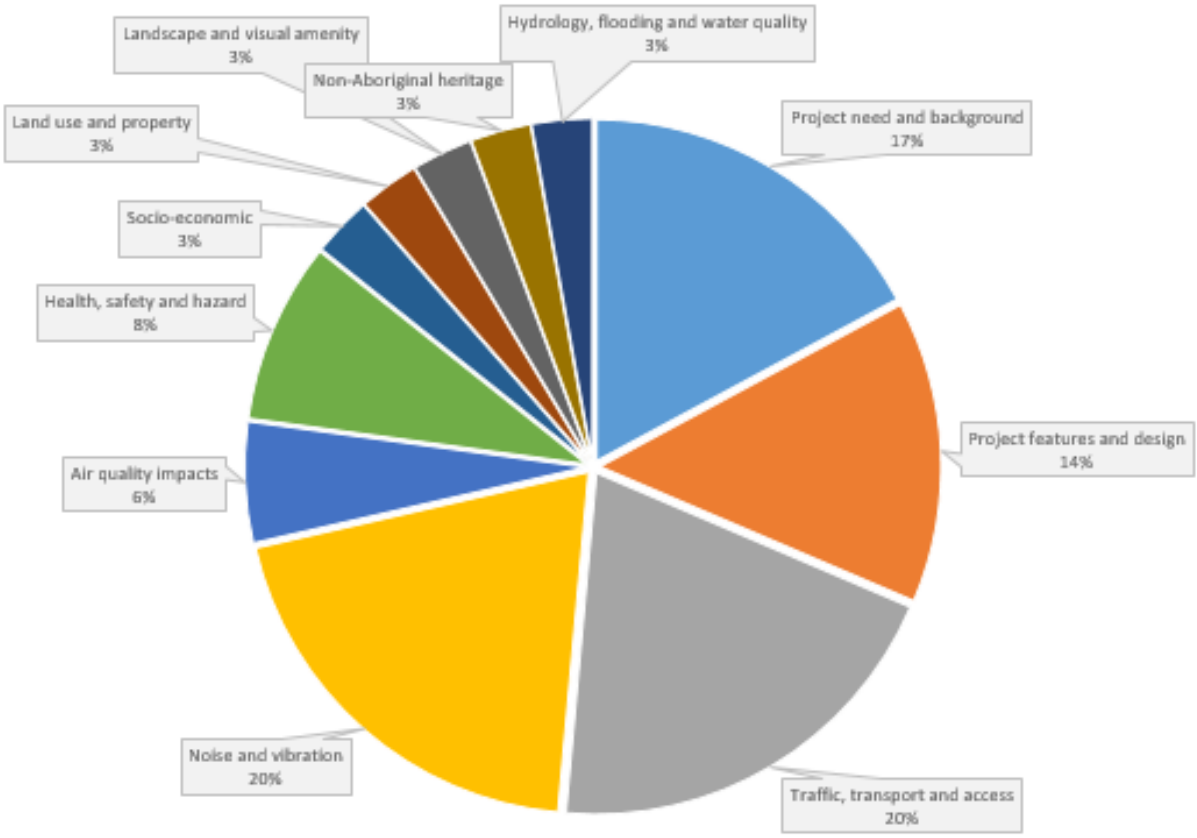


Figure 4.1 Breakdown of the key issues raised in community submissions

5 ENVIRONMENTAL IMPACT ASSESSMENT CLARIFICATIONS

This section clarifies some information presented in the EIS and provides project description clarifications to respond to issues raised in submissions and/or to minimise the potential environmental impacts of the project.

5.1 Overview

In response to submissions received, the design of the project has continued to develop, with a view to minimising environmental impacts and/or provide clarification in respect of impacts identified. The purpose of this section is to:

- clarify some of the information presented in the EIS, including information related to the potential impacts of the project
- provide additional environmental assessment to identify opportunities to minimise the potential impacts of the project.

This section provides EIS or project description clarifications and, where required, an associated environmental assessment in relation to the following project impacts and/or features:

- operational train brake noise (section 5.3)
- operational parking (section 5.4).

5.2 Clarifications regarding minor inconsistencies in the EIS

Since the EIS was placed on public exhibition, it has been identified that there were minor inconsistencies between the EIS and two technical reports, Technical Report 3- Air Quality Impact Assessment and Technical Report 7- Surface and Water and Groundwater Quality Impact Assessment. Further clarification on these inconsistencies is provided below.

It is also noted that the mitigation measures for the project identified in Table 21.7 of the EIS were developed based on the recommendations of each technical specialist and adjusted, where required, to provide consistency across the management of various environmental issues, and the language used in the EIS. As such, in the event of any inconsistency the mitigation measures presented in the EIS and section 9.2 of this report supersede those set out in the technical reports.

5.2.1 Air quality mitigation measure

Technical Report 3 - Air quality impact assessment presented the following operational mitigation measure in Table 7.1:

- The project would be managed in accordance with the Southern Sydney Freight Line Operational Air Quality Management Plan (ARTC, 2012).

However, in the EIS (Table 10.2 and Table 21.7) and in Table 9.3 of this report this mitigation measure, mitigation measure O2.1, was revised as follows:

- The project will be managed in accordance with ARTC's existing EPL (EPL #3142) and ARTC's standard operating procedures including those within the Environmental Management System.

ARTC's standard operating procedures, Environmental Management System (EMS) and EPL #3142 provide a structured framework for the consideration, evaluation, management, regulatory compliance and reporting of environmental issues associated with ARTC's activities, which includes the relevant requirements set out in the SSFL Operational Air Quality Management Plan. The benefit of implementing ARTC's EMS for the operation of the project is that it ensures a coordinated approach to environmental management across the

national and NSW freight network. This facilitates improved management of environmental risks and ensures that ARTC maintains compliance with the various environmental laws, statutes, regulations, policies, management plans, licenses and other approvals which apply to its activities. As identified in section 22.2 of the EIS, the operation of the project would be consistent with the existing operating line, and as such any environmental issues and impacts which occur during operation can be effectively managed under ARTC's EMS. Mitigation measure O2.1 as described in the EIS therefore reflects this approach, and has no impact on the outcome or recommendations of Technical Report 3- Air Quality Impact Assessment as operational air quality will continue to be managed in accordance with ARTC's standard operating procedures, EMS and EPL #3142).

5.2.2 Water quality monitoring

The discussion of water quality monitoring provided in section 7.2.1 of Technical Report 7 – Surface water and groundwater quality impact assessment is relevant to pre-construction and construction water quality monitoring, however, this text was incorrectly placed in the operation section of the report. As stated in section 13.5.1 of the EIS, a water quality monitoring program would be implemented prior to, and during construction to establish baseline conditions and monitor water quality outcomes during construction against the water quality objectives. The intent is that there will be approximately 12 months of baseline data available upon the commencement of construction (not prior to operation). This period is considered appropriate to establish baseline conditions for a project of this scale and type.

Once construction commences water quality monitoring would continue for the duration of the project. Mitigation measure C6.6 commits to developing a water quality monitoring program to monitor water quality on a monthly basis due to the proximity of construction activities to surface water receiving environments. The program will include relevant water quality objectives, parameters, and criteria and specific monitoring locations identified in consultation with DPI (Water) and the EPA.

5.3 Brake noise

Further clarification regarding the noise impacts associated with braking and/or brake squeal during operation of the project was requested through the submissions.

Noise impacts associated with operation of the project were assessed in Technical Report 2 – Noise and vibration impact assessment and summarised in Chapter 9 of the EIS. The assessment addresses the secretary's environmental assessment requirements (the SEARs) as issued by the Department of Planning, Industry and Environment, and has been undertaken in accordance with the *Rail Infrastructure Noise Guideline* (the RING) (EPA, 2013).

The operational noise and vibration assessment included assessing the increase in noise levels that would result from trains using the passing loop and SSFL between Cabramatta and Warwick Farm stations. It also took into consideration the increased volume of trains that would use the passing loop and SSFL between Cabramatta and Warwick Farm stations ten years after the passing loop is built.

A noise model was developed as part of the assessment to determine noise levels and potential impacts from the project. The model considered noise sources such as:

- train engine and rolling (interface between wheel and rail) noise during freight train operation
- stretching/bunching noise from wagon couplings as freight trains decelerate/brake into the passing loop and accelerate out of the loop
- engine idling noise at the loop entry and exit points.

As discussed in Appendix L of Technical Report 2, the following key documents, which outline the typical noise levels of particular events associated with train movements, were used to inform the model:

- *TfNSW Rail Noise Database* (TfNSW, 12 July 2019)
- *ARTC Noise Prediction and Mitigation Guideline* (ARTC, June 2018).

Brake noise consists of the noise generated by brake blocks scrubbing against the wheels running surface to create friction. Dynamic braking from locomotive engines can also produce noise. In some cases, brake blocks can produce high levels of brake noise with a tonal component which is often referred to as brake squeal. Brake squeal can be a source of discomfort to nearby sensitive receivers due to its elevated and tonal nature. Brake squeal noise is distinctly different from wheel squeal noise, which is associated with rail line curves with a radius less than 500 metres and is caused by the lateral sticking and slipping of the wheels across the top of the track. The design of the passing loop does not include curves with a radius of less than 500 metres, nor are any located in the direct vicinity of the project Therefore, wheel squeal is unlikely to occur as a result of the project.

Noise levels from brake noise source data are not provided in the documents noted above as brake squeal is somewhat unpredictable. This is because brake squeal has the potential to occur for some, but not all freight trains, to different degrees, and where and when it may occur is difficult to define. Additionally, the project has been designed so that the trains will approach and enter the passing loop at slow speeds, minimising the need for significant braking. This means that if brake squeal were to occur, it would likely be due to poor train maintenance rather than operation of the passing loop. Therefore, the RING recommends maintenance as the most appropriate control measure to minimise the potential for this impact. Given the lack of source data in the TfNSW database and ARTC guideline and the low likelihood for brake noise to be a significant issue due to the project, brake noise was not included in the noise model developed as part of the EIS assessment.

While brake noise levels are not available in the source data that was used to develop the noise model a literature review was undertaken as part of the preparation of this report to inform a qualitative assessment of brake noise. This literature review aimed to identify a maximum noise level from brake noise (L_{Amax}). No existing data on the L_{Aeq} impacts associated with brake noise was identified.

In a paper prepared by Schulten et al (2015, p. 10), a noise level of 90 dBA L_{Amax} at 15 metres was considered appropriate where brake squeal is known to be a problem. This equates to a source sound power level of 121 dBA L_{Amax} and is also consistent with brake squeal measurements undertaken as part of the *RAC Line-based Noise PRP Study Noise Source Working Paper* (Richard Hegie Associates Pty Ltd, 2000). As noted above, brake squeal is somewhat unpredictable, therefore at times noise levels may exceed 121 dBA $L_{Amax.}$ The RING defines L_{Amax} as the maximum noise level which is not to be exceeded for 95 per cent of rail pass-by events, as such based on the literature review undertaken, the level of 121 dBA L_{Amax} would be considered appropriate to represent the maximum noise level associated with brake squeal.

In the noise assessment undertaken for the project, as outlined in Appendix L of Technical Report 2 of the EIS, a noise level of 121 dBA L_{Amax} was used to represent the maximum noise level associated with operation of the project, including from stretching/bunching and idling noise. Given that the maximum noise level for brake squeal identified as part of the literature review was the same level, the assessment of L_{Amax} noise levels undertaken as part of the EIS is therefore considered representative of brake squeal impacts. The predicted noise results from these events are presented in Appendix L of Technical Report 2 which accompanied the EIS.

The RING specifies that mitigation may be considered where certain trigger levels are exceeded, these include where L_{Amax} levels are predicted to exceed 85 dBA and where there is a predicted increase of 3 dB or more due to the project. As per the results provided in Appendix L, which assumes a maximum sound power level of 121 dBA, the L_{Amax} rail noise trigger level of 85 dBA is exceeded at over 20 properties.

However, it is exceeded by more than 3 dB at only one three-storey property, 108-110 Broomfield Street, at the second floor only. Therefore, in accordance with mitigation measure O1.1, the affected receivers at 108-110 Broomfield Street will be consulted regarding potential noise mitigation. This may include a review of the existing internal acoustic properties of the building and identification of where improvements can be made to reduce internal noise levels.

As noted above, the RING also recommends maintenance as the most appropriate control measure to minimise the potential for brake squeal. An amendment to the *Protection of the Environment Operations Act 1997* (POEO) was passed on 5 July 2019 to include rolling stock operations as a scheduled activity under Schedule 1 of the Act. From May 2020, rolling stock operators on ARTC's Network in NSW will require an EPL issued by the EPA. This change will mean that rolling stock operators' environmental performance outcomes will be regulated by the EPA. This may include regulation of freight train maintenance schedules to reduce the potential for brake squeal and the provision of noise limits to better manage noise emission such as brake squeal.

5.4 Operational parking

In response to a number of submissions expressing concern regarding the permanent loss of parking spaces in Broomfield Street, ARTC has investigated and evaluated a number of car parking solutions to mitigate the potential permanent loss of parking. This section discusses the options that were considered and provides an environmental impact screening assessment of the selected parking option.

5.4.1 Description of EIS design

As described in section 6.2.4 of the EIS the project will replace the existing angled parking on the western side of Broomfield Street with kerbside parking. Figure 6.6 in the EIS presented the existing road configuration and an indicative design for the reconfiguration of Broomfield Street.

As a result of changing the angled kerb parking along the western side of Broomfield Street to parallel parking, completion of the project would result in a potential parking loss of up to 11 parking spaces proposed (refer to section 8.4.2 of the EIS).

The impacts associated with this loss of parking were assessed as part of the traffic, transport and access assessment undertaken for the EIS which was provided in Technical Report 1 - Traffic, transport and access impact assessment and summarised in Chapter 8 of the EIS. As indicated by the parking surveys undertaken to inform the traffic, transport and access assessment, Broomfield Street has the capacity to absorb the reduction in parking spaces, particularly between Sussex Street and Junction Street. This could result in an additional distance of up to 800 metres and up to 10 minutes for commuters walking to Cabramatta Station. However, this is still an acceptable walking distance to Cabramatta Station as defined by the *Planning Guidelines for Walking and Cycling* (DIPNR, 2004b) which outlines an acceptable walkable distance for commuters of 400 metres (desirable) to 800 metres (maximum) to public transport and other local amenities, or a cycling distance of 1.5 kilometres.

Although the traffic, transport and access assessment undertaken for the EIS identified that there was sufficient capacity in the existing road network to absorb this loss, it was evident through the submissions process that a reduction in available parking spaces in the local area is of concern to the community, and Council.

5.4.2 Description of permanent parking mitigation

ARTC has investigated and evaluated seven potential car parking solutions to mitigate the proposed loss of parking, including three solutions proposed by Fairfield City Council. These options are described in further detail below.

As a result of this options evaluation a replacement parking option was selected, which would seek to replace the parking permanently lost on Broomfield Street with additional parking on Railway Parade. The

delivery of this selected option has been committed to through a new mitigation measure, mitigation measure D11.1 (refer to section 9.2 of this report).

Options considered

The following options were identified and assessed:

- **Option 1 Railway Parade perpendicular parking** – This option involves the slimming of median kerbs located between the existing perpendicular parking on the eastern side of Railway Parade, between the Cabramatta Road West road overbridge and Mallee Street, and the replacement of four angled parking spaces located opposite the intersection with Boundary Lane with parallel parking spaces. This option would involve the removal of some landscaping and street signage on the medians proposed to be modified. The preliminary design of this option indicates there would be sufficient place to provide up to up to 13 additional parking spaces, which would be sufficient to replace the parking which would be lost in Broomfield Street following completion of construction of the project.
- **Option 2 Broomfield Street and Curtin Street angled parking** – This option involves the conversion of the existing verge opposite the intersection of Broomfield Street with Curtin Street into angled parking. This option would involve the removal of the landscaping within the verge and could provide up to 11 additional parking spaces which would be sufficient to replace the parking which would be lost in Broomfield Street following completion of construction of the project.
- **Option 3 Broomfield Street between Curtin and Longfield streets angled parking** – This option involves the construction of five new angled parking spaces on the western side of Broomfield Street, between Curtin Street and Longfield Street. This would be achieved by cutting into the existing verge behind the existing parallel parking and replacing two of the parallel parking spaces with five angled parking spaces.
- **Option 4 Bridge Street alignment and angled parking** – This option involves the reconfiguration of Bridge Street between Broomfield Street and Cumberland Street. The road would be widened to the south and the existing parallel parking on the northern side of the road would be replaced with angled parking. This would result in the removal of 18 parallel parking spaces on the northern side of the road and their replacement with 31 new angled parking spaces, resulting in the addition of 13 car spaces.
- **Option 5 Fisher Street carpark upgrade** – This option was identified by Fairfield City Council in their submission response as an opportunity that should be explored to mitigate parking losses created by the project, and involves the addition of another level or partial level to the existing multi-level Fisher Street carpark.
- **Option 6 Corner of Bridge and Broomfield streets**– This option was the second of three options identified by Fairfield City Council and involves the construction of an at-grade carpark on the south eastern corner of Broomfield Street and Bridge Street. This land is currently occupied by two residential properties that would need to be acquired to deliver this option.
- **Option 7 Boundary Lane** – This option was the third option identified by Fairfield City Council and involves the creation of additional parking spaces along Boundary Lane, between Broomfield Street and Cumberland Street through the modification of existing parallel parking to angled parking spaces. Due to the constrained width of the road corridor this option is not considered feasible due to the width requirements of the roadway and verge when angled parking is introduced.

The location of the above options are shown on Figure 5.1. All options are located within 400 metres of Cabramatta Station.

An evaluation was undertaken of each of these options based on the following criteria:

- Level of compliance to applicable standards
- Impact to existing utilities
- Impact to private and public property through encroachment of the works
- Environmental and social impacts
- Construction complexity and cost.

Table 5.1 lists the advantages and disadvantages associated with each option, which provided the basis for assessing the options against the evaluation criteria.

Figure 5.1 Location of replacement parking options

Table 5.1 Advantages and disadvantages of replacement parking options

Option	Advantages	Disadvantages
Option 1 Railway Parade perpendicular parking	• Involves utilising locations where there is existing space suitable for perpendicular parking. • Considered to be generally compliant with standards. • Retains existing overhead power poles and would not impact underground utilities therefore minimal impact to utilities. • No impacts to private property or the existing road and footpath width as the option utilises existing car parking space. • There would be no change to trafficability of the footpath or operation of the road. • The construction period disruption would be moderate and there would be minimal loss of access to the footpath and road during works. • Construction costs and complexity would be moderate.	• Six small to moderate sized trees and some landscaping would need to be removed from the median kerbs resulting in a minor reduction in visual amenity. • During construction there would be the temporary loss of a small number of parking spaces to facilitate construction of the new car spaces.
Option 2 Broomfield Street and Curtin Street angled parking	• Considered to be generally compliant with standards. • Impacts to properties considered low. • The construction period disruption would be minor.	• A number of aboveground and underground utilities would need to be protected or relocated due to the works, including a light pole, overhead power and a concrete sewer asset Therefore this option would result in high impacts to utilities. • Two large trees (between 6 metres to 10 metres height), bushes and landscaping would require removal, resulting in some loss of shade and visual amenity. • During construction there would be the temporary loss of parking spaces. • Construction costs and complexity would be moderately high, due mainly to the activities involved in the removal and relocation of utilities and the specialist report required.

Option	Advantages	Disadvantages
Option 3 Broomfield Street between Curtin and Longfield streets angled parking	• There are no overhead or underground utilities, therefore impacts on utilities would be low. • The construction period disruption would be minor as only three spaces would be replaced. • Cost and complexity would be low due the relatively small scale of works and lack of utilities.	• Only three parking spaces would be gained therefore this option could not mitigate the full loss of parking due to the project unless it was undertaken in conjunction with another option. • To meet relevant Australian Standards the kerb would encroach on the width of the cycleway, reducing it to a width less than that required by Fairfield City Council. However, this could be facilitated by the removal of removal or trimming of vegetation along the fence line and the local widening of the cycleway. • During construction there would be the temporary loss of parking spaces to facilitate construction of the new car spaces.
Option 4 Bridge Street alignment and angled parking	• This would result in sufficient space to replace parking lost in Broomfield Street.	• The width of kerb line to fence line on the south side of Bridge Street would be reduced to 1.51 metres which is not compliant with Fairfield City Councils requirement for a minimum verge width of 2.7 metres. • A number of overhead and underground utilities would need to be relocated on the southern side of Bridge Street including power poles which may need underground relocation, a sewer main and water service. This would result in high impacts to utilities. • Impact to properties would be moderate due to the shift in kerbs closer to properties. Future developments on the north side of Bridge Street may be restricted in the width of driveways, due to the relocation. • The space for pedestrian traffic on the southern side would be greatly reduced. • Five moderate to large sized trees would require removal, resulting in a loss of shade and reduction in visual amenity. • There would be a significant level of disruption to residences and road users during construction. • Cost and complexity of the works would be moderate due to the scale of works involved in modifying the entire length of Bridge Street.

Option	Advantages	Disadvantages
Option 5 Fisher Street carpark upgrade	• Would result in sufficient space to replace parking lost in Broomfield Street. • The impacts to existing utilities would be low. • No property acquisition would be required.	• Adding another car park level would likely make the building non-compliant with current height limitations under the Fairfield City Council's Local Environmental Plan 2013 (Fairfield LEP). Consultation with Council has indicated that proposed amendments to the height restrictions in the Fairfield LEP are currently in progress, although it is unclear when these changes will be in effect, and whether they align with the project construction timeframe. • Replacement parking would be provided at a non-equivalent option (ie not at grade street parking). • There may be visual impacts (due to overshadowing) as a result of the increased bulk and scale of the existing building, and local traffic and access impacts to adjacent properties due to increased traffic to Fisher Street during the construction and operation phase. • The works are likely to involve significant disruption during construction, as partial or full closures of the carpark may be required for extended periods to carry out the upgrade works. This would result in significant temporary loss of access to the existing carpark during the construction phase, which may result in overflow parking on local streets. • This option would have a very high level of cost and complexity due to the equipment and resources required to make alterations to an existing multi-level carpark.
Option 6 Corner of Bridge and Broomfield streets	• Would result in sufficient space to replace parking lost in Broomfield Street. • The impacts to existing utilities would be low.	• In accordance with the Fairfield LEP the construction of a carpark is a prohibited land use with the existing Medium Density Residential R3 Zone. • This would require the acquisition of two private properties and the displacement of the existing residential residents which would have significant negative social impacts. Additionally, the reduced redevelopment opportunity potential of these properties is considered a major opportunity cost given that the land is currently zoned for medium density residential. • Would result in increased traffic flow along Broomfield Street and Bridge Street which would result in impacts to neighbouring properties, including increased noise. • The removal of two moderately sized trees and a number of smaller bushes would be required. • The acquisition of two residential properties would constitute a significant cost in addition to the construction and demolition costs.

Option	Advantages	Disadvantages
Option 7 Boundary Lane	• No advantages as a compliant parking scheme delivering up to 11 spaces could not be delivered for this option.	• This option would be non-compliant due to width requirements of the roadway and verge when angled parking is introduced. • There would be a high impact to property due to the highly constrained road corridor requiring potential acquisition to deliver a compliant scheme. • Trafficability for pedestrians and residents would be reduced due to the large reduction in verge space and increased traffic volumes on an existing narrow roadway. • Cost and complexity of the works would be moderate due to the scale of works involved in modifying the entire length of the street while further construction complexity is introduced through the maintenance of access to properties. • As the option is not considered feasible it was not included in the options evaluation.

Selected option

The assessment concluded that Option 1 was the preferred option as when evaluated, it provided significantly more advantages and the least disadvantages compared to the other options, particularly in constructability, impact to utilities and social and environmental impacts . It also best meets the objectives of the assessment, which was to mitigate the loss of up to 11 parking spaces within proximity of Cabramatta Station with as minimal community and environmental impacts as possible. Option 1 also has the following key project and community benefits:

- complies with relevant standards
- minimises impact to utilities
- is within similar proximity of the impacted parking (400 metres of Cabramatta Station)
- requires a small amount of property from the existing road corridor, in an existing parking area separated from residential land uses
- minimal impacts on existing landscaping with the implementation of mitigation as noted in the landscape and visual impact assessment (refer to section 5.4.6 of this report)
- is relatively simple to construct due to minimal impacts on the road corridor and utilities and would result in minimal disruption during construction
- as environmental mitigation, could be undertaken prior to the main construction works (either as a standalone works or as part of the enabling works described in section 7.2.1 of the EIS), providing certainty to the community that the parking loss would be rectified prior to main construction activities and reducing the impact of the temporary parking loss during the main construction works on Broomfield Street.

The proposed configuration for this option is shown in Figure 5.2. The final design of this option would replace the exact number of parking spaces lost in Broomfield Street, resulting in no net loss of parking.

Representatives from ARTC met with representatives of Fairfield City Council on 13 December 2019 to discuss the investigation of replacement parking solutions undertaken in response to the submissions received on the EIS, including the options raised in Council's submission. Council expressed the following concerns with Option 1:

- The replacement of parallel parking with angled parking at the intersection with Boundary Lane would lead to increased potential for crashes between cars using this intersection when cars reverse out of the parking spaces.
- The removal of vegetation required by this option would further reduce visual amenity in an urban landscape which already has minimal vegetation.

Council also highlighted removal of vegetation, compliance with standards and visual amenity as their primary concerns with the other options presented.

With regards to safety concerns associated with reversing for Option 1, Australian Standard (AS) AS2890.5 (AS, 1993) considers parking spaces located with a T-junction opposite a high volume or high speed terminating road to be unsafe generally. Boundary Lane is not considered to be a high speed or high volume road, nor is it on a steep downward gradient towards Railway Parade, therefore this option is considered compliant with relevant standards. However, as committed to through mitigation measure D9.1 a hazard analysis will be undertaken to identify risks to public safety and Safety in Design principles would be adopted (along with other measures) as an integral component of the detailed design of the project, including construction of the preferred option. Where safety issues are apparent or remain unresolved, then additional

safety measures would be incorporated into the detailed design, as required, however are not expected to significantly change the option presented in this report.

The potential impacts associated the removal of vegetation associated with Option 1 have been considered as part of the landscape and visual impact assessment for the selected replacement parking option (refer to section 5.4.6 of this report). To mitigate these impacts a new mitigation measure, mitigation measure D6.4, has been added which requires the urban design and landscape plan to consider replacement trees and planting along Railway Parade within the vicinity of the location of the selected replacement parking option.

New mitigation measure D11.1 commits ARTC to further refining the selected replacement parking option during detailed design and providing the final design to Fairfield City Council. This will include incorporation of safety measures through the Safety in Design process, such as “rear to kerb” parking restrictions.

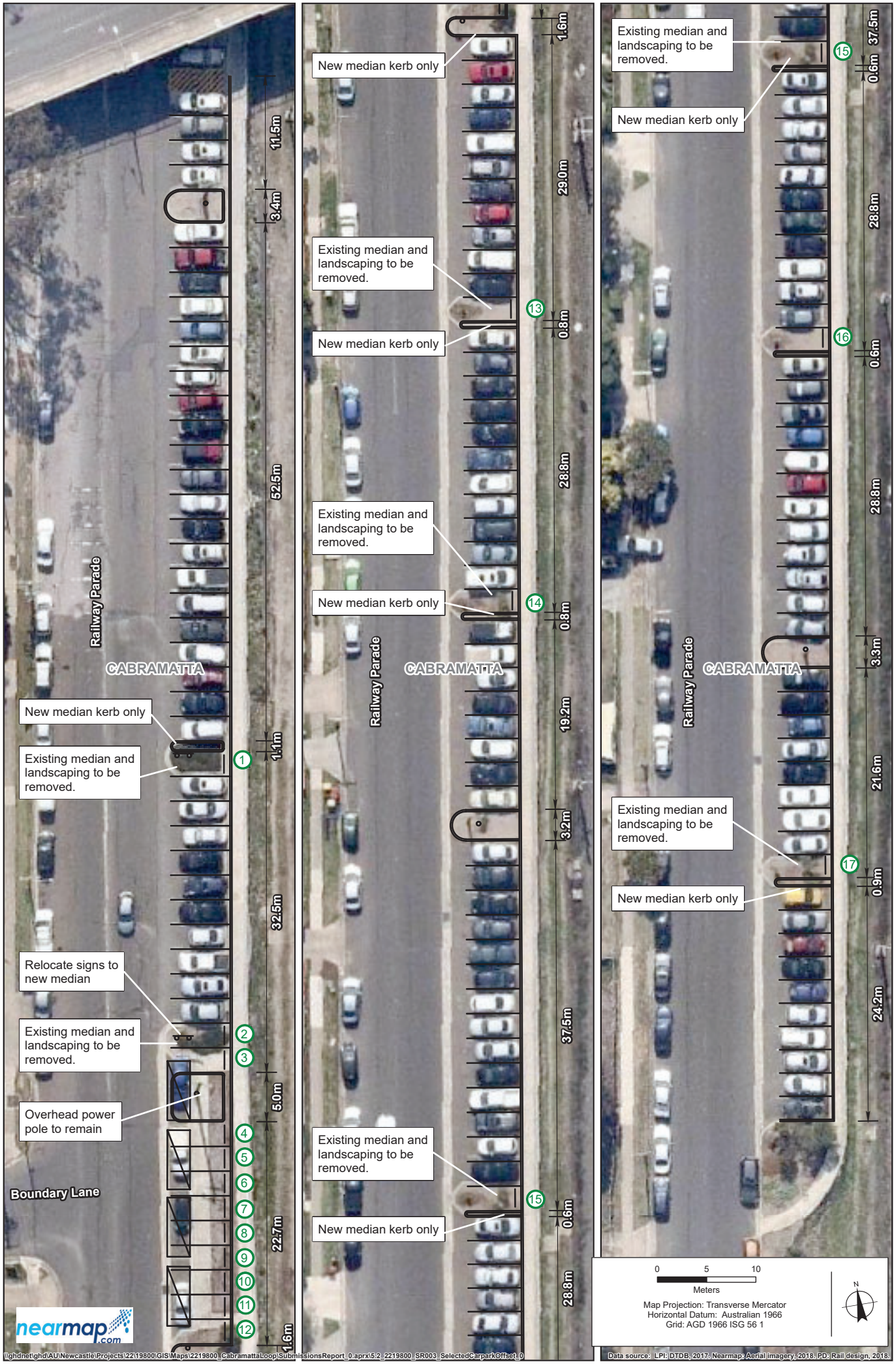


Figure 5.2 Selected replacement parking option

5.4.3 Consistency with EIS assessment

An environmental impact screening assessment was conducted for the proposed provision of parking on Railway Parade (Option 1). The screening assessment (Table 5.2) indicates where the assessment for the project in the EIS remains applicable to construction and operation of the selected parking option and where the need for additional assessment has been identified.

Table 5.2 considers changes to potential construction and operation impacts assessed in the EIS due to the construction of the selected parking option. Where additional environmental assessment was considered to be required the results of this assessment are provided in sections 5.4.4 to 5.4.6 of this report.

The screening assessment was undertaken based on construction and operation of the selected parking option being undertaken as discussed below.

Selected parking option description

An indicative construction methodology for construction of the selected parking option is as follows:

- site establishment which is expected to involve delivery of plant, equipment and materials, installing fencing around individual work zones, and installing site environmental management and traffic controls
- removing existing landscaping/vegetation and signage within impacted median kerbs (as shown on Figure 5.2)
- cutting the existing kerb and asphalt
- excavating and removing existing material to depth of 300 millimetres
- placing, rolling and compacting select fill
- installing kerb and gutter
- placing, rolling and compacting asphalt
- line marking and sign relocation
- demobilisation.

As noted in section 5.4.2 these works would either be undertaken as standalone works, prior to the enabling works described in the EIS (refer to section 7.2.1 of the EIS), or in conjunction with the enabling works.

The works would progress from north to south, with discrete work zones being established around each impacted area, ranging in length from 20 metres (where one new car parking space is proposed) to 50 metres (where multiple parking spaces are proposed – ie at the intersection with Boundary Lane). As works are being undertaken within each work zone the adjacent traffic lane and footpath would be closed, however two way traffic would be maintained around the work zone using traffic management.

The works would take a maximum of two weeks to complete and would be undertaken during recommended standard construction working hours as defined by the *Interim Construction Noise Guideline* (ICNG) (DECC, 2009), which are:

- Monday to Friday: 7.00 am to 6.00 pm
- Saturday: 8.00 am to 1.00 pm
- Sundays and public holidays: no work.

An indicative list of plant and equipment expected to be used during constructed is provided as follows:

- 10 tonne roller
- Asphalt machine

- tonne excavator including rock breaker or jack hammer
- dump truck
- concrete cutter
- concrete truck and pump
- water truck
- maximum of five light vehicles and five small trucks.

With the exception of the changes in parking configuration there would be no change to the operation of Railway Parade following completion of the construction works.

Environmental impact screening assessment

Table 5.2 indicates where the assessment for the project in the EIS remains applicable to construction and operation of the selected parking option and where the need for additional environmental assessment has been identified.

Table 5.2 Environmental impact screening assessment

Environmental aspect	Comparison of potential impacts of the selected parking option to the EIS assessment	Further assessment required?
Traffic, transport and access	The project site assessed in the EIS did not encompass works in Railway Parade. Therefore, there is the potential for traffic, transport and access impacts to occur during construction and operation of the selected parking option that were not previously assessed in the EIS.	Yes, refer to section 5.4.4.
Noise and vibration	As noted above, the project site assessed in the EIS did not encompass works in Railway Parade. Therefore, construction of the selected parking option has the potential to impact additional sensitive receivers to those identified in the EIS. There would be no noise and vibration impacts due to operation of additional parking spaces in Railway Parade.	Yes, refer to section 5.4.5
Air quality	While the project site assessed in the EIS did not encompass works in Railway Parade, construction of the selected parking option would involve minimal sub surface excavation and only a small amount of plant and equipment. Therefore, air quality impacts from construction dust and plant/vehicle emissions would be minimal. Additionally, the air quality assessment undertaken as part of the EIS considered construction works outside of the project site boundary (eg utility relocation and protection works) which are considered to be of a similar scale to the construction works associated with the selected parking option. Therefore, construction of the selected parking option would not result in any additional air quality impacts and any impacts from construction would be appropriately managed through implementation of the mitigation measures provided in section 9.2 of this report. There would be no air quality impacts due to operation or construction of additional parking spaces in Railway Parade.	No

Environmental aspect	Comparison of potential impacts of the selected parking option to the EIS assessment	Further assessment required?
Biodiversity	Construction of the selected parking option would involve the removal of up to six small trees (<3 metres height) and shrubs and grasses within landscaped areas in the median kerbs. While this vegetation is outside of the project site assessed as part of the EIS, the vegetation is ornamental only (ie. not part of a patch of native vegetation) and would provide limited biodiversity value. Therefore, construction and operation of the selected parking option would not result in any additional biodiversity impacts and any impacts would be appropriately managed through implementation of the mitigation measures provided in section 9.2 of this report.	No
Soils and contamination	Construction of the selected parking option would involve minimal sub-surface excavation in a disturbed environment and would be similar in nature (albeit of a much smaller scale) to the works undertaken in Broomfield Street. Therefore, construction of the selected parking option would not result in any additional soil and contamination impacts and any impacts from construction would be appropriately managed through implementation of the mitigation measures provided in section 9.2 of this report. There would be no soil and contamination impacts due to operation of additional parking spaces in Railway Parade.	No
Hydrology and flooding	Construction of the selected parking option would involve minimal sub-surface disturbance within Railway Parade and would be similar in nature (albeit of a much smaller scale) to the works undertaken in Broomfield Street. Therefore, construction of the selected parking option would not result in any additional hydrology and flooding impacts and any impacts from construction would be appropriately managed through implementation of the mitigation measures provided in section 9.2 of this report. Operation of the selected parking option would not result in any change in road levels or additional impermeable areas, therefore there would be no additional hydrology and flooding impacts.	No
Non-Aboriginal heritage	Given the proximity of heritage listed items identified in the EIS (refer to section 14.2 of the EIS) and the nature of the works proposed, construction of the selected parking option would not result in additional non-Aboriginal heritage items and any impacts from would be appropriately managed through implementation of the mitigation measures provided in section 9.2 of this report. There would be no non-Aboriginal heritage impacts due to operation of additional parking spaces in Railway Parade.	No
Aboriginal heritage	Construction of the selected parking option would involve minimal sub-surface disturbance in an existing disturbed environment. Therefore, construction of the selected parking option would not result in any additional Aboriginal heritage impacts and any impacts from would be appropriately managed through implementation of the mitigation measures provided in section 9.2 of this report. There would be no Aboriginal heritage impacts due to operation of additional parking spaces in Railway Parade.	No

Environmental aspect	Comparison of potential impacts of the selected parking option to the EIS assessment	Further assessment required?
Land use and property	No permanent or temporary acquisition or lease of property would be required for construction and operation of the selected parking option. Additionally, there would be no change in land use from the existing road corridor use. Therefore, construction and operation of the selected parking option would not result in any additional land and property impacts and any impacts would be appropriately managed through implementation of the mitigation measures provided in section 9.2 of this report.	No
Landscape and visual amenity	The removal of small trees and vegetation within landscaped areas within the median kerbs which would have the potential to result in additional landscape and visual amenity impacts.	Yes, refer to section 5.4.6
Socio-economic impacts	Access and connectivity impacts related to the availability of parking would be reduced as a result of construction of the selected parking option. With the exception of access and connectivity during operation, construction and operation of the selected parking option would not result in any changes to the socio-economic impacts assessed in the EIS and any impacts from would be appropriately managed through implementation of the mitigation measures provided in section 9.2 of this report.	No
Waste	Construction of the selected parking option would involve minimal sub-surface disturbance and vegetation removal within Railway Parade and would be similar in nature (albeit of a much smaller scale) to the works undertaken in Broomfield Street. Therefore, construction of the selected parking option would not result in any additional waste management impacts and any impacts would be appropriately managed through implementation of the mitigation measures provided in section 9.2 of this report. There would be no waste management impacts due to operation of additional parking spaces in Railway Parade.	No
Health, safety and hazards	Construction of the selected parking option would be similar in nature (albeit of a much smaller scale) to the works undertaken in Broomfield Street. Minimal and short term diversions of pedestrians would be required, no utilities would be impacted and work zones would be established around the work areas with fencing and appropriate traffic control. Therefore, construction and operation of the selected parking option would not result in any additional health, safety and hazard impacts and any impacts would be appropriately managed through implementation of the mitigation measures provided in section 9.2 of this report. Impacts associated with potential safety issues due to the change in parking from parallel to angled at the intersection with Boundary Lane have been considered as part of the traffic, transport and access assessment provided in section 5.4.4 of this report.	No
Climate change and greenhouse gas	Due to the limited amount of vehicles and plant and equipment that would be used for construction of the selected parking option there would be no additional greenhouse gas impacts during construction and any impacts would be appropriately managed through implementation of the mitigation measures provided in section 9.2 of this report. There would be no climate change or greenhouse gas impacts due to operation of additional parking spaces in Railway Parade.	No

Environmental aspect	Comparison of potential impacts of the selected parking option to the EIS assessment	Further assessment required?
Cumulative impacts	Potential cumulative impacts during construction of the selected parking option would not differ substantially from those assessed in the EIS. There is the potential for cumulative noise impacts if the works are undertaken concurrently with the enabling works, however these have been considered as part of the noise and vibration impact assessment provided in section 5.4.5 of this report. There would be no cumulative impacts due to operation of additional parking spaces in Railway Parade.	No

5.4.4 Traffic, transport and access impact assessment

Overview

The EIS (Chapter 8) and the accompanying Technical Report 1 – Traffic, transport and access impact assessment provided a construction and operational traffic, transport assessment for the project. This assessment has been updated for the selected parking option, as described in section 5.4.2 and section 5.4.3 of this report.

The existing environment and methodology used to undertake this updated assessment is consistent with that described in Technical Report 1 (of the EIS), as are all other assumptions and inputs, except where specifically stated.

Impact assessment

The traffic, transport and access impacts associated with construction of the selected parking option are described in Table 5.3.

Table 5.3 Construction traffic, transport and access impacts

Issue	Discussion of impact
Construction traffic and road network performance	Given the limited amount of construction vehicles that would be required and the fact the works would be undertaken either as standalone works or within the enabling works the construction traffic numbers would be within the total construction traffic volumes assessed as part of the EIS. Therefore, there would be no change to road network performance from that assessed in the EIS.
Vehicular traffic	Construction would involve the closure of the southern bound lane on Railway Parade while works are being undertaken. However, as described in section 5.4.3 of this report, the works would be staged so that only a maximum length of 50 metres of the road would be impacted at any one time and bi-directional traffic would maintained through the use of ‘stop and go’ traffic control. There would be a minor delay (estimated between 1 and 2 minutes) to vehicles on Railway Parade and for residents that access property driveways for the duration of works. Overall the impact is considered minor, particularly given the short duration of the works (maximum of two weeks). Any impacts would be mitigated through the implementation of mitigation measures provided in section 9.2 of this report.

Issue	Discussion of impact
Pedestrians and cyclist access	Pedestrians would not be able to use the footpath on the eastern side of Railway Parade as works are being undertaken within each work zone. Minor diversions would be required around the work zones to the opposite side of the road and temporary crossings may be provided to ensure pedestrian access through the area is maintained. This would result in a minor delay to pedestrians, however overall the impact is considered minor, particularly given the short duration of the works (maximum of two weeks). Any impacts would be mitigated through the implementation of mitigation measures provided in section 9.2 of this report. The footpath is not a shared path, therefore cyclists would need to follow stop and go traffic control in accordance with other road traffic, and impacts would be as per those discussed above.
Parking	There would be a temporary loss of parking on the eastern side of Railway Parade as construction is being undertaken. However, as the works would be staged loss of parking would only range from 4- 5 spaces (where the work zones involve the establishment of individual parking spaces) to 12 spaces (opposite the intersection with Boundary Lane) at any one time. It is considered likely that this loss could be absorbed by available parking within surrounding streets (ie Church Street or spare capacity on Broomfield Street). Overall this impact is considered minimal given the small scale of the works and the temporary nature of the impact (maximum two weeks). Any impacts would be mitigated through the implementation of mitigation measures provided in section 9.2 of this report.
Access	With the exception of minor delays to residents accessing property driveways as noted above, there would be no impacts to property access as the works would be confined to the eastern side of Railway Parade which is bordered by the rail corridor.
Public transport	No bus routes use Railway Parade where the works are proposed therefore there would be no impacts to public transport due to construction of the selected parking option.
Emergency vehicles	As noted above, there is the potential for minor delays to emergency vehicles travelling along Railway Parade during the proposed works due to the ‘stop and go’ traffic control arrangements. However, these impacts would be short term only and would be mitigated through implementation of mitigation measures provided in section 9.2 of this report.

The traffic, transport and access impacts associated with operation of the selected parking option are described in Table 5.4.

Table 5.4 Operation traffic, transport and access impacts

Issue	Discussion of impact
Traffic and access impacts	There would be no changes to the existing road network (including pedestrian and cyclist networks) or access arrangements to public transport or emergency vehicles as a result of the additional parking spaces on Railway Parade. Any increases in traffic associated with the additional spaces on Railway Parade would reflect normal fluctuations in daily traffic movements and road intersections reviewed within the study area are anticipated to remain at their current level of operation following the completion of the works. Vehicle, cyclist and pedestrian access along Railway Parade, including the eastern footpath, would be as per the existing situation.
Parking	The assessment undertaken as part of the EIS identified that there would be sufficient capacity to absorb the loss of up to 11 spaces in Broomfield Street due to the project. However, establishment of the selected parking option would provide additional parking within 400 metres of Cabramatta Station and result in no net loss of parking, providing a benefit to parking users.
Road safety	Perpendicular parking provided at the intersection of Railway Parade and Boundary Lane may increase the risk for crashes between reversing vehicles from the proposed spaces and through travelling vehicles on Railway Parade due to the reduced visibility associated with the egress of front to kerb parking. It is recommended that “rear to kerb” parking restriction be implemented at the proposed angled parking location of the intersection of Railway Parade and Boundary Lane, to improve visibility for drivers within proximity of the intersection. Consideration should be given to “rear to kerb” parking restrictions along the Railway Parade corridor, to apply a consistent approach, thereby minimising vehicles parking front to kerb in the area opposite the Broomfield Lane and Railway Parade intersection. New mitigation measure D11.1 regarding the selected parking option includes the requirement to consider safety measures as part of the Safety in Design option such as “rear to kerb” parking restrictions.

Revised mitigation measures

As noted above and in section 5.4.2 a new mitigation measure, mitigation measure D11.1 (refer to section 9.2), has been added regarding the selected parking option on Railway Parade. This measure includes the requirement to consider safety measures such as “rear to kerb” parking restrictions, to mitigate the potential for safety impacts associated with cars reversing from parking spaces opposite the intersection with Boundary Lane.

All other impacts identified as part of the traffic, transport and access impact assessment undertaken for the selected parking option would be adequately mitigated through implementation of the existing mitigation measures provided in section 9.2 of this report.

5.4.5 Construction noise and vibration impact assessment

Overview

The EIS (Chapter 9) and the accompanying Technical Report 2 – Noise and vibration impact assessment provided a construction and operational noise and vibration assessment for the project. The construction noise and vibration assessment has been updated for the selected parking option, as described in section 5.4.2 and section 5.4.3 of this report, including the proposed plant and equipment, working hours and duration.

Construction noise modelling was undertaken to determine the potential for additional noise impacts due to construction of the selected parking option on Railway Parade.

The existing environment, including noise catchment areas (NCAs), and methodology used to undertake this updated construction assessment is consistent with that described in Technical Report 2 (of the EIS), as are all other assumptions and inputs, except where specifically stated.

The following construction scenarios were modelled:

- Standalone scenario – construction of the selected parking option is undertaken as a standalone package of works prior to the works described in Chapter 7 of the EIS.
- Cumulative scenario – construction of the selected parking option is undertaken in conjunction with the enabling works, which was defined as construction noise modelling scenario CS02 in the noise and vibration impact assessment undertaken to inform the EIS.

There would be no changes to the operational noise and vibration impacts assessed as part of EIS due to operation of the selected parking option as there would be no change to the operation of Railway Parade. Therefore, this revised assessment addresses construction noise impacts only.

Impact assessment

Predicted noise levels for standalone scenario

Predicted noise levels from both the standalone construction scenario and the cumulative construction scenario were assessed by considering the number of expected exceedances and the maximum (highest) exceedance of the noise management levels.

The number of receivers inside the construction study area that are predicted to experience noise levels above the construction noise management levels if the selected parking option is undertaken as a standalone package of works are 1,216. Exceedances of the construction noise management levels are typical for construction projects of this type. The highly noise affected level of 75 dBA is expected to be exceeded at only 14 residential receivers. The highest construction noise impacts are expected during operation of the excavator with hammer attachment (or jack hammer), concrete saw and asphalt machine. Despite the number of impacted receivers identified, the overall impact of the works is considered minor as operation of this equipment would be for short durations only (one to two hours maximum) during standard construction hours and the overall program of works would be two weeks maximum.

The number of receivers inside the construction study area predicted to experience noise levels above the construction noise management levels, due to construction of the selected parking option as a standalone scenario, are described in Table 5.5 and shown in Figure 5.3. The predicted noise management levels due to construction of the selected parking option as a standalone scenario are shown in Figure 5.4.

Table 5.5 Total exceedances for the standalone scenario

NCA	Construction noise management level (NML), dBA	Number of exceedances above NML	Number of exceedances above the highest noise affected level (HNAL)	Highest exceedance above the NML, dBA
NCA01	48	677	22	40
NCA02	48	538	12	31
NCA03	47	1	-	1
NCA04	47	0	-	-

A summary of the noise impacts within each NCA is provided as follows:

- **NCA01** – Receivers located in NCA01 are expected to be impacted the most based on the total number of exceedances of the noise management level. This can be attributed to the high density of receivers located near the construction works. The majority of NML exceedances during this stage of construction would be between 1.0 and 5.0 dBA and between 6.0 and 10 dBA which represents a minor impact. Receivers located closer to the works would experience moderate to high impacts above 10 dBA.
- **NCA02** - The majority of noise management level exceedances in NCA02 during this stage of construction would be between 1.0 and 5.0 dBA and between 6.0 and 10 dBA which represents a minor impact. Receivers located closer to the works would experience moderate to high impacts above 10 dBA.
- **NCA03 and NCA04** - Construction impacts on residential receivers located in NCA03 and NCA04 are expected to be minor. These receivers are located over 900 m to the south of the construction work area. A single exceedance of up to 1 dBA is expected in these noise catchment areas. No other exceedances of the noise management levels are predicted in these areas.

Figure 5.3 Noise impacted receivers for standalone scenario

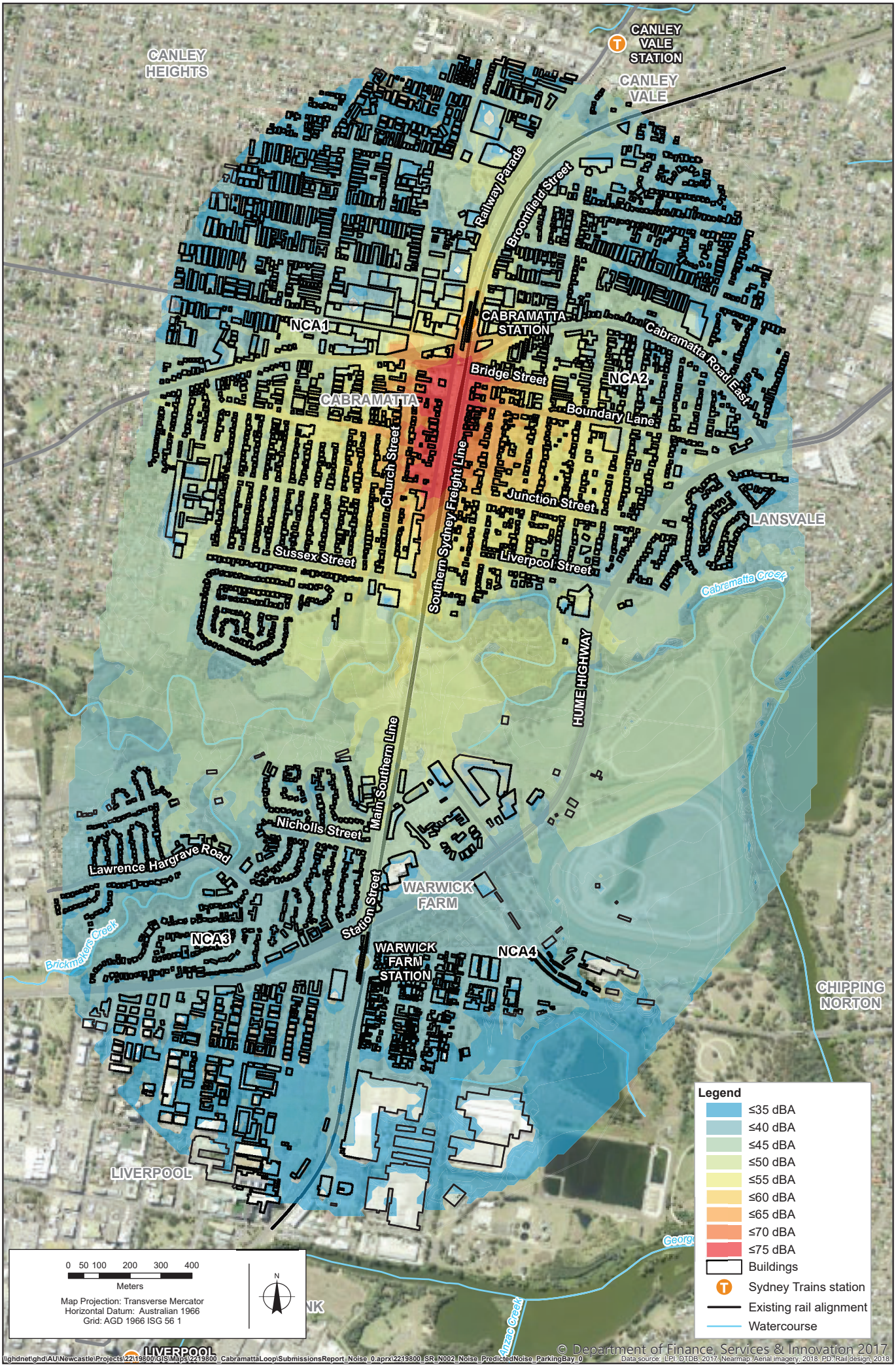


Figure 5.4 Predicted construction noise levels – replacement parking construction

Predicted noise levels for cumulative scenario

The number of receivers inside the construction study area that are predicted to experience noise levels above the construction noise management levels if the selected parking option is undertaken in conjunction with the enabling works are 1,604. The highly noise affected level of 75 dBA is expected to be exceeded at 50 residential receivers. The construction noise and vibration assessment undertaken for the EIS indicated that up to 1,129 residential receivers would experience noise levels above the construction noise management level with the highly noise affected level being exceeded at 12 receivers. Therefore, there would be an additional 475 receivers impacted if the selected parking option was constructed at the same time as the enabling works.

The highest construction noise impacts are expected during the enabling works and selected parking construction would again be due to operation of the excavator with hammer attachment (or jack hammer), concrete saw and asphalt machine. Cumulative noise impacts would only be expected for short durations only (one to two hours maximum) during standard construction hours, and the overlapping program of works would be two weeks maximum, therefore the overall impact is considered minor.

The number of receivers inside the construction study area predicted to experience noise levels above the construction noise management level due to construction of the selected parking option with the enabling works are described in Table 5.6. Figure 5.5 shows the receivers that would be impacted by noise (ie experience exceedances above the construction noise management levels), differentiating between receivers that would be impacted due to the enabling works only and impacted due to the cumulative scenario, including those impacted receivers that are additional to those previously impacted for just the enabling works in the EIS. The predicted noise management levels due to construction of the selected parking option with the enabling works are shown in Figure 5.6.

Table 5.6 Total exceedances for the cumulative scenario

NCA	Construction noise management level (NML), dBA	Number of exceedances above NML	Number of exceedances above the highest noise affected level (HNAL)	Highest exceedance above the NML, dBA
NCA01	48	714	22	40
NCA02	48	550	12	31
NCA03	47	270	16	32
NCA04	47	70	0	16

Figure 5.5 Noise impacted receivers for cumulative scenario

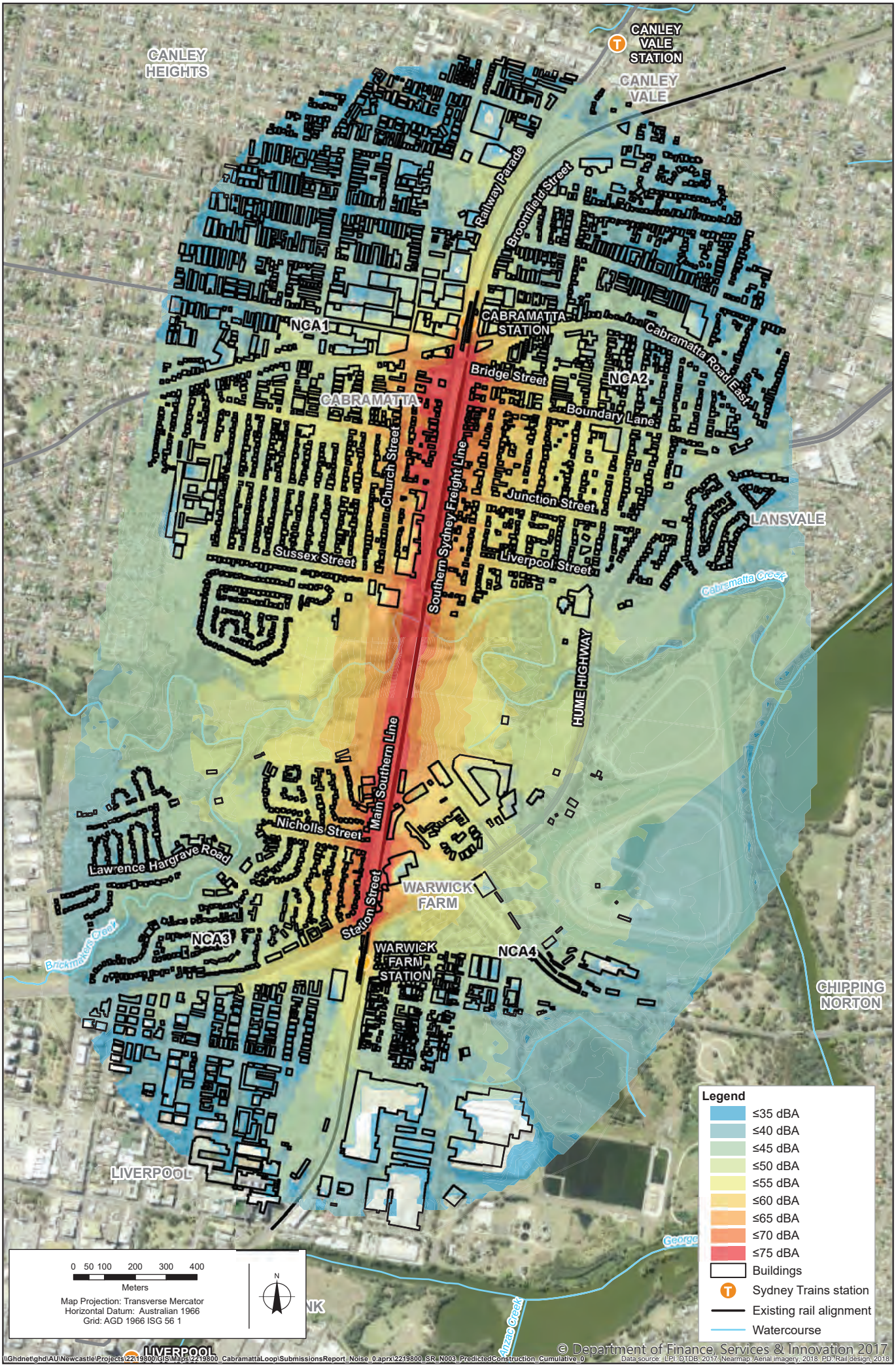


Figure 5.6 Predicted construction noise levels – cumulative scenario

A summary of the noise impacts within each NCA for the cumulative scenario is provided as follows:

- **NCA01** – Receivers located in NCA01 are expected to be impacted the most based on the total number of exceedances of the noise management level. This can be attributed to the high density of receivers located near the construction works. The majority of NML exceedances during this stage of construction would be between 1.0 and 5.0 dBA and between 6.0 and 10 dBA which represents a minor impact. Receivers located closer to the works would experience moderate to high impacts above 10 dBA.
- **NCA02** – The majority of noise management level exceedances in NCA02 during this stage of construction would be between 1.0 and 5.0 dBA and between 6.0 and 10 dBA which represents a minor impact. Receivers located closer to the works would experience moderate to high impacts above 10 dBA.
- **NCA03 and NCA04** – Cumulative impacts are expected to be minor as the impacts in these noise catchment areas are due to construction activities associated with enabling works. The majority of noise management level exceedances would be between 1.0 and 5.0 dBA and between 6.0 and 10 dBA which represents a minor impact. Receivers located closer to the works would experience moderate to high impacts above 10 dBA.

Construction vibration impacts

Receivers located along Railway Parade are set back by around 15 to 25 m from the construction work area. This would be inside the vibration safe working buffer distance if a 15 tonne vibratory roller is used. However, given use of a 5 -10 tonne roller is proposed for the selected parking option construction works, as described in section 5.4.3 of this report, no additional construction vibration impacts would be anticipated.

Construction traffic impacts

Construction of the selected parking option would generate a small number of heavy vehicle movements through the transport of machinery, fuel, general provisions and materials. A small number of vehicle movements may also be required for the transport of material off-site.

Construction traffic impacts are assessed by determining whether the potential noise level increases would be perceptible when compared to existing traffic.

Based on the existing high traffic volumes within the study area construction traffic along arterial and sub-arterial roads near the project site would need to cause a 60 per cent increase in existing traffic volumes to increase existing traffic noise levels by more than 2 dBA. Given the small number of construction traffic movements that would be generated during construction of the parking spaces, construction traffic noise impacts are not anticipated.

Revised mitigation measures

Although some additional receivers would be impacted due to construction of the selected parking option, the overall impacts are consistent with those identified as part of the noise and vibration impact assessment undertaken as part of the EIS. Therefore, all impacts identified as part of the construction noise and vibration impact assessment undertaken for the selected parking option would be adequately mitigated through implementation of the existing mitigation measures provided in section 9.2 of this report.

5.4.6 Landscape and visual impact assessment

Overview

The EIS (Chapter 17) and the accompanying Technical Report 10 – Landscape and visual impact assessment provided an assessment of landscape and visual amenity impacts that would occur during construction and operation of the project. This assessment has been updated for the selected parking option, as described in section 5.4.2 and section 5.4.3 of this report.

The existing environment and methodology used to undertake this updated assessment is consistent with that described in Technical Report 10 (of the EIS), as are all other assumptions and inputs, except where specifically stated.

Five Landscape Character Zones (LCZs) were identified in the study area described in the EIS. The selected parking option would be located within LCZ2 – Residential. With reference to the area directly surrounding the proposed parking works LCZ2 consists of residential properties on the western side of the street, consisting of a mix single story detached houses and multi-story brick apartments. The nature strip on the west side of the street is grassed with overhead power lines and only a couple of street trees for the entire length of Railway Parade. The eastern side of the street consists of perpendicular and parallel parking with small trees and overhead power lines in median kerbs.

With reference to the area directly surrounding the proposed parking works, Viewpoint 1 from the assessment undertaken as part of the EIS was considered a representative viewpoint for sensitive receivers. In addition, new viewpoint, Viewpoint 6, was identified as representative for sensitive receivers in the study area. These viewpoints are described as follows:

- Viewpoint 1 – Cabramatta Road East (looks south from Cabramatta Road East overbridge). This view is representative of views from pedestrians, cyclists and road users using the Cabramatta Road East overpass.
- Viewpoint 6 – Located within LCZ2 between Boundary Lane and Mallee Street and representative of views from residents along Railway Parade and pedestrians on the western side of the street.

Impact assessment

Landscape impacts

The predicted impacts to LCZ2 during construction and operation are assessed in Table 5.7.

Table 5.7 LCZ2 - Residential - description and impact assessment

Landscape character zone 2	
Anticipated change to LCZ	During construction, the reconfiguration of Railway Parade's parking would affect traffic and pedestrian access and use of the street. The existing trees and landscaping within the median kerbs would be removed and there would be a partial closure of the street during the works period. Machinery, site fencing, and increased activity from vehicles would be present during the construction period. During operation, changes to LCZ2 would occur along Railway Parade to the west of SSFL. The car parking along the eastern side of the street would be reconfigured, with the parallel parking replaced with perpendicular parking and the size of the median kerbs reduced to accommodate extra perpendicular car parks. The small trees and landscaping within the median kerbs would be removed.
Sensitivity to change	The sensitivity of the landscape represented by LCZ2 is considered to be **low**. This is due to the landscape character elements being in average condition and a development of this type would be unlikely to have an adverse effect on the landscape character that could not be mitigated.
Magnitude of change	During construction the magnitude of change is considered to be **moderate**. This is due to there being discernible change in the landscape character due to the removal of existing vegetation and the partial closure of Railway Parade during the selected parking option construction works. During operation the magnitude of change is considered to be **moderate**. This is due to there being discernible change in the landscape character due to the removal of existing vegetation.

Landscape character zone 2	
Significance of impact	During construction the significance of impact for LCZ2 is therefore **moderate to low** due to the removal of vegetation and partial closure of the street. This is consistent with the assessment undertaken as part of the EIS. During operation, the significance of impact would be **moderate to low** due to the works resulting in the removal of vegetation within the street. The significance of impact in this LCZ was **low** for the assessment undertaken as part of the EIS, due to the addition of the catenary climbers. Therefore, to mitigate the impacts to LCZ2 due to the removal of vegetation, opportunities for replacement trees and planting along Railway Parade should be explored.

Visual impacts

The predicted impacts to VP1 during construction and operation of the selected parking option are assessed in Table 5.8.

Table 5.8 VP1 description and visual assessment

Viewpoint location 1 (VP1)	
 **Photograph of existing view south along the SSFL**	
Description of viewpoint	This viewpoint represents views of the rail corridor looking south, with the adjacent residential neighbourhoods visible on either side of the corridor. The three-track rail corridor is bordered by noise walls on the eastern side and by a narrow grassed verge, rail fence and commuter car parking on the western side. Two local roads separate the rail corridor from the surrounding residential areas. The adjacent low to medium density residential areas are characterised by detached one to two storey houses and brick apartment blocks with established trees and a relatively flat topography. The long distances views towards Cabramatta Creek and densely vegetated ridgeline beyond are largely uninterrupted by built form and provide a green backdrop to the area
Anticipated change to view	During construction, the view would be of the construction works associated with the removal of median kerbs including landscaping along Railway Parade. There would be construction machinery and fencing around the work zones. During operation the view would be of angled parking where previously there was parallel parking, and some landscaping and vegetation would be removed within the median kerbs.
Sensitivity to change	The sensitivity of receivers represented by VP1 is considered to be **low**. This is due to the type of sensitive receivers and their experience of this view, which includes pedestrians, cyclists and road users along Cabramatta Road.

Viewpoint location 1 (VP1)	
Magnitude of change	During construction and operation the magnitude of change to VP1 is considered to be **low** as the removal of vegetation within some of the median kerbs would be visible but not uncharacteristic within the existing view.
Significance of impact	During construction and operation the significance of impact for VP1 is therefore **low** due to the loss of vegetation along Railway Parade in the existing view where the SSFL rail corridor is the key feature.

The predicted impacts to VP6 during construction and operation of the selected parking option are assessed in Table 5.9.

Table 5.9 VP6 description and visual assessment

Viewpoint location 6 (VP)	
 **Photograph of existing view north along Railway Parade**	
View description	This viewpoint represents views of the western side of the rail corridor looking north, from Railway Parade directly adjacent to the Sydney Trains line. The existing car parking along both sides of the street dominates the view, with the existing noise wall on the eastern side of the rail corridor and Cabramatta Road bridge providing a backdrop to the immediate streetscape. The established vegetation and residential properties along Broomfield Street are visible in the background. The western side of Railway Parade consists of a small street tree under overhead power lines within the narrow grassed verge, concrete footpath and residential property fences. The established vegetation within the residential properties provides a dense green edge to the view. The small trees planted in the median kerbs between the car parks on the eastern side of the street are a minor element in this view, as shown in the photograph above.
Anticipated change to view	During construction, the view would be of the construction works associated with the removal of median kerbs including the landscaping along the eastern side of Railway Parade. There would be construction machinery and fencing around the work zones. During operation the view would be of angled parking where previously there was parallel parking, and some landscaping and vegetation would be removed.

Viewpoint location 6 (VP)	
Sensitivity to change	The sensitivity of receivers represented by VP6 is considered to be **high**. This is due to the type of sensitive receivers and their experience of this view, which includes residents of adjacent properties and pedestrians (who would have a moderate sensitivity) along Railway Parade. Both types of visual receiver would be in close proximity to the selected parking option.
Magnitude of change	During construction, the magnitude of change is considered to the **moderate**. This is due to proposed construction works with machinery, construction fencing and the removal of vegetation being out of scale with the existing view, which currently consists of a residential street with the built form elements consisting of residential properties. During operation, the magnitude of change to VP6 is considered to be **low**. This is due to the reconfigured car parking not being out of scale with the existing view.
Significance of impact	During construction, the significance of impact for VP6 is considered **high to moderate.** This is due to the amount of construction activity that would be occurring in close proximity to the residents along Railway Parade. During operation, the significance of impact for VP6 is considered **moderate**. This is due to the close proximity of the residents to the selected parking option along Railway Parade, and although the reconfiguration of the parking is not out of scale with the existing view, it would result in the removal of existing vegetation which would have future screening potential within the street where opportunities for revegetation are limited. Therefore, to mitigate the visual impacts due to the removal of vegetation, opportunities for replacement trees and planting along Railway Parade should be explored.

Revised mitigation measures

As noted in the section above landscape and visual amenity impacts identified for the selected parking option works are mainly related to the removal of vegetation within the median kerbs. To mitigate these impacts a new mitigation measure, mitigation measure D6.4, has been added which requires the urban design and landscape plan to consider replacement trees and planting along Railway Parade within the immediate vicinity of the location of the selected parking option, prioritising options for replacement planting within the western side of the street.

All other impacts identified as part of the landscape and visual impact assessment undertaken for the selected parking option would be adequately mitigated through implementation of the existing mitigation measures provided in section 9.2 of this report.

THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK

6 RESPONSE TO PUBLIC AUTHORITY SUBMISSIONS

This section provides responses to the issues raised in submissions provided by NSW State Government departments/agencies and local councils.

6.1 Environment Protection Authority

6.1.1 Noise and vibration

Issue

Detailed information will need to be provided to the community, so they can understand what construction activities will take place; where it will take place; when it will take place and for how long. Where construction activities are proposed outside of the recommended standard hours, the community should – as far as practicable – be engaged to identify feasible and reasonable mitigation, including periods of respite.

Response

As committed to through mitigation measure D7.1, ARTC will continue to work with stakeholders and the community to ensure they are informed about the project. Consultation tools will include construction notifications which would provide further detail regarding the proposed construction timeframes, including works required for outside of the recommended standard hours. These consultation tools methods would be detailed in a community and stakeholder engagement plan which would be prepared prior to the commencement of main construction works and would detail the approach to communicate between ARTC and its Construction Contractor(s), and the community and government authorities.

Where possible, construction of the project is proposed to be undertaken during the recommended standard hours defined by the ICNG (DECC, 2009). However due to the location of the works within or adjacent to an operational rail corridor there is a requirement for some works to be undertaken during periods when trains are not operating (possession periods), including during the evening and night-time, to ensure the safety of workers. Additionally, a number of other activities would need to be undertaken during night time periods to minimise safety and traffic impacts, including, but not limited to, the delivery of oversized equipment, the relocation of overhead electricity and the placement of bridge girders using cranes.

The indicative construction program, including proposed staging and what activities would be undertaken outside of the recommended standard hours, was provided in section 7.3 of the EIS.

An out of hours protocol would be developed prior to construction commencing. The purpose of the protocol would be to ensure that out of hours works are managed effectively and that noise impacts to the community are minimised. This commitment is confirmed by mitigation measure C2.2, which requires an out of hours protocol to be developed as part of the construction noise and vibration management plan to guide the assessment, management, and approval of works outside recommended standard hours.

Implementation of this protocol would assist in the management of out of hours works and potential noise impacts.

Issue

The modelling of the rail line has been undertaken “in accordance with the guidance provided in the *ARTC Noise Prediction and Mitigation Guidelines* (ARTC, 2018)”. This Guideline, or the assumptions under which calculations have been undertaken is not included in the assessment. The *ARTC Noise Prediction and Mitigation Guideline* should be published alongside the assessment or the key calculation assumptions stated.

Response

The assessment of noise impacts of the project is provided in Technical Report 2 - Noise and vibration impact assessment of the EIS. The *ARTC Noise Prediction and Mitigation Guideline* (ARTC, 2018) is referred to a total of four times in the Technical Report. The below outlines those references and the relevant detail from the guideline that has been considered in the modelling assumptions relevant to the assessment:

- Section 2.1 (Page 9): "The study area has been defined as a one kilometre buffer….in accordance with the ARTC *Noise Prediction and Mitigation Guideline*".
- Section 5.1.3 (Page 68): "Noise modelling was carried out…in accordance with the guidance provided in the *ARTC Noise Prediction and Mitigation Guideline*….The noise modelling assumptions are detailed below."
- Section 5.1.3 (Page 70): "no source correction has been applied…as per *ARTC Noise Prediction and Mitigation Guideline*."
- Section 5.1.3 (Page 71): "Modelled with a +6 dB track correction…as per the *ARTC Noise Prediction and Mitigation Guideline*."

The *ARTC Noise Prediction and Mitigation Guideline* is used as a supporting reference. No additional assumptions or calculation procedures from the *ARTC Noise Prediction and Mitigation Guideline* which are not already explicitly stated (as above) has been used as part of the assessment.

Additionally, the noise and vibration assessment undertaken to inform the EIS has been undertaken in accordance with the RING (EPA, 2013) as required by the SEARs. Any modelling assumptions that were made in undertaking the noise and vibration assessment, including those that referred to the *ARTC Noise Prediction and Mitigation Guideline,* did not preclude the assessment being undertaken in accordance with the RING.

Issue

The report cites the 2018 *Environmental Noise Guidelines for Europe* (WHO, 2018) and a 2018 systematic review by Basner and McGuire on sleep disturbance from road and rail in order to assess noise impacts in terms of annoyance. The interpretation of how awakenings relate to annoyance is not appropriate as it deviates from the information provided in Appendix 5 of the RING. As the SEARs requires that the assessment be undertaken in accordance with the RING, the EPA requests that an assessment must be undertaken to determine the predicted rail noise levels against the appropriate RING noise trigger levels to evaluate the long-term noise impacts of the project.

Response

A review of these additional studies is in addition to, and compliments, the assessment undertaken in accordance with the SEARs. The following outlines the criteria of the review:

- undertake desktop studies into research undertaken on the long term effects of noise exposure
- compare existing long term background and ambient noise levels with findings of research
- provide a summary of above as an additional section in the baseline monitoring section of the noise report.

Appendix 5.2 of the RING provides a discussion of human health exposure citing the *Night noise guidelines for Europe* (WHO 2009) and acknowledges that "research is making considerable advances towards building a whole picture of the relationship between noise exposures and human health." In light of more recent research undertaken by the WHO and Basner and McGuire in 2018, these studies were discussed in section 2.5.2 of Technical Report 2.

The operational noise assessment provided in Technical Report 2 - Noise and vibration impact assessment, addresses the SEARs and has been undertaken in accordance with the RING (EPA, 2013). The trigger levels provided in the RING which were used in the operational noise assessment undertaken to inform the EIS, have been established to protect the community from the adverse effects of noise and vibration and from rail infrastructure projects and determine where mitigation is required. The RING noise trigger levels are not specific to assessing long term health exposure, because as stated in Appendix 5 of the RING the research on long term health exposure *'has some way still to go before these can be translated into practical and justifiable criteria'*.

Issue

Section 5.2 of the report contains information regarding the validation of the noise model used to determine the noise impact of the proposed rail loop. However, the Operational Rail Vibration Assessment does not contain a model validation method. As the rail line is currently in operation, the usual obstacles to validate vibration levels would not be apparent in this instance. The EPA request that a rail vibration validation take place that is of similar detail to that undertaken for noise validation.

Response

The assessment adopts the generally accepted practice for Environmental Impact Assessments using the U.S Federal Transit Authority (FTA) method as detailed in Section 5.5 of Technical Report 2 - Noise and Vibration Impact Assessment.

Section 4.6 of the *Assessing Vibration: A Technical Guideline* (DEC 2006) (required by the SEARs) refers to the US FTA's *Transit noise and vibration impact assessment* and states that *"It is important that any method or procedure used to predict vibration be clearly described and validated before use (eg via test measurements and calculations, published studies, comparison with existing databases, etc.".*

The assessment adopted a screening assessment approach which was validated to be conservative based on the following data:

- Comparison of the FTA screening curves for vibration prediction against extensive freight rail vibration data gathered as part of previous ARTC studies in NSW ("*comparison with existing databases*" as per the DEC recommendations). A comparison of this dataset with the FTA curves is provided in Figure 5.2 of Technical Report 2 and indicates that the FTA curves provide a conservative envelope for vibration prediction.
- A review of test measurements undertaken at Cabramatta also indicates that the FTA curves are conservative with the measured data showing lower root mean square velocity (RMS) values.

The RMS of the vibration values from the FTA curves was scaled to project specific parameters, assuming all freight trains operate at maximum train length and travel at the maximum posted track speed. These parameters are considered to be conservative as the train lengths and speeds will vary along the freight lines depending on freight and track requirements.

The calculated RMS values were converted to a vibration dose value (eVDV) value and compared against DEC's criteria for intermittent vibration, to establish buffer distances for human comfort impacts. This approach is also considered conservative as the dose values are unweighted (ie no human weighting factors have been applied to the calculated values).

The vibration predictions resulting from the above procedure form a screening assessment, which has been validated to be conservative. The resultant outcomes of this validation screening assessment confirms that the vibration experienced at all residential and commercial sensitive receivers complies with the human comfort vibration criteria.

Issue

Measured and predicted day/night noise levels at locations L01 and L02 in Table 5-6 differ by significant margins and no explanation has been provided. Where differences greater than 2 dB between the modelled and measured day/night noise levels are reported, these must be justified. If they are not able to be justified, and are modified accordingly, the modifications are to carry through to the predicted noise levels. It is noted that carrying through these modified noise levels is likely to have a significant impact on the number of residences that qualify for additional mitigation.

Response

Table 5.6 of Technical Report 2 - Noise and vibration impact assessment provides a validated noise model with an average deviation across the five monitoring locations of -1.1 dBA (day) and -1.2 dBA (night), which is considered to be acceptable.

At two locations (location L02 during the night time period and location L04 during the day time period), the deviation is more than 2 dBA. The reason for these deviations is provided below Table 5.6 in the technical report and relates to local conditions, namely:

- L02, night-time: Modelled noise levels are predicted to be slightly lower at L02. The audio files gathered as part of the monitoring dataset indicate this is due to the existence of a localised track defect as well as potential contributions from road traffic noise (including the car park along Railway Parade) from Railway Parade. Additionally, the effect of the defect is localised and is likely to be removed in future track maintenance. As such, the defect has not been included as part of the opening and design year modelling scenarios.
- L04, daytime: Modelled noise levels at 150 Broomfield Street are predicted to be lower during the day time period due to extraneous noise sources such as road traffic noise along Broomfield Street and temporary local construction works in the area (observed when deploying the noise logger on site, with construction works occurring at nearby residential properties).

As the average deviation across the monitoring locations is +/-2 dBA, correction factors are not recommended. However, it should be noted that any correction factors considered would be applied to both the existing and future rail noise scenarios. In considering the requirements for mitigation, the RING (EPA, 2013) requires **both** the trigger levels to be exceeded **and** future noise levels to increase by more than 2 dBA (L_{Aeq}) or 3 dBA (L_{Amax}). As the requirements for mitigation for this project are primarily driven by the relative increase between the future and existing rail scenarios, correction factors (applied to both future and existing rail noise models) will not increase the number of residences that would be considered for mitigation.

Issue

Table 4.7 and Table 4.8 of the report contain the “highest exceedance” of the NMLs. The EPA requests clarification on what the figures in the table represent. The current wording indicates that these are the exceedance over the NML (ie NML + the number in the table), however the explanatory notes below the tables do not reflect this. Further, the exceedances of the NMLs in the appendices are significantly above those within the table and would alter the explanatory notes considerably. The EPA requests that the highest noise levels within each NCA be included in the tables and summarised in the explanatory notes. An indication of the number of receivers that are “highly noise affected” should also be included.

Response

The ‘highest exceedance’ in Table 4.7 and Table 4.8 of Technical Report 2 - Noise and vibration impact assessment refers to the exceedance over the noise management level at the individual receiver that is the most impacted by noise from the scenario which causes the highest impact. These have been defined for each of the four Noise Catchment Areas (NCAs). The paragraphs below Table 4.7 and Table 4.8 are not explanatory notes for Table 4.7 and Table 4.8 but rather explanatory text for Figures 4.1, 4.2, 4.4, 4.5, 4.6

and 4.7 in the technical report which detail the range of exceedances for all receivers within each NCA for the scenario which causes the highest impact.

Appendix D of the technical report provides the construction noise levels for each construction scenario for every receiver and would not result in changes to the text below Table 4.7 and Table 4.8.

The number of highly noise affected receivers exceeding 75 dBA is 102, which is noted in section 4.3.3 of Technical Report 2 of and shown in Figure 4.3 of the technical report.

Issue

Table 6.1 of the report lists standard mitigation measures for construction. When considering standard mitigation for construction compounds, the report details limited uses of the compounds and shielding “where practicable”. It is unclear whether this shielding has been incorporated into the assessment of construction noise to the NCAs. The EPA requests further information on whether this compound mitigation has been considered in the assessment.

Response

The assessment results provided in Technical Report 2 - Noise and Vibration Impact Assessment, do not include additional shielding effects.

However, *AS2436 Guide to noise and vibration control on construction, demolition and maintenance sites* provides indicative benefits of additional shielding as follows:

- Screening (such as temporary noise barriers): Typical noise reduction of 5 to 10 dB.
- Equipment enclosures: Typical noise reduction of 15 to 25 dB.

Therefore, appropriate compound shielding measures will be developed during construction planning and will include the following, as committed to through mitigation measure C2.19 and mitigation measure C2.18:

- Stationary noise sources on construction compounds will be enclosed or shielded where practicable, to ensure that the occupational health and safety of workers is maintained. Appendix F of AS 2436:1981 lists materials suitable for shielding.
- Structures will be used to shield residential receivers from noise where practicable such as site shed placement; earth bunds; fencing; erection of operational stage noise barriers (where practicable) and consideration of site topography when situating plant.

Issue

The EPA advises that reliance on vegetation for shielding effects from Compound 2 and 3 to NCA01 is not an appropriate mitigation method and should not be considered when assessing the requirement for barriers.

Response

Noted. The noise model developed for Technical Report 2 - Noise and Vibration Impact Assessment, does not consider shielding from vegetation. Vegetation is not specified as part of the relevant mitigation approach.

As noted in the above response, appropriate compound shielding measures will be developed during construction planning.

Issue

Due to the significant out of hours (OOH) impacts expected at all NCAs, insufficient detail has been provided to determine the duration, regularity and scope of the exceedances during OOH works at the most affected receiver locations. As alternative accommodation is being considered for a large number of dwellings, the EPA requires a detailed assessment to consider noise impacts, including consideration of all feasible and

reasonable mitigation. This should consider options for alternative accommodation where there are residual noise impacts.

Response

Detailed information regarding how the project would be constructed, including the type of activities that would form construction of the project, when they would be undertaken and how they would be undertaken, was provided in Chapter 7 (Construction) of the EIS and in section 4.2 of Technical Report 2 – Noise and vibration impact assessment.

As discussed in these sections the majority of works would be carried out during recommended standard hours as defined by the ICNG, which are:

- Monday to Friday: 7.00 am to 6.00 pm
- Saturday: 8.00 am to 1.00 pm
- Sundays and public holidays: no work.

However, some activities would need to be undertaken outside of the above mentioned hours due to their physical location within operational rail and road corridors, to ensure worker safety is maintained and impacts to traffic flow and access is minimised.

The construction noise assessment undertaken to inform the EIS was based on the assumption that the majority of construction scenarios have the potential to involve some works outside of the standard working hours. However, in reality this is considered unlikely to be the case. To manage the potential noise impacts activities would be scheduled during standard construction hours, where reasonable and feasible. Additionally, the use of highly noise intensive equipment (such as hydraulic breakers and ballast tampers) would generally be limited to daytime and evening periods (between 7.00 am and 10.00 pm) unless technical constraints exist.

Where works are required to be scheduled outside of the standard construction hours, implementation of the out of hours protocol (mitigation measure C2.2) would be used to identify the receivers requiring alternative accommodation, based on the predictions in the Technical Report 2 - Noise and Vibration Impact Assessment. Where additional information becomes available as construction planning progresses, such as the size and type of construction equipment, this would also be used to further refine the predictions in the Technical Report 2 - Noise and Vibration Impact Assessment.

Implementation of this approach as well as the construction noise mitigation measures provided in section 9.2 of this report (C2.1, C2.2 and C2.6 to C2.21), would assist in the management of out of hours works and potential noise impacts.

Issue

The assessment of worst-case construction noise impacts in the “Discussion of construction noise impacts” section provides information relating to the worst-case construction moving down the rail corridor. The report states that as the worst-case scenario moves away from a receiver, those dwellings will receive noise levels that are “less than worst case”. However, no indication is given as to the extent and duration of the impact as the worst-case construction scenario approaches and then travels past each NCA. The EPA requires additional information of the extent of non-worst-case construction noise at receivers considered to be above the “noise affected” level for the project.

Response

As described in Technical Report 2 – Noise and vibration impact assessment, where works are undertaken within the rail corridor there would be a reduction in noise levels for adjacent receivers as works move within the corridor. The extent and duration of worst-case impacts would only be short term when activities are undertaken directly adjacent to sensitive receivers, compared to the overall duration of works. *AS2436 Guide*

to noise and vibration control on construction, demolition and maintenance sites provides a nominal noise reduction of 6 dBA per doubling of distance from the noise source. As a guide the 'noise affected' level of 47-48 dBA for standard hours, would be exceeded up to 600 metres for track construction.

The SEARs for the project required consideration of the ICNG (DECCW, 2009) for the assessment of construction noise. Section 4.5 of the ICNG recommends a quantitative assessment approach to predicting noise levels from construction activities. It states that, *"to quantify the noise impact, the realistic worst-case or conservative noise levels from the source should be predicted for assessment locations representing the most noise-exposed residences or other sensitive land uses"*. Based on this guidance it is typical to undertake a worst-case assessment during an EIS stage of a project.

The level of detail provided in the noise and vibration impact assessment undertaken to inform the EIS (Technical Report 2 - Noise and vibration impact assessment) is considered sufficient to assess the impacts from construction activities, acknowledging that construction activities are variable in nature as plant and equipment moves around the study area.

Where exceedances of construction management levels are predicted, reasonable and feasible mitigation measures would be implemented to reduce the significance of impacts. Mitigation measure C2.1 commits to preparing a construction noise and vibration management plan that would include measures to minimise the potential for noise and vibration impacts on the community, including those listed in section 9.2 of this report. Mitigation measures C2.2 and C2.6 to C2.21 also provide commitments in relation to the processes and procedures that would be implemented during construction to manage noise.

Issue

The noise modelling used to predict operational noise has been validated by using measurements of existing operations at the site. However, there are minor discrepancies between the predicted and measured noise levels. Analysis of the results presented within the appendices (particularly Appendix J and K) indicate that receivers may qualify for additional mitigation when this is taken into account. The EPA requests clarification regarding any allowances made for potential discrepancies between the measured noise levels and the predicted noise model. Receivers that may qualify for additional mitigation after these discrepancies are taken into account should be included within the report.

Response

As per the response provided earlier in this section Table 5.6 of Technical Report 2 - Noise and vibration impact assessment provides a validated noise model with the average deviation across the five monitoring locations is -1.1 dB (day) and -1.2 dB (night) which is considered to be acceptable.

At two locations, (location L02 during the night time period and location L04 during the day time period) the deviation is more than 2 dBA. The reason for these deviations is provided below Table 5.6 in the Technical report and relates to local conditions.

It can be clarified that no additional calibration factors were applied to the model. Furthermore, the application of calibration factors would not lead to additional receivers triggered for treatment. This is because the RING (EPA, 2013) requires the trigger levels to be exceeded **and** future noise levels to increase by more than 2 dBA (L_{Aeq}) or 3 dBA (L_{Amax}). As the requirements for mitigation for this project are primarily driven by the relative increase between the future and existing rail scenarios, correction factors (applied to both future and existing rail noise models) will not increase the number of residences that qualify for additional mitigation.

Issue

The EPA advises that when reviewing multi-level receivers, such as the receiver identified as 106 Broomfield Street (R2289), in which the second floor has been identified for additional mitigation, but the third floor of the same building has not. The EPA advises that mitigation should be applied in an equitable fashion for

multistorey receivers, especially when the additional mitigation requirement is very close to the predicted noise level.

Response

Noise mitigation is considered where both the RING noise criteria are exceeded and where an increase of 2 dB (L_{Aeq}) or 3 dB (L_{Amax}) is observed due to the project. At R2289, only the second floor of the building meets both of these requirements for additional noise mitigation. No other floors or other properties in proximity to R2289 meet the requirements to consider mitigation under the RING. However, in accordance with revised mitigation measure O1.1 affected receivers at 108-110 Broomfield Street will be consulted regarding potential noise mitigation. This may include a review of the existing internal acoustic properties of the building and identification of where improvements can be made to reduce the internal noise levels of this property.

Issue

With reference to the above, we advise that the receiver identified as R2289 is 108-110 Broomfield Street, Cabramatta, not 106 Broomfield. The EPA requests that the dwellings are correctly identified and that the receiver codes nominated within the appendices match the addresses on the appropriate NSW databases.

Response

Sections 5.3, 5.6 and 6.2 of Technical Report 2 - Noise and vibration impact assessment and section 9.4.1 of the EIS and mitigation measure O1.1 referred to 106 Broomfield Street in error.

The receiver addressed within the appendices of Technical Report 2, was correctly identified as 108-110 Broomfield Street from the appropriate NSW databases (NSW Land and Property Information and LPI). Therefore, this receiver has been correctly modelled even though the report text incorrectly identifies 108-110 Broomfield Street as 106 Broomfield Street. Mitigation measure O1.1 has been amended to reference the correct building number (refer to revised mitigation measures in section 9.2 of this report).

6.1.2 Soils and contamination

Issue

The EPA recommends that the proponent include measures to manage Acid Sulfate Soils (ASS) in an Unexpected Finds Protocol to be required as a condition of approval.

Response

C5.3 has been revised to include consideration of ASS. Additionally, mitigation measure C5.2 commits to undertaking a pH field test in areas, such as around Cabramatta Creek, where there is potential for ASS, albeit low potential.

Issue

The EPA recommends that the proponent include measures to manage unexpected contamination at the project site and these measures be included in an Unexpected Finds Protocol to be required as a condition of approval.

Response

Existing mitigation measure C5.3 commits to the preparation of an unexpected finds protocol pertaining to contamination. As detailed throughout a range of measures and the approach to environmental management discussed in both this report and the EIS, a soil and water management plan will form a critical part of the CEMP.

Issue

The EPA recommended the following draft conditions regarding contamination:

1. The proponent to prepare an unexpected finds protocol. The protocol should include detailed procedure for identifying and dealing with unexpected contamination, acid sulfate soils and other unexpected finds. The proponent should ensure that the procedure includes details of who will be responsible for implementing the unexpected finds procedure and the roles and responsibilities of all parties involved.

2. The proponent must conduct field testing if unexpected acid sulfate soils are found.

3. If unexpected contamination was found, the proponent must conduct more detailed investigation. The following guidance, as relevant, should be considered when assessing contamination at the site:

- *NSW EPA Sampling Design Guidelines*
- *Guidelines for the NSW Site Auditor Scheme* (3rd edition) 2017 https://www.epa.nsw.gov.au/publications/contaminatedland/17p0269-guidelines-for-the- nsw-site-auditor-scheme-third-edition
- *Guidelines for Consultants Reporting on Contaminated Sites*, 2011 www.epa.nsw.gov.au/resources/clm/20110650consultantsglines.pdf
- *The National Environment Protection (assessment of contamination) Measures* 2013 as amended.

4. If unexpected contamination is found, the applicant must prepare a remediation action plan.

Response

Noted. The existing mitigation measures address the conditions of approval recommended by the submission, as described below.

Recommended Condition of Approval 1 is addressed by mitigation measures C5.3 and C5.5. Revised mitigation measure C5.3 requires the preparation of an unexpected finds protocol that will include procedures for the assessment and management of unexpected contamination and ASS encountered (if any) during construction, including making the site safe, carrying out an assessment of the finds, and managing the finds based on the results of the assessment. Revised mitigation measure C5.5 requires that awareness training is provided for all onsite staff to assist in the identification of potentially contaminated material. In the event that indicators of contamination are encountered during construction work in the area will cease, and the finds will be managed in accordance with the unexpected contamination finds protocol. The unexpected finds protocol will form part of the soils and water management plan which is a sub-plan to the CEMP. As described in section 22.2 of the EIS the CEMP will define the requirements, roles and responsibilities of all personnel and contractors to be employed on site.

Recommended Condition of Approval 2 is addressed by mitigation measure C5.2 which requires field pH testing and field peroxide pH testing regime to be undertaken prior to piling work around Cabramatta Creek, in accordance with the *Acid Sulfate Soils Assessment Guidelines* (ASSMAC, 1998). Should ASS or potential ASS be identified during the testing, then measures to manage the potential impacts associated with encountering ASS or potential ASS will need to be developed and implemented in accordance with the *Acid Sulfate Soils Assessment Guidelines* (ASSMAC, 1998).

Recommended Conditions of Approval 3 and 4 are addressed by revised mitigation measure C5.3 which requires an assessment to be carried out of any contamination encountered during construction, and the contamination to be managed based on the results of the assessment. The assessment would dictate whether further actions are required including detailed site investigation and remediation.

As such, given that the commitments made in the EIS and this report directly align to the conditions proposed, it is suggested that these are not included as conditions to avoid the potential for repetition leading to inconsistencies and inefficiencies in implementation.

6.2 Transport for NSW

6.2.1 Noise and vibration

Issue

The TR2 lacks an assessment of noise impacts from braking freight trains associated with the proposed Cabramatta Loop. It is recommended the TR2 be updated to assess brake noise impacts and any further additional mitigation measures.

Response

Further discussion regarding the potential noise impacts from brake noise is provided in section 5.2 of this report.

As noted in section 5.2, given the lack of brake noise source data to inform the noise model, the unpredictability associated with defining brake noise including brake squeal, and the low likelihood for brake noise to be a significant issue due to the project, brake noise was not included in the noise model developed as part of the EIS assessment.

However, a literature review was undertaken as part of the preparation of this report to inform a qualitative assessment of brake noise. Based on the maximum noise level for brake squeal identified as part of the literature review, the assessment of L_{Amax} noise levels undertaken as part of the EIS for stretching/bunching and engine idling is considered representative of brake squeal impacts. The predicted results from these events are presented in Appendix L of Technical Report 2 which accompanied the EIS.

The RING specifies that mitigation may be considered where certain trigger levels are exceeded, these include where L_{Amax} levels are predicted to exceed 85 dBA and where there is a predicted increase of 3 dB or more due to the project. As per the results provided in Appendix L, assuming a maximum sound power level of 121 dBA, the L_{Amax} rail noise trigger level of 85 dBA is exceeded at over 20 properties. However, it is exceeded by more than 3 dB at only one three-storey property, 108-110 Broomfield Street, at the second floor only. Therefore, in accordance with mitigation measure O1.1, the affected receivers at 108-110 Broomfield Street will be consulted regarding potential noise mitigation.

The RING recommends maintenance as the most appropriate control measure to minimise the potential for brake squeal. An amendment to the POEO Act was passed on 5 July 2019 to include rolling stock operations as a scheduled activity under Schedule 1 of the Act. ARTC understands that from May 2020, rolling stock operators on ARTC's Network in NSW will require an EPL issued by the EPA. This change will mean that rolling stock operators' environmental performance outcomes will be regulated by the EPA. This may include regulation of freight train maintenance schedules to reduce the potential for brake squeal and the provision of noise limits to better manage noise emission such as brake squeal.

Issue

Comment on Appendix K of Technical Report 2 - Based on the proposed slew of the ARTC track and new passing loop, the night-time noise levels at 1 Manning Street Warwick Farm (receiver R1773) appear to exceed the noise triggers in the *Rail Infrastructure Noise Guideline* (State of NSW and Environment Protection Authority, 2013). It is noted that there is no existing noise wall adjacent to this property, and no noise wall is proposed as part of the project.

It is recommended that ARTC confirms which properties qualify for noise mitigation.

Response

The RING (EPA, 2013) specifies that mitigation may be considered where certain trigger levels are exceeded, namely:

- L_{Aeq} levels are predicted to exceed 65 dBA during the day and 60 dBA during the night and where there is a predicted increase of 2 dBA or more due to the project.
- L_{Amax} levels are predicted to exceed 85 dBA and where there is a predicted increase of 3 dBA or more due to the project.

The increase (build - no build) is less than 2 dBA at this receiver therefore, mitigation has not been considered.

Issue

Comment on Section 5.3, Table 5-7, and Appendix A of TR2 - This section states that one property is eligible for noise mitigation, the second floor of 106 Broomfield Street, Cabramatta - Receiver ID R2289. Appendix A of the TR2 however states that Receiver ID R2289 is 108-110 Broomfield Street Cabramatta.

It is recommended the noise report is updated to clarify which properties require noise mitigation, noting there are two units on the 2nd floor of 108-110 Broomfield Street Cabramatta. The report should also justify why other floors in that building are not treated given technical note 6 of EPA's Rail Infrastructure Noise Guideline.

Response

Sections 5.3, 5.6 and 6.2 of Technical Report 2 - Noise and vibration impact assessment and section 9.4.1 of the EIS and mitigation measure O1.1 referred to 106 Broomfield Street in error.

The receiver identified in Appendix A and for which modelling results were provided in Appendix J, Appendix K and Appendix L of Technical Report 2 of Technical Report 2, was correctly identified as 108-110 Broomfield Street. Therefore, this receiver has been correctly modelled.

The modelling undertaken to determine noise levels due to the project, including those at 110 Broomfield Street, takes into account the additional train volumes due to the passing loop as well as changes to the existing terrain due to the physical presence of the passing loop and the presence of the reinstated noise wall.

Noise mitigation is considered where both the RING noise criteria are exceeded and where an increase of 2 dB (LAeq) or 3 dB (LAmax) between the build and no build scenarios is observed due to the project. The combined effect of the aspects noted above is that at R2289 only the second floor of the building meets both of these requirements for additional noise mitigation. This is shown in Table 6.1, Table 6.2 and Table 6.3 which present the L_{Aeq} day and night and the L_{Amax} results for receiver R2289, respectively. Results for the second floor are shown in bold in these tables. It is noted that there are two units on this floor, however the results refer to the floor as a whole. No other floors or other properties in proximity to R2289 meet the requirements for mitigation under the RING. Technical note 6 of the RING relates to the location where measurements are undertaken to confirm noise levels in multi-level properties, for instance during compliance monitoring. It does not specify the need for mitigation for all floors when only one floor is triggered.

However, in accordance with revised mitigation measure O1.1 affected receivers at 108-110 Broomfield Street will be consulted regarding potential noise mitigation. This may include a review of the existing internal acoustic properties of the building and identification of where improvements can be made to reduce the exceedance of the trigger level.

Table 6.1 L_{Aeq} day time levels at R2289

Rec	Floor	Noise criteria (Day)	No build 2033 (Day), LAeq, 15 hour			Build 2033 with wall (Day), LAeq, 15 hour			Increase (2033, with wall) Build-No build	Qualifies for additional mitigation?
			Total (Sydney Trains and ARTC)	Sydney Trains contribution	ARTC contribution	Total (Sydney Trains and ARTC)	Sydney Trains contribution	ARTC contribution		
R2289	GF	65	**61**	55	60	**62**	55	62	1.2	No
R2289	F 1	65	**63**	58	62	**65**	60	63	1.9	No
R2289	**F 2**	**65**	**65**	**61**	**62**	**67**	**64**	**64**	**2.5**	**Yes**
R2289	F 3	65	**66**	64	62	**68**	64	65	1.6	No

Table 6.2 L_{Aeq} night time levels at R2289

Rec	Floor	Noise criteria (Night)	No build 2033 (Night), LAeq, 9 hour			Build 2033 with wall (Night), LAeq, 9 hour			Increase (2033, with wall) Build-No build	Qualifies for additional mitigation?
			Total (Sydney Trains and ARTC)	Sydney Trains contribution	ARTC contribution	Total (Sydney Trains and ARTC)	Sydney Trains contribution	ARTC contribution		
R2289	GF	60	59	53	58	61	54	59	1.2	No
R2289	F 1	60	61	57	59	63	59	61	1.9	No
R2289	**F 2**	**60**	**63**	**60**	**60**	**65**	**62**	**62**	**2.6**	**Yes**
R2289	F 3	60	64	62	60	66	63	63	1.5	No

Table 6.3 L_{Amax} levels at R2289

Rec	F	Noise criteria	No build 2033 LAmax	Build 2033 LAmax with wall	Increase (2033, with wall) Build-No build	Qualifies for additional mitigation?
R2289	GF	85	80	82	2.0	No
R2289	F 1	85	82	83	1.7	No
R2289	**F 2**	**85**	**84**	**88**	**3.9**	**Yes**
R2289	F 3	85	88	88	0.3	No

Issue

Comment on section 5.4.2 of TR2 - This section refers to formulas from a 2018 paper by Basner and McGuire that calculates the percentage of highly sleep disturbed based on night-time noise levels. The formulas in this section appear to incorrectly apply the L_{Aeq}(9hour) noise metric instead of the L_{Aeq}(8hour) metric which is in the Basner and McGuire paper.

It is recommended that ARTC review the suitability of these formulas, given they indicate significant sleep disturbance in the project's study area (around 150 properties in 2023, increasing to almost 200 in 2033).

Response

A review of the 2018 paper by Basner and McGuire was undertaken as part of a literature review in addition to the assessment undertaken in accordance with the SEARs. The following outlines the criteria of the review:

- Undertake desktop studies into research undertaken on the long term effects of noise exposure, which includes sleep disturbance.
- Compare existing long term background and ambient noise levels with findings of research.
- Provide a summary of above as an additional section in the baseline monitoring section of the noise report.

The 2018 paper by Basner and McGuire is based on European conditions and uses the L_{Aeq}(8hour) metric which is similar to the L_{Aeq}(9hour) metric. This information was provided additional to the operational noise assessment provided in Technical Report 2 - Noise and vibration impact assessment, which has been undertaken in accordance with the RING (EPA, 2013) as required by the SEARs. The RING noise trigger levels are not specific to assessing long term health exposure, because as stated in Appendix 5 of the RING the research on long term health exposure '*has some way still to go before these can be translated into practical and justifiable criteria'*. Project design – key features.

Issue

It is recommended that ARTC locate locomotive standing points on a loop, or near a signal, away from residences, to minimise the noise impacts of idling freight trains.

Response

Signal locations and requirements must be designed in accordance with ARTC's standards (ESD-05-01 Common Signal Design Principles S1- Signalling Locking and Train Dynamics v3). Additionally, a process of design development, including feasibility assessment and options analysis was undertaken to determine the location of the project and associated infrastructure, as described section 5.4 and 5.5 of the EIS. The outcomes of this option analysis and the need to undertake design development in accordance with ARTC's standards has dictated the location of locomotive standing points.

The potential for noise impacts from idling was considered as part of the noise and vibration assessment undertaken to inform the EIS (Technical Report 2 - Noise and vibration impact assessment and Chapter 9 of the EIS). The assessment found that noise impacts from operation of the project, including engine idling would only exceed the trigger levels at one property, 108-110 Broomfield Street, at the second floor only, despite it having three floors. Therefore, in accordance with mitigation measure O1.1, the affected receivers at 108-110 Broomfield Street will be consulted regarding potential noise mitigation. This may include a review of the existing internal acoustic properties of the building and identification of where improvements can be made to reduce internal noise levels.

6.3 Heritage Council

6.3.1 Impacts to heritage items

Issue

Council notes that there do not appear to be any significant views from the State Heritage Register (SHR) listed item Liverpool Railway Station Group (SHR 01181), that will be affected by the signalling structures proposed. Council requests that the colour and material of the signalling hut are selected to blend with the general colour and material pallet of the rail corridor.

Response

Noted. In response to this submission, mitigation measure D3.2, which requires visible infrastructure such as the signalling hut to be constructed as small as possible so as to not obscure views to/from the item and not visually dominate the landscape, has been expanded to require the colour and material of the visible infrastructure to blend with the general colour and material pallet of the rail corridor, where feasible.

Issue

The Technical Report states that the State Heritage Register (SHR) listed item Liverpool Railway Station Group (SHR 01181), may be indirectly impacted by vibration from the works. It is considered that although major vibration impacts are unlikely, strategies to minimise vibrations from equipment, groundworks and construction should be implemented. A dilapidation survey of structures located within the vibration buffer zone should be undertaken, to confirm the structural integrity of the state listed heritage item's structures. If the dilapidation survey determines that these structures are within the vibration safe working buffer distances, equipment with lower vibration emissions must be used.

Response

The signalling works would be located outside of vibration buffer distances to ensure there are no vibration impacts to these sites (see section 9.3.6 of the EIS).

However, mitigation measure C2.4 commits to carrying out building dilapidation surveys on all structures located within the vibration buffer distance prior to major project construction activities with the potential to cause property damage. Additionally, where vibration is identified as a potential impact, mitigation measure C2.3 requires that strategies to minimise the vibration of construction activities will be considered during construction planning. This will include a detailed review of work methods and equipment selection with the aim of avoiding the use of equipment within the relevant vibration safe working buffer distances. Where this is not possible, attended vibration measurements of vibration generating equipment (eg bored piling, vibratory rolling works) will be undertaken prior to works near the sensitive structures located within the vibration buffer distances identified in Figure 4-12 and Figure 4-13 provided in Technical Report 2 – Noise and vibration impact assessment. This will confirm the project specific minimum working distances for vibration intensive activities.

Issue

The Technical Report states that there are unlikely to be impacts to historical archaeological significance and the EIS includes an unexpected finds procedure.

Response

Noted. As per the recommendations of the non-Aboriginal heritage assessment undertaken to inform the EIS (Technical Report 8 – Historical heritage assessment and statement of heritage impact) an unexpected finds protocol will be prepared as part of the CEMP, as committed to through mitigation measure C7.2 (refer to section 9.2 of this report).

6.4 Environment, Energy and Science Group (EES) in the Department of Planning, Industry and Environment

6.4.1 Aboriginal heritage

Issue

If the application is granted approval, EES recommends that any conditions recommended in Technical Report 9 - Aboriginal and cultural heritage impact assessment be included as conditions of consent

Response

The mitigation measures provided in the EIS and the final mitigation measures provided in section 9.2 of this report incorporate the recommendations of Technical Report 9 - Aboriginal and cultural heritage impact assessment (see mitigation measures D4.1, D4.2 and C8.1 to C8.5 in section 9.2 of this report).

The mitigation measures for the project were developed based on the recommendations of each technical specialist, and adjusted where required to provide consistency across the various environmental issues.

As described in section 9.2 of this report, if the project is approved, the project would be undertaken in accordance with the conditions of approval and the final list of mitigation measures (detailed in Chapter 9 (Revised mitigation measures) of this report).

6.4.2 Biodiversity

Issue

EES was not provided with the Biodiversity Development Assessment Report (BDAR) shapefiles or access to the calculator, which are required in order to conduct a full review.

Response

The project does not include any direct impacts to native vegetation. Therefore, no biodiversity offsets are required according to the biodiversity assessment method (BAM) and there is no data in the BAM calculator that could be reviewed. It was considered that as the assessment did not include any credit calculations it was not necessary to submit the BAM calculator case or other supporting data as part of a formal BDAR application. GIS shape files will be provided to EES as part of the submission of this report.

Issue

ESS note that the maximum known extent of the Grey-headed Flying Fox camp is about 50 metres closer than at the time of assessment (therefore 300 metres rather than 350 metres from the construction site. This reduction in distance would increase the sound intensity of any construction activities by 36 per cent (assuming no intervening obstacles). This is of most concern during the use of ballast tamping, pile driving, or night works when flightless young remain in the camp.

It is recommended that a Biodiversity Management Plan is conditioned and includes:

- the appointment of a Grey-headed Flying Fox expert to monitor the camp
- monitoring of the camp during operations, such as ballast tamping, pile driving or night works, most likely to impact on the camp
- cessation and re-scheduling of operations that the expert determines are adversely impacting on the Grey-headed Flying Fox in the camp
- reporting on all the above matters.

Response

Technical Report 4 - Biodiversity development assessment report considered construction noise impacts to the Flying Fox camp in section 6.7. The assessment considered the camp to be **around** 350 metres from the boundary of the nearest construction compound, not exactly 350 metres. These extents were ground-truthed by GHD ecologists during the November 2018 field survey. The location of the Flying Fox roost camp relative to the construction site was determined by visually locating the flying foxes, drawing a polygon around the area of occupancy on an aerial photo, digitising the polygon and then measuring the distance to the construction site using geographical information system (GIS). Coordinates were not taken around the precise extent of the roost camp because it would not have been practical to do so given the terrain, the potential for disturbance to the bats, health and safety considerations of disease and difficult access etc. The flying foxes changed position in response to the presence of the GHD ecologists and so the extent of the camp would have continuously shifted if such fine scale mapping was attempted. It should also be noted that roost camps fluctuate significantly between seasons, in terms of the number of individuals present and their exact location. Hence, the potential for discrepancies is considered relevant in considering the maximum known extent for the purpose of this assessment.

As noted in section 6.7 of Technical Report 4, based on the most severe noise modelling scenario the project would generate construction noise levels of up to 55 to 60 dBA at the camp. This is significantly less than noise levels that are currently experienced at a number of urban camp locations which were noted in section 6.7 of Technical Report 4 (greater than 74 dBA). A review of the modelling undertaken as part of the EIS has confirmed that even if the camp was 50 metres closer to the project site, construction noise levels experienced at the camp would only increase by 1.3 dBA. Additionally, construction noise modelling undertaken for the project (refer to Technical Report 2 - Noise and vibration impact assessment) is conservative and assumes the worst case for each construction scenario, in that all equipment will be operating simultaneously. The likely maximum construction noise levels are likely to be equivalent or less than current ambient noise levels, which would include the generation of traffic noise levels from the Hume Highway. It is therefore considered that the findings of the assessment and proposed mitigation measures are equally relevant to a camp that is around 50 metres closer.

The mitigation measures related to biodiversity would be included in the CEMP. Given the location of the camp in a highly urban setting and the minimal impacts anticipated as a result of the project, additional mitigation in the form of a separate biodiversity management plan and a Grey-headed Flying Fox expert would not likely result in material reduction of impact and is therefore not considered necessary.

6.4.3 Water resources – flooding and hydrology

Issue

The assessment of flooding risks under baseline conditions and the post construction stage has been undertaken by using a normal depth boundary relationship at the outlet of Broomfield Street Catchment (Section 2.3 of Technical Report 5 - Hydrology and flooding impact assessment). This may underestimate the flooding conditions and inundation depths within the Broomfield Street Catchment since the intersection of Broomfield and Sussex Streets is approximately 100 metres from Cabramatta Creek and is expected to be

submerged under a 5 per cent AEP event. The assessment should also be made considering QH (rating table) or HT (time variant water level) boundary conditions at the outlet of Broomfield Street Catchment to evaluate flooding conditions and develop appropriate flood mitigation measures under post construction and operational stage of the proposed infrastructure.

Response

Flooding in the study area can occur due to two different modes, these being:

- flooding in the local Broomfield Street area
- flooding in the wider Cabramatta Creek catchment.

Both of these modes can be critical to different areas across the project site.

The flooding through the local Broomfield Street area occurs over a relatively short duration (30 minutes to 1 hour) whereas the flooding through the wider Cabramatta Creek takes a longer duration to rise to critical levels (up to 9 hours) relative to the local Broomfield Street area flooding.

As a result of these local conditions, the assessment considered what events of concurrent flooding would potentially cause a worst case scenario in terms of impact.

Under worst case flooding conditions in Cabramatta Creek, the downstream areas of the local catchment would be submerged in events as low as the five per cent AEP event, but given the longer flooding duration time, there is a low probability that both flood modes will peak at the same time.

Further flooding assessment and design refinement would be undertaken during detailed design, as committed to through mitigation measure D2.5, with the objective of not exceeding the following flooding characteristics during the one per cent AEP event:

- a maximum increase in time of inundation of one hour in a one per cent AEP event
- a maximum increase in 50 mm in inundation at properties were floor levels are currently not exceeded
- a maximum increase in 10 mm in inundation at properties were floor levels are currently exceeded.

Issue

Request for flood maps to include the changes in flood depths within the Bloomfield Street Catchment with and without the project.

Response

This information was provided as part of the hydrology flooding assessment undertaken for the EIS (Technical Report 5 – Hydrology and flooding assessment). The flood maps provided in Appendix D of Technical Report 5, show the flooding depths and level contours for the existing Broomfield Street catchment flooding scenarios (figures D.A.1 to D.A.3) and the flooding depths and level contours with the project in place (figures D.A.10 to D.A.12).

6.5 Natural Resources Access Regulator (NRAR)

6.5.1 Water Resources

Issue

Before approval is granted a Water Access Licence must be obtained to account for the take of water, including the volume of water taken by dewatering if dewatering activities exceed three megalitres per year or occur for a period greater than 12 months.

Response

In accordance with mitigation measure D2.4, a water access license will be obtained in accordance with Part 5 of the *Water Act 1912,* where dewatering of excavations triggers this requirement.

Issue

A Soil and Water Management Plan should address works within the riparian corridor of Cabramatta Creek with designs in accordance with the *Guidelines for Controlled Activities* (2012) for Works on Waterfront Land ttps://www.industry.nsw.gov.au/water/licensing-trade/approvals/controlled-activities. This includes, but not limited to the following:

- in-stream works
- outlet structures
- riparian corridors
- Vegetation Management Plan – Rehabilitation of site works
- watercourse crossings.

Response

A number of existing mitigation measures address the requirements recommended by the submission, as described below.

A soil and water management plan will be prepared to manage potential impacts to water quality and Cabramatta Creek, as committed to through mitigation measure C5.1. This soil and water plan will include an erosion sediment control plan that will include site-specific details for managing sediment and erosion near Cabramatta Creek and associated drainage lines. This would apply to all main construction activities including those undertaken in the riparian corridor of Cabramatta Creek.

An urban design and landscape plan will be developed as part of the detailed design with the objective of reinstating vegetation where possible, in accordance with the project design principles and objectives (mitigation measure D6.1). This includes the urban design principle of enhancing natural areas by protecting creeks and creek banks through maximising tree retention and planting at creek crossings. Additionally, where revegetation of riparian areas and bank stabilisation is required, the design will be prepared in consultation with an experienced waterway rehabilitation consultant and Fairfield and Liverpool City Councils (mitigation measure D6.3).

Lastly, mitigation measure C6.4 requires that works within or near Cabramatta Creek will be undertaken with consideration given to the NSW Department of Primary Industries (Water*) Guidelines for controlled activities on waterfront land – Riparian corridors* (2018).

6.6 Liverpool City Council

6.6.1 Noise and vibration

Issue

It is identified that the submitted Noise Impact Assessment study did not include the potential noise impacts of the project on the softball facility at Jacquie Osmond Reserve. Council need to be assured that the operational noise from a train in the loop position (72 trains per day) is investigated to determine whether a sound barrier is needed. It should be noted that the existing noise barrier along the eastern side of the railway line is a retaining wall. Due to the elevated position of the track, the existing retaining wall does not attenuate rail noise to the field. Given that the proposed acquisition will result in a five metre strip into the reserve, the operational noise of the loop will be much closer to the field and will potentially create significant noise impacts.

Response

The trigger levels provided in the RING (EPA, 2013) for the softball facility would be 65 dBA during the day time period. The noise and vibration impact assessment undertaken to inform the EIS (Technical Report 2 – Noise and vibration impact assessment) confirmed that small percentage of the softball facility currently exceeds this trigger level and would continue to do so under the project. The noise contours indicate that the impacts are similar between the no build and build cases for the project and the predicted levels are not expected to significantly increase.

The RING (EPA, 2013) specifies that mitigation may be considered where certain trigger levels are exceeded, namely:

- L_{Aeq} levels are predicted to exceed 65 dBA during the day and 60 dBA during the night and where there is a predicted increase of 2 dBA or more due to the project.
- L_{Amax} levels are predicted to exceed 85 dBA and where there is a predicted increase of 3 dBA or more due to the project.

The increase (build compared with no build scenario) is less than 2 dBA L_{Aeq} and 3 dBA L_{Amax} at this receiver therefore, further mitigation options, such as provision of a noise barrier, have not been considered.

6.6.2 Social impacts - construction

Issue

A local employment or procurement statement should be prepared by the proponent to materialise the job creation during construction for the Liverpool LGA.

Response

In accordance with mitigation measure C11.1, local suppliers will be identified and approached for procurement of goods and services, where practicable.

Issue

Loss of access to recreational space in Jacquie Osmond Reserve during construction.

This loss of public recreation space warrants an effective offset strategy to mitigate the resulting impacts. It would be beneficial for the proponent to investigate opportunity to embellish nearby sports grounds in order to alleviate the loss of recreational space/facilities. Other options for the proponent may be to consider the provision of temporary diamonds elsewhere within proximity of the site for the construction period.

Response

ARTC acknowledges that there will be some disruption to the existing use of Jacquie Osmond Reserve during construction of the project. In accordance with mitigation measure D7.2, consultation will be undertaken with community facilities with the potential to be impacted by the project, including Liverpool City Council and the SDSA prior to construction. Consultation will aim to identify and develop measures to manage the specific construction impacts for individual community facilities and events. These measures would be incorporated into the relevant management plans.

Mitigation measure C1.10 also commits the construction contractor to consult with Liverpool City Council and the relevant sporting associations to minimise potential conflicts between vehicles, pedestrians and cyclists at the reserve, particularly during weekend periods when sporting activities are likely to occur.

Issue

The proposed permanent acquisition of a 5m strip of the reserve to the eastern side of the rail corridor will impact the softball diamond safety fencing, synthetic grass batting squares and the overall diamond

dimensions. Pushing the three fields eastward will have a flow-on effect on the dimensions of remaining diamonds.

Response

The potential social impacts associated with the loss of a 5.0 metre strip alongside the rail corridor within Jacquie Osmond Reserve was assessed in Technical Report 11 - Social impact assessment and section 18.4 of the EIS.

Initial assessment utilising aerial images to review the location of the three diamonds relative to the nearest remaining diamonds, indicates that there is sufficient space for the diamonds to be shifted up to ten metres to the east to accommodate the rail line with minimal impact to the remaining playing space between diamonds. In accordance with mitigation measure D7.3, consultation will be undertaken with Liverpool City Council and the SDSA during detailed design development to minimise impacts on use of the softball fields due to the presence of the embankment and passing loop.

In addition, areas used temporarily during the construction phase, including public open space, will be restored to their pre-existing condition (as a minimum) as soon as practicable following completion of construction. This will also be undertaken in consultation with the relevant council (see mitigation measure C9.1).

As such, the loss of the 5.0 metre strip of the reserve would be managed through the relevant acquisition process, and ARTC will continue to consult with Liverpool Council and SSDA on minimising permanent and temporary impacts to the softball fields.

6.6.3 Land use and property - construction

Issue

Following the removal of the ‘C3’ compound, Council will need to be satisfied that the diamonds are returned to a satisfactory condition. Wherever possible, traffic and storage of materials on the diamonds should be avoided. Any impacts on the diamond safety fencing and concrete will need to be remediated and all construction related materials must be removed from the site.

Response

In accordance with mitigation measure D7.3 consultation will be undertaken with Liverpool City Council and the SDSA during detailed design development to minimise impacts on use of the softball fields due to the presence of the embankment and passing loop. In addition, areas used temporarily during the construction phase, including public open space, will be restored to their pre-existing condition (as a minimum) as soon as possible following completion of construction. This will also be undertaken in consultation with the Liverpool City Council (see mitigation measure C9.1).

Issue

Temporary land acquisitions to be covered by a lease agreement which will be with the proponent over Council owned and managed lands for a two year term. Terms of this agreement need to be negotiated with Council and to be approved subject to the resolution of Council.

Response

ARTC will discuss further lease requirements with Liverpool City Council. As stated in mitigation measure D5.3, individual property agreements/licenses will be developed in consultation with the relevant council and landowners.

6.6.4 Land use and property - operation

Issue

Council favours the proponent's preference through negotiation under the *Land Acquisition (Just Terms Compensation) Act 1991* framework with divestment costs covered by the proponent.

Response

Noted. As per mitigation measure D5.1 all acquisitions/adjustments will be undertaken in consultation with landowners and in accordance with relevant acts. This includes the *Land Acquisition (Just Terms Compensation) Act 1991*.

6.6.5 Landscape and visual – construction

Issue

It is recommended that a 3 x tree replacement is proposed for all trees removed and that proposed landscaping incorporates the Main Southern Corridor along Station Street in Warwick Farm.

Response

The urban design and landscape plan will include reinstatement of vegetation where possible (mitigation measure D6.1). Additional planting along Station Street is not currently part of the project site or scope.

Mitigation measure D7.3 states that during design development consultation will be undertaken with Liverpool City Council and the SDSA to minimise impacts on use of the softball fields due to the presence of the embankment and passing loop. Consultation would include the possibility of reinstating trees within the reserve and looking for opportunities to provide shade. However, as described in section 17.3.3 of the EIS, and as identified through previous consultation with Council, the provision of trees or other plantings on the embankment could potentially cause safety and maintenance issues for ARTC and Liverpool City Council, including branches and risk of trees falling in the rail corridor or on the softball field/diamonds. Therefore, consultation undertaken as part of the urban design and landscape plan development, would look to identify opportunities to reinstate trees in other parts of the reserve.

Mitigation measure D6.2 also commits to the development of an urban design and landscape plan which will include a planting pallet consistent with the existing area. Native species selected will be of local significance, from the relevant ecological vegetation community and will be sourced from nurseries in the local area, where possible.

6.6.6 Landscape and visual – operation

Issue

Any slope/batter retaining walls or other structures supporting the railway line should consider impacts on visual amenity.

Response

A landscape character and visual impact assessment was prepared for the project and provided in Technical Report 10 - Landscape and visual impact assessment and Chapter 17 of the EIS. Section 17.3 outlined the urban design concept and section 17.5 assessed the visual impact of proposed new or upgraded structures.

Following consultation with Council it was proposed that the embankment would be grassed, as the provision of trees or other plantings on the embankment would potentially cause safety issues (branches in the rail corridor and hard distances near the softball field) and/or require additional maintenance.

An urban design and landscape plan will be developed in accordance with mitigation measure D6.1, which states that this plan will be developed as part of the detailed design with the objective of maintaining and improving pedestrian and cycling connectivity, reinstating vegetation where possible and, ensuring

constructed elements improve on existing design and materiality. It will build on the existing landscape concept and consider the urban design principles and objectives and the mitigation measures provided in Table 9.3. The urban design and landscape plan will be developed in consultation with Fairfield and Liverpool City Councils.

6.6.7 Traffic – construction access

Issue

Concern regarding public access and use of the cycleway being disrupted due to works proposed in Jacquie Osmond Reserve and Warwick Farm Recreation Reserve.

Response

An impact assessment of changes to pedestrian and cycle routes and access during construction and operation was provided in Technical Report 1 - Traffic, transport and access impact assessment and sections 8.3.4 and 8.4 of the EIS. Diversion routes may be required during construction. Access would remain available to Jacquie Osmond Reserve and Warwick Farm Recreation Reserve during this period via the diversion routes.

Mitigation measure C1.1 states that a construction traffic management plan will be prepared by the contractor and implemented as part of the CEMP. It will include measures to minimise the potential for impacts on the community and the operation of the surrounding road and transport environment, including those listed in this EIS. The construction traffic management plan will be developed in consultation with relevant emergency services, Liverpool City Council, Fairfield City Council, Roads and Maritime Services, and public transport/bus operators.

In addition, mitigation measure C1.10 commits the contractor to consult with Liverpool City Council and the relevant sporting associations to minimise potential conflicts between vehicles, pedestrians and cyclists at the reserve, particularly during weekend periods when sporting activities are likely to occur.

6.6.8 Traffic – construction

Issue

A detailed Construction Traffic Management Plan (CTMP) is to be submitted to Council for review and approved prior to the issue of a Construction Certificate.

Response

Noted. As noted in the response above mitigation measure C1.1 commits to the preparation of a construction traffic management plan by the contractor to be implemented as part of the CEMP. It will include measures to minimise the potential for impacts on the community and the operation of the surrounding road and transport environment, including those listed in this EIS. The construction traffic management plan will be developed in consultation with relevant emergency services, Liverpool City Council, Fairfield City Council, Roads and Maritime Services, and public transport/bus operators.

This plan would be prepared prior to construction commencing and would be reviewed and compliance audited by the independent Environmental Representative (ER) (refer to section 22.2 of the EIS). The objectives of the plan (see section 8.5.1 of the EIS) include minimising the impact of construction vehicle traffic on the overall operation of the road network and providing a continuous, safe and efficient movement of traffic for both the general public and construction workers.

6.6.9 Project – Construction

Issue

Removal of the existing shared path over Cabramatta Creek will require construction of a suitable replacement, which maintains connectivity between Station Street and Broomfield Street, prior to the existing bridge being removed.

Response

During construction of the new bridges over Sussex Street and Cabramatta Creek, the existing shared pathway between Broomfield Street and Jacquie Osmond Reserve would be diverted around the perimeter of works to the temporary shared path (located to the east of the existing shared path). This is discussed further in section 7.1.1 of the EIS.

There would be a two week period where access to Jacquie Osmond Reserve from Broomfield Street would be unavailable during bridge installation. During this time pedestrians and cyclists would likely need to be diverted to Cabramatta Road to cross to the western side of the rail corridor. Management of access during this period would be detailed in the construction contractors construction traffic management plan which will be prepared by the contractor and implemented as part of the CEMP (refer to mitigation measure C1.1).

In addition:

- mitigation measure C1.13 states that the Western Sydney Cycling Network will be notified prior to the proposed closure and/or diversion of the Parramatta to Liverpool Rail Train Cycleway within the project site
- mitigation measure D6.1 commits to developing an urban design and landscape plan as part of the detailed design with the objective of maintaining and improving pedestrian and cycling connectivity, reinstating vegetation where possible and, ensuring constructed elements improve on existing design and materiality. The urban design and landscape plan will be developed in consultation with Fairfield and Liverpool City Councils.

6.6.10 Project – design, key features

Issue

Dilapidation survey of the access road is to be undertaken and agreement with Council sought to reseal this road.

Response

A dilapidation survey will be undertaken of the Fairfield City Council and Liverpool City Council local roads within the proposed haulage routes prior to heavy vehicle use and provided to the relevant council (refer to mitigation measure C1.12). The access road would be reinstated and useability for the public/sports association would be retained, as is the case in the existing situation.

In addition, mitigation measure C13.8 commits to ensuring that all public areas will be reinstated to their pre-construction condition. The existing softball diamonds within Jacquie Osmond Reserve will be reinstated to pre-construction condition in consultation with the SDSA.

6.6.11 Air quality – operation

Issue

Concerned about air quality impacts associated with freight trains idling in the loop. Request for air quality sensors be installed at appropriate locations.

Response

Technical Report 3 - Air quality impact assessment in the EIS considers potential impacts from the idling of trains during operation. Section 4.3.9 of Technical Report 3, provides the detailed methodology for how idling is considered in the assessment. Key findings of this assessment (refer to section 6.2.10 of Technical Report 3) were:

- The assessment predicted no additional exceedances of the assessment criteria for any of the assessed pollutants.
- Existing annual background $PM^{2.5}$ levels exceed the criteria and the project will have minor incremental increases to this at the nearest sensitive receptors.

Air quality monitoring during operation was not identified as a requirement of the project due to the predicted findings of the assessment. Mitigation measures O2.1 commits to management of operational air quality impacts in accordance with ARTC's existing EPL (EPL #3142) and its' standard operating procedures including those within the ARTC Environmental Management System.

ARTC will also work closely with its customers about issues that may be associated with their locomotives and wagons such as excessive exhaust and extended idling. The community can report any concerns to the ARTC Enviroline on 1300 550 402, which operates 24 hours a day. From May 2020 changes to legislation will see NSW EPA introduce licensing specifically for rolling stock operators in NSW, which may include additional regulation of diesel emissions.

6.6.12 Water resources – flooding and hydrology

Issue

Confirm whether loss of flooding storage is compensated and if not, this should be provided.

Response

An assessment of flood impacts during operation of the project was provided in section 6 of Technical Report 5 - Hydrology and flooding impact assessment. In terms of residual operational impacts, there are negligible increases to flood depths along key access routes which are predicted in both the one per cent AEP and the one per cent AEP event plus climate change, though some of these areas are already predicted to be substantially flooded under existing conditions. There are no adverse impacts in the main creek flooding scenario (Cabramatta Creek), therefore the loss of storage in the floodplain due to the works have a negligible impact on the overall floodplain.

Potential residual flood risks have been identified on Broomfield Street. The design would be further refined to reduce the residual risks associated with the modifications to Broomfield Street. This refinement would include looking at the current grading of the road for the proposed design against the existing road and attempting to match as close as possible where overland flow paths exist.

Mitigation measure D2.5 requires further assessment and design refinement be undertaken during detailed design with the objective of not exceeding the following flooding characteristics during the one per cent AEP event:

- a maximum increase in time of inundation of one hour in a one per cent AEP event
- a maximum increase in 50 mm in inundation at properties were floor levels are currently not exceeded

- a maximum increase in 10 mm in inundation at properties were floor levels are currently exceeded.

In the event this cannot be met further mitigation would be proposed in consultation with Liverpool City Council.

Issue

Hydrologic and hydraulic modelling for the project identified minor increase in flood levels however the increase is only up to 10 mm in the 1% AEP flood event and is considered satisfactory.

Response

Noted. Please refer to the response provided above.

6.6.13 Water resources – water quality

Issue

The proposal should consider Water Sensitive Urban Design (WSUD) principles within the project. The performance of water quality treatment drains should be assessed using Council's MUSIC link.

Response

Mitigation measure D2.3 states that the project will be designed to ensure there is minimal potential for water quality impacts, including incorporating water sensitive urban design elements. Where relevant, MUSIC software would be used in-line with Council's guidelines to assess any treatment measures proposed.

6.6.14 Biodiversity

Issue

It is recommended that the mitigation measures included within the BDAR are adhered to in the subsequent development stages of the project.

Response

The mitigation measures provided in the EIS and the final mitigation measures provided in section 9.2 of this report incorporate the recommendations of Technical Report 4 – Biodiversity development assessment report (see mitigation measures C4.1 to C4.12 and O3.1 in section 9.2 of this report). The mitigation measures for the project were developed based on the recommendations of each technical specialist, and adjusted where required to provide consistency across the various environmental issues.

As described in section 9.2 of this report, if the project is approved, the project would be undertaken in accordance with the conditions of approval and the final list of mitigation measures.

6.7 Fairfield City Council

6.7.1 Noise and vibration

Issue

Acoustic - It is noted that the existing sound wall is to be replaced like for like along Broomfield Street. The predicted 'no build' and 'build' design year (2033) noise levels with the reconstructed noise wall indicate that noise mitigation needs to be considered for one sensitive receiver.

This receiver will be located on the second floor of the property at 108-110 Broomfield Street in NCA02. During the detailed design phase, it is recommended that a site visit be undertaken to confirm the apartment layout and determine specific architectural treatments. All noise mitigation recommendations are to be adopted with particular attention to the noise wall and identified sensitive receiver.

Response

Where exceedances of the RING (EPA, 2013) trigger levels are predicted the impacted receiver will be consulted regarding potential noise mitigation. This may include a review of the existing internal acoustic properties of the building and identification of where improvements can be made to reduce the exceedance of the trigger level.

Issue

Real time noise monitoring of wheel squeal and maximum noise limits imposed to assist neighbour amenity due to the slewing, stopping and starting operation of freight trains, particularly associated with a "loop" line.

Response

Wheel squeal only occurs on rail lines which have curves with a radius less than 500 metres. The design of the passing loop does not include curves with a radius of less than 500 metres, nor are any located in the direct vicinity of the project Therefore, wheel squeal would not be an issue for the project and does not require real time noise monitoring.

As described in section 5.2 of this report, maximum noise limits, incorporating stretching/bunching noise and engine idling, but also being representative of typical brake noise emissions, were considered as part of the noise and vibration impact assessment undertaken for the EIS (Technical Report 2 – Noise and vibration impact assessment). As per the results provided in Appendix L of Technical Report 2 the L_{Amax} rail noise trigger level of 85 dBA was only exceeded by more than 3 dB at one property, 108-110 Broomfield Street, at the second floor only. Therefore, in accordance with mitigation measure O1.1, the receivers at 108 Broomfield Street will be consulted regarding potential noise mitigation. No other properties qualified for mitigation in accordance with the RING and the noise assessment did not identify the need for any further noise monitoring based on the impacts identified.

Operation of the project would be undertaken in accordance with conditions of approval and ARTC's existing EPL (EPL #3142). Additionally, from May 2020, rolling stock operators on ARTC's Network in NSW will require an EPL issued by the EPA. This change will mean that rolling stock operators environmental performance outcomes, such as noise from locomotives and carriages, will be regulated by the EPA.

6.7.2 Traffic – construction

Issue

Construction traffic management plan is to be prepared and submitted to Council. Additional requirements to be included are:

- construction workers shall be advised to park in designated construction parking areas
- Western Sydney Cycling Network (WSCN) and Bicycle NSW be advised about the proposed diversion of the existing cycle path
- the impact of road closures is to be minimised
- details of temporary cycling and pedestrian access during the construction shall be provided to the Council
- emergency services shall be notified about the proposed works and access to emergency services shall be minimised at all times.

Response

Impacts from construction traffic and temporary changes to access will be minimised through the following mitigation measures.

Mitigation measure C1.1 states that a construction traffic management plan will be prepared by the contractor and implemented as part of the CEMP. It will include measures to minimise the potential for impacts on the community and the operation of the surrounding road and transport environment, including those listed in this EIS. The construction traffic management plan will be developed in consultation with relevant emergency services, Liverpool City Council, Fairfield City Council, Roads and Maritime Services, and public transport/bus operators.

Mitigation measure C1.4 states that a minimum lane width of about 3.5 metres will be provided along Broomfield Street during construction to facilitate the access of emergency service vehicles.

Mitigation measure C1.5 states that the project site will be managed to minimise construction worker parking on surrounding streets. A worker car parking strategy will be developed in consultation with the relevant local council to identify measures to reduce the impact on the availability of on street and off street parking. The strategy will identify potential mitigation measures including alternative parking locations. The strategy will encourage contractor staff to:

- park within compound sites
- use public transport
- car share.

Mitigation measure C1.13 states that the Western Sydney Cycling Network will be notified prior to the proposed closure and/or diversion of the Parramatta to Liverpool Rail Train Cycleway within the project site. This mitigation measure has been expanded to include consultation with Bicycle NSW.

Issue

Dilapidation surveys required as are road opening permits.

Response

A dilapidation survey will be undertaken of the local roads within the proposed haulage routes prior heavy vehicle access and provided to the relevant council (refer to mitigation measure C1.12).

Mitigation measure C1.1 states that a construction traffic management plan will be prepared by the contractor and implemented as part of the CEMP. This will include identifying the need for road opening permits. The construction traffic management plan will be developed in consultation with Council. This plan would be prepared prior to construction commencing.

Issue

Ensure the easy access and continuation of the existing Cycleway.

Response

An impact assessment of changes to pedestrian and cycle routes and access during construction and operation was provided in Technical Report 1 - Traffic, transport and access impact assessment and sections 8.3.4 and 8.4 of the EIS. Diversion routes may be required during construction of the project. Access to the Parramatta to Liverpool Cycle Rail Trail would be maintained during construction although it would be temporarily diverted to the opposite side of Broomfield Street while works to widen the rail corridor are carried out. The cycle trail would be reinstated following completion of construction as described in section 6.2.4 of the EIS.

Mitigation measure C1.1 states that a construction traffic management plan will be prepared by the contractor and implemented as part of the CEMP. It will include measures to minimise the potential for impacts on the community and the operation of the surrounding road and transport environment, including those listed in this EIS.

Issue

All parking spaces that are changed or lost during construction to be reinstated within comfortable walking distance on the same side of the line, closer to the desired location of Cabramatta station (as per the officer discussion).

Response

An assessment of impacts to street parking during construction has been provided in Technical Report 1 - Traffic, transport and access impact assessment and section 8.3.5 of the EIS. Up to 46 parking spaces on Broomfield Street would be impacted during construction works in this location.

In order to mitigate the potential impact to parking, ARTC is proposing to lease a vacant lot in close proximity to the project site and provide a temporary at-grade parking area. While this would be subject to obtaining such a lease in consultation with the landowner, the criteria identified for potential temporary car parking site are:

- aim to be located within 800 metres of Cabramatta Station
- be either an existing hard stand site or site with no existing buildings to limit the need for demolition
- provide about 40 parking spaces
- provide suitable access into and out of the site to limit impacts to the traffic network as a result.

It is anticipated that construction worker parking would be kept to designated compounds and areas designated for construction workers only. Approximately 60 to 80 worker's vehicles could be accommodated within the site compounds. Therefore, there should be minimal impact to on street parking from construction workers. Parking locations would be detailed in the CEMP.

6.7.3 Traffic – operational parking

Issue

There is to be no net loss of parking to Broomfield Street.

Response

In response to submissions from the community and Fairfield City Council, a number of potential car parking solutions have been identified and investigated to mitigate the potential loss of parking. These include three options provided by Fairfield City Council. The outcome of this options assessment is summarised in section 5.4 of this report.

As a result of this options assessment, a selected parking option was identified in Railway Parade which would replace all parking spaces lost within Broomfield Street. This would be achieved by reducing the width of some of the median kerbs in Railway Parade and changing some existing parallel parking to angled parking. A new mitigation measure, mitigation measure D11.1 commits to further refining the selected parking option during detailed design and providing the final design to Fairfield City Council.

Further information regarding the selected parking option, including the results of an environmental screening assessment and additional environmental assessment of the traffic, transport and access, construction noise and vibration and landscape and visual amenity impacts, is provided in section 5.4 of this report.

Through the implementation of new mitigation measure D11.1, replacement parking will be provided on Railway Parade to reinstate all parking spaces lost on Broomfield Street, ensuring that there would be no net loss of parking on Broomfield Street as a result of the project.

Issue

All parking spaces that are changed or lost to be reinstated within comfortable walking distance on the same side of the line, closer to the desired location of Cabramatta station (as per the officer discussion)

Response

As noted in the response above and discussed further in section 5.4 of this report, a number of potential car parking solutions have been investigated and evaluated to mitigate the potential loss of parking. The objective of the options assessment was to mitigate the loss of up to 11 parking spaces within 400 metres of Cabramatta Station, as the parking assessment undertaken to inform the EIS identified that the majority of on street parking users are commuters. The need to provide parking on the same side of the line as the lost parking (ie the eastern side of the rail corridor) was not considered necessary as commuters can access the line from either side of the rail corridor.

Seven options to mitigate parking were assessed, including three options provided by Fairfield City Council (refer to section 5.4.2 of this report). An evaluation of the options was undertaken based on the following criteria:

- Level of compliance to applicable standards
- Impact to existing utilities
- Impact to private and public property through encroachment of the works
- Environmental and social impacts
- Construction complexity and cost.

The assessment concluded that the provision of additional parking spaces in Railway Parade through the reconfiguration of existing parking was the selected parking option (described as Option 1 in section 5.4.2 of this report) as it provided significant advantages across all criteria, best meets the objectives of the assessment, and has the following additional benefits:

- complies with relevant standards
- minimises impact to utilities
- is within similar proximity of the impacted parking (400 metres of Cabramatta Station)
- requires a small amount of property from the existing road corridor, in an existing parking area separated from residential land uses
- has minimal impacts on existing landscaping with the implementation of mitigation as noted in the landscape and visual impact assessment (refer to section 5.4.6 of this report)
- is relatively simple to construct due to minimal impacts on the road corridor and utilities and would result in minimal disruption during construction
- could be undertaken prior to the main construction works (either as a standalone works or as part of the enabling works described in section 7.2.1 of the EIS), providing certainty to the community that the parking loss would be rectified prior to construction and reducing the impact of the temporary parking loss during the main construction works on Broomfield Street.

The assessment identified the following order of preference for the options assessed:

1. **Option 1 Railway Parade perpendicular parking** – Selected option for the reasons outlined above and further detailed in section 5.4.2 of this report.
2. **Option 2 Broomfield Street and Curtin Street angled parking** – This was less preferred as it would have a higher impact on utilities and higher social impact (moderate loss of vegetation).

3. **Option 3 Broomfield Street between Curtin and Longfield streets angled parking** – This option was less preferred as it did not meet the key objective of providing up to 11 parking spaces.
4. **Option 6 Corner of Bridge and Broomfield streets** (Fairfield City Council option) – This option was less preferred as it would result in a significant social impact and high costs due to property acquisition, demolition of existing structures and construction.
5. **Option 5 Fisher Street carpark upgrade** (Fairfield City Council option) – This option was less preferred as it would result in significant disruption to the operation of the existing carpark, replace the parking in a non-equivalent location, and result in high construction cost and complexity.
6. **Option 4 Bridge Street alignment and angled parking** – This was the least preferred option due to the significant amount of modification to Bridge Street that would be required to achieve the parking.
7. **Option 7 Boundary Lane** (Fairfield City Council option) – This option was not evaluated further as it was not considered feasible due to the width requirements of the roadway and verge when angled parking is introduced.

Further information regarding the selected parking option is provided in section 5.4 of this report.

As per the benefits noted above, the selected parking option (Option 1) allows for the reinstatement of all parking spaces lost within the recommended desirable walkable distance for commuters from Cabramatta Station (ie within 400 metres).

6.7.4 Project - consultation

Issue

It is noted that DPIE did not contact residents however ARTC did.

Response

Noted. Community and stakeholder engagement for the project commenced in early 2018. A Stakeholder Engagement Strategy was developed to identify and guide the objectives and expected outcomes of consultation during each stage of the consultation process. Consultation carried out for the project is discussed further in Chapter 3 (Stakeholder and community consultation) of this report.

Issue

Multilingual notification of project for wider community. A project officer should be appointed to assist impacted residents.

Response

Given the cultural diversity within the LGAs guidance on how to access translation and interpretative services were provided on all flyers, fact sheets and on the project website, in English, Vietnamese, Mandarin and Arabic.

A community and stakeholder engagement plan would be prepared prior to the commencement of main construction works (refer to section 22.2.3 of the EIS). The plan would be developed in consultation with Fairfield City Council and Liverpool City Council. The plan would aim to detail the approach to communicate between ARTC and its Construction Contractor(s), and the community and government authorities including the distribution of accessible information to keep the community and stakeholders informed.

6.7.5 Land use and property - operation

Issue

Permanent land acquisition - Council officers do not object to permanent land acquisition as long as it complies with the *Land Acquisition (Just Terms Compensation) Act 1991* (Sections 6.5.1 and 16.3.1.1).

Response

Noted. As committed to through mitigation measure D5.1 all acquisitions/adjustments will be undertaken in consultation with landowners and in accordance with relevant acts. This includes the *Land Acquisition (Just Terms Compensation) Act 1991*.

Issue

Detailed drawings to be provided and ARTC to commence negotiations re permanent and temp land acquisition requirements ASAP.

Response

Any required documentation would be provided to Council, in accordance with the acquisition process and legislative requirements.

6.7.6 Land use and property - construction

Issue

Council has no objections to temporary land acquisition proposed in the EIS. But no additional work sites are permitted on land that would be permanently acquired for the project.

Response

ARTC will discuss further lease requirements with Council. As stated in mitigation measure D5.3, individual property agreements/licenses will be developed in consultation with the relevant council and landowners.

Lease requirements would also include the need for any additional permits or approvals. No additional work sites are proposed for the project. As described in the project description (refer to section 7.4 of the EIS) worksites W3 and W4 are required to facilitate works in the Broomfield Street area.

6.7.7 Soils and contamination

Issue

All recommendations are to be adopted and implemented as stated in the soil and contamination report.

Response

The mitigation measures provided in the EIS and the final mitigation measures provided in section 9.2 of this report incorporate the recommendations of Technical Report 6 – Soils and contamination impact assessment (see mitigation measures C5.1 to C5.7 and O4.1 to O4.2 in section 9.2 of this report). The mitigation measures for the project were developed based on the recommendations of each technical specialist, and adjusted where required to provide consistency across the various environmental issues.

As described in section 9.2 of this report, if the project is approved, the project would be undertaken in accordance with the conditions of approval and the final list of mitigation measures.

6.7.8 Air quality – construction

Issue

Given the proposed mitigation measures for management of air quality impacts during construction no issues raised.

Response

Noted.

6.7.9 Water resources – flooding and hydrology

Issue

All key criteria in table 13.2 of the EIS is not permissible. The proponent shall undertake the design performance and key criteria from Fairfield City Council's city wide DCP 2013 - Chapter 11 Flood risk Management.

Response

A review has been undertaken of Fairfield City Council's Development Control Plan (DCP) - Chapter 11 Flood Risk Management and it is noted that none of the schedules, namely schedule 5 and schedule 6, do not cover infrastructure related development. Therefore, the prescriptive controls referenced in section 11.8.3 are not considered to apply to the development.

With regards to the performance criteria provided in section 11.8.2 of the DCP it is considered that the flood impacts of the project do not preclude the achievement of these criteria, where relevant to the project. In addition, the flooding impact assessment undertaken as part of the EIS and provided in Technical Report 5 - Hydrology and flooding impact assessment, is a preliminary assessment and further assessment and design refinement would be undertaken during detailed design (as stated in mitigation measure D2.5) to minimise the identified flooding impacts.

6.7.10 Landscape and visual – operation

Issue

What are the final tree numbers, further tree planting is required to offset the loss of trees and street trees should not be placed in parking zones. Additional tree planting is required in Junction Street.

Response

The urban design and landscape plan would reinstate vegetation where possible (mitigation measure D6.1) and to develop this plan in consultation with Council. The preliminary landscape concept has only identified street trees where there is ample space, and this would not limit the safety or useability of the road or parking spaces. The landscaping concept aims to mitigate the potential impacts of the project and would be constrained by the space available above and below ground, amongst other considerations. As such, a well considered urban design and landscape plan being developed in line with the principles and objectives discussed, and in consultation with Council is considered a preferred approach to "offsetting" trees removed.

Landscaping at the intersection of Broomfield Street and Junction Street is considered in the landscaping concept and no further tree removal along Junction Street is proposed at this stage.

Issue

Confirmation that the ongoing maintenance of the sound wall and planting on the sound wall will be the responsibility of Sydney Trains/RMS is sought.

Response

Landscaping maintenance will be undertaken for a period of 12 months following construction. The responsibility of maintenance beyond this period will be discussed with the relevant authority.

Issue

Council's preference is for upright narrow plants over climbers on trellis wires. Retention of the existing street trees along Broomfield Street with the changing levels and works carried out around the trees would potentially make it hard for the trees to survive.

Response

The landscape concept outlined in section 17.3 of the EIS has identified preliminary vegetation reinstatement options that would not limit the safety or useability of the road corridor, including use of car parking, the footpath and the shared path. With this objective in mind the replacement of street trees on the eastern side of the road in-lane where there is ample space, and the provision of a catenary system on the western side of the road were considered to be the preferred options. No existing street trees within the project site along Broomfield Street are proposed to be retained.

However, as committed to through mitigation measure D6.1, an urban design and landscape plan will be developed during detailed design in consultation with Council. Development of the urban design and landscape plan will involve further refinement of the landscape concept and will take into consideration selection of species appropriate to the detailed design of the road corridor.

Issue

Tree canopy and landscaping amounts (offsets from the original freight line project) to be replaced and not on the roadway. A maintenance schedule should be in place for 12 months for new plantings so that they survive.

Response

The preliminary landscape concept has only identified street trees where there is ample space, and where they would not limit the safety or useability of the road or parking spaces. However, as noted in the response above, an urban design and landscape plan will be developed during detailed design (mitigation measure D6.1), which will involve further refinement of the landscape concept and will be prepared in consultation with Council. The landscaping concept aims to mitigate the potential impacts of the project and would be constrained by the space available above and below ground, amongst other considerations. Where further constraints are placed around trees currently proposed in-lane between parking spaces, this could further limit the ability to mitigate the potential impacts as a result of this project.

Landscaping maintenance would be undertaken for a period of 12 months following construction. Following this period, it is anticipated that maintenance of landscaping undertaken outside of the rail corridor would be undertaken in accordance with Council's (or the relevant landowner's) existing maintenance procedures.

Issue

Graffiti management on the walls and Sussex St Bridge needs to meet the appropriate standards.

Response

Urban design principals and objectives have been developed to include Crime Prevention Through Environmental Design (CPTED) principles through the design process.

Mitigation measure D6.5 commits to developing the design and materiality of the bridges to integrate with the existing built form in accordance with *Bridge Aesthetics: Design guidelines to improve the appearance of bridges in NSW* (RMS, 2012). The bridge design will minimise visual clutter where possible, through incorporating cabling and barriers into a single bridge façade. The bridge design will be in accordance with ARTC’s requirements to ensure bridge structures can be visually monitored as part of ongoing maintenance.

Mitigation measure D6.6 also commits to the use of high quality materials, textured and graffiti resistant surfaces, where possible, on retaining walls along Broomfield Street and Jacquie Osmond Reserve to deter graffiti, particularly at lower levels of the walls. The design will be finalised following consultation with maintenance stakeholders.

6.7.11 Project – design key features

Issue

A verge is required between the Broomfield Street shared path and the parallel parking and a risk assessment needs to be undertaken to ensure that the proposed 2.5 metre shared pathway won't compromise safety of pedestrians and/or motorists.

Response

The shared path would be reinstated as per the current arrangement, however the overall width would be slightly reduced by about 20 centimetres (refer to section 6.2.4 of the EIS). Currently there is no verge provided on this path. The shared path has been designed in accordance with relevant Australian standards (Austroads, 2015).

Issue

Pavement design shall comply with Austroads guidelines *Guide to the Structural Design of Road Pavements*, and the design for other proposed infrastructure shall comply with Council's design guidelines. Construction is required to comply with Council's Road Works Specifications and shall be submitted to Council for review and approval.

Response

Key criteria outlined in section 6.2.4 of the EIS has been used to develop the design of the project which has been adopted in consultation with stakeholders including Fairfield City Council. These criteria are in accordance with relevant design standards and Council specifications. Design specifications developed during detailed design would be provided to Council.

Issue

Quality Control and Assurance Documentation for construction works on Council land is to be provided for review by Council. ARTC's nominated construction contractor should provide Council access on site when construction is underway.

Response

As stated in mitigation measure D5.3, individual property agreements/licenses will be developed in consultation with the relevant council and landowners. Further consultation with Council will be undertaken regarding access to active construction sites.

Issue

The plans must be amended to show a sub soil drainage system along the identified barrier kerb. The realignment must ensure that vehicle turning path requirements into Bridge Street, Boundary Lane and Sussex Street conforms to the relevant Australian Standard. The vertical alignment of each driveway is to be checked to ensure that the gradient is suitable for ingress and egress.

Response

Noted. The current reference design shows compliance with relevant Australian standards. The vertical alignment/gradient has also been considered in the reference design, which shows compliance with Australian and Council standards. These matters would be investigated further as part of detailed design.

6.7.12 Biodiversity

Issue

The impacts to the Cabramatta Creek Flying Fox colony have not been considered.

Response

Potential impacts to the Grey-headed Flying-fox (*Pteropus poliocephalus*) have been considered as part of the biodiversity assessment undertaken for the EIS and are described in section 6.7.4 of Technical Report 4 – Biodiversity development assessment report and sections 11.3.2 and 11.4.3 of the EIS.

Appendix C of Technical Report 4 - Biodiversity development assessment report, provides a detailed assessment of significance in accordance with the EPBC Act. In addition, potential impacts from the project on this species are detailed in section 6.7 of Technical Report 4 and summarised in section 11.4.3 of the EIS. The assessment incorporated field survey in accordance with the Biodiversity Assessment Method which included the Grey-headed Flying-fox.

Particular focus was given to potential effects of impacts from the removal of 0.5 hectares of potential foraging habitat and noise impacts from the project on the Grey-headed Flying-fox. The project site was assessed as unlikely to contain any important breeding, roosting or nesting habitat. A specific assessment of potential direct or indirect impacts on the Cabramatta Creek Grey-headed Flying-fox roost camp concluded that the project would have minimal impact on this roost camp.

6.7.13 Social impacts – construction

Issue

Cabramatta has a large events program, and no rail works, line possessions or on street changes should occur during and in the lead up to event days.

Response

Noted. In accordance with mitigation measure D7.2, consultation with community facilities and event organisers (Cabramatta Moon Festival and Chinese New Year's) with the potential to be impacted by the project, including the cultural centres along Broomfield Street, Fairfield City Council, Liverpool City Council, the SDSA and Lawrence Hargrave Special Education School will be undertaken prior to construction. Consultation will aim to identify and develop measures to manage the specific construction impacts for individual community facilities and events. These measures would be incorporated into the relevant management plans.

THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK

7 RESPONSE TO ORGANISATION SUBMISSIONS

This section provides responses to the issues raised in submissions provided by organisations.

7.1 NSW Ports

7.1.1 Project support

Issue

NSW Ports supports the Cabramatta Loop project.

The Cabramatta Rail Loop project optimises the efficiency and effectiveness of freight travelling to and from ports and intermodals on this section of the freight rail network. Further consideration should be given to additional passing loops and infrastructure along the freight rail network throughout Greater Sydney to improve the capacity of freight transported along the rail network.

NSW Ports supports proposals of this nature which seek to facilitate freight rail infrastructure and development.

Response

Support is noted.

7.2 Southern Districts Softball Association (SDSA)

7.2.1 Design – key features

Issue

SDSA request improvement to the access road that runs along the length of the train tracks.

Response

In accordance with mitigation measure C13.8, all public areas and access routes will be returned to their pre-construction condition, at a minimum.

Issue

Request for the installation of lights to enable play for night games to make up for the loss of 3 diamonds during this period.

Response

New mitigation measure C11.3 commits to exploring opportunities for provision of appropriate lighting in consultation with the SDSA and Liverpool City Council, to facilitate night games during the construction period when some of the softball diamonds are impacted. This investigation will consider other issues around providing night-time lighting, such as impacts to the Grey-headed Flying Fox community and other potentially sensitive receivers.

7.2.2 Project - construction

Issue

Access to the double gates at the end of Sappho Road should be maintained, additional gates should be installed to allow for the continued maintenance of the grounds by Liverpool Council and our vendor deliveries.

Response

Access will be maintained for Council and the SDSA at all times during construction. The access configuration may be slightly altered, but access would not be restricted, and the Contractor would consult with Liverpool City Council and the relevant sporting associations regarding any temporary access changes during construction.

7.2.3 Landscape and visual – operation

Issue

Additional trees along the train line should be planted to provide shade for our members.

Response

As described in section 17.3.3 of the EIS, the provision of trees or other plantings on the embankment next to the train line would potentially cause safety issues for ARTC and Liverpool City Council, including branches and risk of trees falling in the rail corridor or on the softball field/diamonds. Therefore, consultation undertaken with Council as part of the urban design and landscape plan development (mitigation measure D6.1) would look to identify opportunities to reinstate trees in other parts of the reserve rather than directly adjacent to the train line.

7.2.4 Social impacts operation

Issue

Reinstatement and reconfiguration of the diamonds should occur once the project has been completed and an indoor training facility should be provided to compensate for the loss of one diamond on a permanent basis.

Response

Impacts to the softball diamonds are discussed in section 16.4.2 and section 18.3.3 of the EIS. These sections discussed the need for partial acquisition of Jacquie Osmond Reserve (a narrow strip alongside the rail corridor) and that the impact of this may result in a small relocation of up to three of the existing softball diamonds up to ten metres to the east. This is considered unlikely to impact on the operation of the softball fields and would be further refined during detailed design. The project does not anticipate the permanent loss of one diamond.

Consultation will be undertaken during design development with Liverpool City Council and the SDSA to minimise impacts on use of the softball fields due to the presence of the embankment and passing loop.

Provision of an indoor facility has not been identified as a requirement of the project given temporary impacts during construction will be managed in consultation with the SDSA, and the impacted softball diamonds would be reinstated following completion of construction.

7.3 Restore Inner West Line

7.3.1 Project need

Issue

It appears that the proposal hasn’t considered a possible duplication of the Main South Railway line as passenger demand on the T5 Cumberland Line, T2 Leppington and Inner West Line, T3 Bankstown Line Grows. Freight rail should not be at the expense of passenger rail capacity.

Response

As described in section 5.1 of the EIS, there are a number of strategies and plans that have been developed by the Federal and NSW Governments to establish the strategic directions, projects and initiatives required

to meet the infrastructure needs of Sydney's growing population and economy. These documents guide an integrated approach to transport infrastructure and land use planning in NSW, to avoid the potential for conflicts between different types of infrastructure such as freight and passenger rail. They include the *State Infrastructure Strategy 2018-2038* (Infrastructure NSW, 2018), *Future Transport Strategy 2056* (Transport for NSW, 2018a), the *Greater Sydney Region Plan* (Greater Sydney Commission, 2018) and the *Regional Development Framework* (Department of Industry, 2017) which bring together infrastructure investment and land use planning for NSW.

The need for the project was established as part of the *State Infrastructure Strategy 2018-2038* (Infrastructure NSW, 2018), which investigates infrastructure demands over the next 20 years.

The project was also identified as a committed initiative in the *NSW Freight and Ports Plan* (Transport for NSW, 2018b), which forms part of the integrated 40 year vision, directions and outcomes for transport in NSW, established in the *Future Transport Strategy 2056* (Transport for NSW, 2018a). The *Future Transport Strategy 2056* has also identified a number of initiatives to improve the capacity of passenger rail within the Greater Sydney area. In the vicinity of the project these include the following:

- The More Trains, More Services program – this will continue to be delivered over the next ten years and involves boosting capacity through extra services, better infrastructure and new trains.
- The Sydney Metro City and Southwest Extension to Liverpool – this project would extend Sydney Metro City & Southwest from Bankstown to Liverpool but would be unlikely to be built for at least 20 years.

The project would not preclude the ability of the above projects to proceed. The potential duplication of the Main South Railway line has not been identified as an initiative in the *Future Transport Strategy 2056.*

7.3.2 Noise and vibration

Issue

Wheel and brake squeak are a major issue affecting communities and residents along rail freight corridors. The proposed walls are a bare minimum and more needs to be done to reduce the impact on properties surrounding the rail corridor

Response

Wheel squeal only occurs on rail lines which have curves with a radius less than 500 metres. The design of the passing loop does not include curves with a radius of less than 500 metres, nor are any located in the direct vicinity of the project Therefore, wheel squeal would not be an issue for the project and was not assessed as part of the noise and vibration impact assessment undertaken to inform the EIS (Technical Report 2 – noise and vibration impact assessment).

Brake noise consists of the noise generated by brake blocks scrubbing against the wheels running surface to create friction. Dynamic braking from locomotive engines can also produce noise. In some cases brake blocks can produce high levels of brake noise with a tonal component which is often referred to as brake squeal. Noise levels from brake noise source data were not available to inform the assessment as brake squeal is somewhat unpredictable. This is because brake squeal has the potential to occur for some, but not all freight trains, to different degrees, and where and when it may occur is difficult to define. Additionally, the project has been designed so that the trains will approach and enter the passing loop at slow speeds, minimising the need for significant braking. This means that if brake squeal where to occur it would likely be due to poor train maintenance rather than operation of the passing loop. Given the lack of brake noise source data to inform the noise model, the unpredictability associated with defining brake noise including brake squeal, and the low likelihood for brake noise to be a significant issue due to the project, brake noise was not included in the noise model developed as part of the EIS assessment.

However, a literature review was undertaken as part of the preparation of this report to inform a qualitative assessment of brake noise and the results of this qualitative assessment are provided in section (refer to section 5.2 of this report). Based on the maximum noise level for brake squeal identified as part of the literature review, the assessment of L_{Amax} noise levels undertaken as part of the EIS for stretching/bunching and engine idling is considered representative of brake squeal impacts. The predicted results from these events are presented in Appendix L of Technical Report 2 which accompanied the EIS.

The RING specifies that mitigation may be considered where certain trigger levels are exceeded, these include where L_{Amax} levels are predicted to exceed 85 dBA and where there is a predicted increase of 3 dB or more due to the project. As per the results provided in Appendix L, assuming a maximum sound power level of 121 dBA, the L_{Amax} rail noise trigger level of 85 dBA is exceeded at over 20 properties. However, it is exceeded by more than 3 dB at only one three-storey property, 108-110 Broomfield Street, at the second floor only. Therefore, in accordance with mitigation measure O1.1, the affected receivers at 108-110 Broomfield Street will be consulted regarding potential noise mitigation.

The RING recommends maintenance as the most appropriate control measure to minimise the potential for brake squeal. An amendment to the POEO Act was passed on 5 July 2019 to include rolling stock operations as a scheduled activity under Schedule 1 of the Act. From May 2020, rolling stock operators on ARTC's Network in NSW will require an EPL issued by the EPA. This change will mean that rolling stock operators' environmental performance outcomes will be regulated by the EPA. This may include regulation of freight train maintenance schedules to reduce the potential for brake squeal and the provision of noise limits to better manage noise emission such as brake squeal.

8 RESPONSE TO COMMUNITY SUBMISSIONS

This section provides a summary of the issues raised by community submissions, and a response to the issues raised. As described in section 4.2, the issues raised were summarised and grouped according to the identified key issues and sub-issues, and responses are provided according to these categories.

8.1 Consultation

This section provides responses to issues raised in relation to consultation with the community.

8.1.1 Issue

A couple of submissions raised concerns and queries regarding the consultation process for the project. Issues raised included:

- concerned about not being able to make contact with the officer in charge
- queried whether there would be further opportunities for public exhibition and consultation following the submission process.

8.1.2 Response

As described in section 3.2 of this report, opportunities for feedback provided during exhibition of the EIS included the following:

- making a formal submission to the Department of Planning, Industry and Environment via the planning portal website (www.planningportal.nsw.gov.au/major-projects/project)
- contacting the ARTC project team via the ARTC Enviroline on phone (1300 550 402) or email (enviroline@artc.com.au).

Enviroline is a telephone message bank and email account that can receive environmental enquires and complaints. If using the telephone service, the caller is prompted to leave their contact information and details regarding the enquiry and a return call is then made by the ARTC project team, to discuss the enquiry in more detail. ARTC aims to respond to all queries within two days. Where this is not possible, then ARTC will contact the caller to provide an indicative response timeframe. ARTC can confirm that contact was made with all community members who have used the ARTC Enviroline to date to make project-specific enquiries.

No instance of someone trying to make contact with the officer in charge has been raised through the channels made available during exhibition of the EIS or since. Both Enviroline phone and email contact channels remain active.

The Department of Planning, Industry and Environment has now provided ARTC with all formal submissions received on the project and ARTC has considered and provided a response to the issues raised in submissions in this report. This report will be made available for viewing on the Department of Planning, Industry and Environment's planning portal website and the Department of Planning, Industry and Environment will consider the submissions and the responses summarised in this report as part of the decision whether to approve the project.

As described in section 3.3, close engagement with stakeholders and affected properties, owners and occupiers, will continue through design and construction, using a range of targeted communication methods. Additionally, feedback can continue to be made via the ARTC Enviroline.

8.2 Project need

This section provides responses to issues raised in relation to the need and justification for the project, including why the project is proposed and its relationship to future infrastructure development in the area.

8.2.1 Issue

One submission raised concerns about rail freight lines and associated infrastructure such as the project, interfacing with, and impacting the construction and operation of future passenger line services.

8.2.2 Response

As described in section 5.1 of the EIS, there are a number of strategies and plans that have been developed by the Federal and NSW Governments to establish the strategic directions, projects and initiatives required to meet the infrastructure needs of Sydney's growing population and economy. These documents guide an integrated approach to transport infrastructure and land use planning in NSW, to avoid the potential for conflicts between different types of infrastructure such as freight and passenger rail. They include the *State Infrastructure Strategy 2018-2038* (Infrastructure NSW, 2018), *Future Transport Strategy 2056* (Transport for NSW, 2018a), the *Greater Sydney Region Plan* (Greater Sydney Commission, 2018) and the *Regional Development Framework* (Department of Industry, 2017) which bring together infrastructure investment and land use planning for NSW.

The need for the project was established as part of the *State Infrastructure Strategy 2018-2038* (Infrastructure NSW, 2018), which investigates infrastructure demands over the next 20 years. With respect to Port Botany, it notes that container trade through the port is expected to grow by 62 per cent between 2016 and 2036, increasing from 2.36 to 3.83 million twenty foot equivalent units. The Strategy notes that 'maintaining the efficiency of infrastructure networks and access to the international trade gateways of Sydney Airport and Port Botany will be critical to support the ongoing competitiveness of the city and of NSW'. Transporting increased freight volumes to and from the port will place additional demands on the existing rail line, with freight that cannot be accommodated on rail, placing additional demands on the surrounding congested road network and other infrastructure.

The project was also identified as a committed initiative in the *NSW Freight and Ports Plan* (Transport for NSW, 2018b), which forms part of the integrated 40 year vision, directions and outcomes for transport in NSW, established in the *Future Transport Strategy 2056* (Transport for NSW, 2018a). The *Future Transport Strategy 2056* has also identified a number of initiatives to improve the capacity of passenger rail within the Greater Sydney area. In the vicinity of the project these include the following:

- The More Trains, More Services program – this will continue to be delivered over the next ten years and involves boosting capacity through extra services, better infrastructure and new trains
- The Sydney Metro City and Southwest Extension to Liverpool – this project would extend Sydney Metro City & Southwest from Bankstown to Liverpool but would be unlikely to be built for at least 20 years.

The project would not preclude the ability of the above projects to proceed.

As described in section 5.2 of the EIS, the project is required as the single track section of the SSFL between Cabramatta and Warwick Farm currently constrains the ability to increase the share of freight moved by rail on the line. Additional demand arising from the predicted growth in container freight between Port Botany and Sydney's main intermodal terminals has the potential to exacerbate this situation, impacting on reliability and restricting the efficient movement of freight across the broader Sydney rail network. Without significant infrastructure investment, existing transport constraints and challenges will worsen, resulting in greater impacts to local communities.

8.3 Project options

This section provides responses to issues raised in relation to the options that were considered prior to, and during, development of the project.

8.3.1 Issue

A couple of submissions raised concerns regarding the location of the project and some of the key features associated with the project. Issues raised included:

- the passing loop should not be constructed on Broomfield Street which has resulted in a new bridge also being required over Sussex Street
- the passing loop should not be built here, a better option would be within Jacquie Osmond Reserve
- the location of the passing loop should be moved closer to Cabravale Leisure Centre.

8.3.2 Response

As described in section 5.3 and section 5.5 of the EIS a number of different locations were considered for the passing loop. These included locations outside of Cabramatta and different locations within Cabramatta.

As access to Port Botany and Sydney's main intermodal terminals is via the SSFL, which connects to the Metropolitan Freight Network (MFN), options to enhance the capacity of the freight network needed to focus on these two lines.

Modelling and desktop analysis indicated that a passing loop at Cabramatta would have the greatest capacity benefit and would be required sooner than some other options.

Once a passing loop at Cabramatta was determined to be the preferred option further assessment was undertaken to determine the exact location of the alignment as part of the project design development. The assessment looked at a number of options for the location of the passing loop including locations further north and south of the existing location. The assessment concluded that:

- moving the passing loop further to the north, towards the Cabravale Leisure Centre, would have greater impacts on the community, including users of Cabramatta Station and the town centre, as it would require major works to the Cabramatta overbridge, the station and bus laybys; and
- moving the passing loop further south would also have greater impacts on the community as it would require an increase in the amount of private land that would need to be acquired. It would also have required the reconstruction of the Hume Highway road overbridge, resulting in greater impacts on the community and users of Warwick Farm Station.

The existing passing loop location was determined to be the preferred option as it minimised the amount of land acquisition, did not result in major impacts to the Cabramatta town centre community and users of Cabramatta Station, and balanced the potential impacts to the existing rail corridor with potential land take and building impacts to residential and commercial occupants. It is noted that about half of the passing loop would be constructed within Jacquie Osmond Reserve to further minimise impacts to the surrounding built environment and community. However, the entire passing loop could not be wholly contained within Jacquie Osmond Reserve due to its length, which was required to accommodate freight trains up to 1,300 metres long.

8.4 Project description – design features

This section provides responses to issues raised in relation to the features of the project.

8.4.1 Issue

A number of submissions had queries and concerns regarding the design and realignment of Broomfield Street. Issues raised include:

- concerned about the existing width of Broomfield Street already being insufficient to accommodate traffic and how the project would impact this further, resulting in more accidents

- requested that Broomfield Street, between Bridge and Sussex Street, becomes one way and that parking remains angled on the western side of the road and parallel on the eastern side of the road
- queried the changes in the configuration of Broomfield Street, including the width of verges and whether the current features would remain (ie the shared path, parking and two-way traffic lanes).

8.4.2 Response

The realignment of Broomfield Street will be consistent with the existing situation, resulting in the following:

- kerbside parking on the eastern and western sides of the road
- a footpath and grassed verge on the eastern side of the road and a shared path on the western side of the road
- two traffic lanes, one in each direction of travel.

This is described in further detail in section 6.2.4 of the EIS.

Maintaining the above infrastructure was determined to be the preferred option as it would result in minimal change to the existing traffic configuration thus resulting in limited additional traffic impacts following construction of the project. Therefore, community impacts would be minimised as access to infrastructure, including pedestrian and cyclist facilities would be maintained as per the existing situation.

The width of the road, shared path and footpath have been designed to meet relevant Fairfield City Council requirements, as well as relevant Australian standards and guidelines including:

- *Guide to Road Design* (Austroads, 2015)
- *Australian Standards* (AS) *2890.5 Parking Facilities Onstreet Parking* (AS, 1993).

Undertaking the design in accordance with these documents ensures both consistency and safety for road users, cyclists and pedestrians. Additional safety measures to manage any location-specific safety issues would also be considered as part of the detailed design process, where required.

On the eastern side of Broomfield Street, the width of the grassed verge would be reduced by up to 3.0 metres, from a maximum width of 4.0 metres in some locations to about 1.0 metre width. The majority of the existing kerbside parallel parking on the eastern side of the road is not currently formalised parking as it does not meet current standards. Therefore, the project would replace the existing parallel parking with formalised parking, designed in accordance with the standards noted above, reducing the potential for conflicts between parked cars and road users.

8.4.3 Issue

One submission queried whether the existing overhead power lines located on Broomfield Street would be relocated underground.

8.4.4 Response

The existing overhead power lines and lighting located on the eastern side of the road would be relocated to the location of the proposed new footpath on the eastern side of Broomfield Street. The reinstated power lines will be overhead.

8.4.5 Issue

One submission was concerned about the current lack of lighting on Broomfield Street and how the project would impact this further.

8.4.6 Response

Given the inclusion of the bridge over Sussex Street the lighting design underneath the bridge would consider the Crime Prevention Through Environmental Design (CPTED) principles to ensure adequate illumination at nighttime, as committed to through mitigation measure D9.3. As such, the project does not anticipate an impact to the current lighting along Broomfield Street.

8.4.7 Issue

One submission queried who would be responsible for extending the existing pedestrian bridge and relocating ramps and elevators due to widening of the rail corridor, and whether these works would maintain access for pedestrians, cyclists and persons with disabilities.

8.4.8 Response

There would be no changes to the pedestrian overbridge or ramps and elevators near Cabramatta Station due to the project. As discussed in section 8.3.2 of this report, the location of the passing loop was chosen to avoid impacts to the Cabramatta Station and overbridge. As noted above, the road, parking, pedestrian footpath and shared path would continue to be designed in accordance with relevant standards and specifications. This would include ensuring infrastructure is compliant with the requirements of the *Disability Discrimination Act 1995*, where relevant to the project.

8.5 Project description - construction

This section provides responses to issues raised in relation to the construction of the project.

8.5.1 Issue

One submission asked for further information regarding the proposed road closure schedule as well as the timeframe for building the Sussex Street bridge.

8.5.2 Response

The indicative construction program provided in section 7.3.1 of the EIS noted that works on Broomfield Street, including construction of the Sussex Street bridge, would take about 15 months and, dependant on project approval in early 2021, and would occur between July 2021 and September 2022. Given the current status of the project including project approval, it is now likely that works on Sussex Street bridge would commence in the second quarter of 2022 and be completed by the third quarter of 2023.

As described in section 7.2.2 of the EIS, the works along Broomfield Street would be undertaken in stages. The works would commence on the eastern side of Broomfield Street, and traffic would be diverted to the western side of Broomfield Street. Once works on the eastern side of Broomfield Street are complete, traffic and parking would be diverted to the eastern side of Broomfield Street, and works would be undertaken on the western side of Broomfield Street. This approach has been adopted to maintain access along Broomfield Street and minimise the need for closure of the roads and pedestrian and cyclist facilities.

As described in section 8.3 of the EIS, full road closures of Broomfield Street and Sussex Street would only be required for short periods (typically one night or less) for specific activities such as line marking and certain bridge construction activities where road closure is required due to safety reasons.

The construction program described in section 7.3.1 of the EIS represents a realistic timeframe to complete construction. This program is however indicative and is subject to change. A more detailed construction program would be developed following engagement of the construction contractor.

As committed to through mitigation measure D7.1, ARTC will continue to work with stakeholders and the community to ensure they are informed about the project. Consultation tools will include construction notifications which would provide further detail regarding the proposed construction timeframes, including the duration and timing of road closures and any associated diversions.

8.6 Traffic, transport and access

This section provides responses to issues raised in relation to the potential traffic, transport and access impacts of the project.

8.6.1 Construction impacts

Issue

Several submissions were concerned about changes to the road network and how this would impact local residents and commuters/visitors to the area.

Response

The assessment of the construction traffic and access impacts of the project is provided in Technical Report 1 (Traffic, transport and access impact assessment), and the results are summarised in section 8.3 of the EIS. The assessment has been prepared in accordance with all relevant guidelines and addresses the SEARs.

The assessment considered impacts on the road network performance due to construction vehicles accessing the project site and compounds (refer to section 8.3.2 of the EIS). The assessment found that most of the intersections potentially affected by the project during construction would continue to operate throughout the construction period at a level of service comparable to existing conditions. At intersections where marginal declines were forecast, the overall operation of the intersection would still be considered good.

Table 8.4 of the EIS outlines the potential changes to roads during construction, including temporary road closures. Works on Broomfield Street would be staged so that access along the street is retained for the duration of construction. As described in Table 8.4 of the EIS, this would result in some minor delays (one to two minutes) to vehicles travelling along Broomfield Street and Sussex Street, including residents accessing property driveways. There may also be some minor delays to vehicles in local streets surrounding the project site due to deliveries of oversized equipment requiring temporary road closures, however these works would be scheduled outside of peak hour traffic times to minimise impacts.

Mitigation measures C1.1, C1.2, C1.6 and C1.8, provided in Table 9.2 of this report, would be implemented to minimise the potential impacts associated with the movement of construction vehicles and potential impacts to road users due to the works. Mitigation measure C1.1 commits to preparing a construction traffic management plan that would include measures to minimise the potential for impacts to areas of public open space and the operation of the surrounding road and transport environment.

Measures to manage the potential for impacts to access would also be included in the construction traffic management plan. Mitigation measure C1.9 commits to maintaining driveway and pedestrian access to properties during construction. The measure also requires that where disruption to access cannot be avoided, consultation would be undertaken with the owners and occupants of affected properties, to confirm their access requirements and to discuss alternatives.

As per the response provided in section 8.5.2 of this report there would also be a need for full closures of Broomfield Street and Sussex Street during certain activities however the duration of these closures would be short term only (one night or less). Mitigation measure C1.7 commits to minimising the extent and duration of temporary road closures along Broomfield Street and Sussex Street to reduce the impact on local traffic.

Issue

A few submissions were concerned that construction would impact access for pedestrians and cyclists in the study area.

Response

Section 8.3.4 of the EIS describes the indicative changes to pedestrian and cycle routes/facilities that would occur during construction. As described in the EIS, pedestrian and cyclist access along Broomfield Street would be maintained during construction, however minor diversions may be required around the construction site to the opposite side of the road and temporary crossings may be provided.

As shown in Figure 7.2 of the EIS, the existing shared path between Sussex Street and Jacquie Osmond Reserve would be realigned about 15 metres to the east from the corner of Broomfield and Sussex Street and would join the existing path at the northern extent of the pedestrian footbridge over Cabramatta Creek. The impact would be negligible as the diversion is generally in the same location. The permanent and temporary shared path at this location would be closed for a duration of about two weeks when a crane is being used, to ensure the safety of path users.

Measures to manage the potential for impacts to pedestrians and cyclists would be included in the construction traffic management plan, which would be prepared and implemented prior to construction in accordance with mitigation measure C1.1. As committed to through mitigation measure D7.1, ARTC will also continue to work with stakeholders and the community to ensure they are informed about the project. Consultation tools would include construction notifications which would provide further detail regarding any proposed footpath or shared path diversions. Additionally, the Western Sydney Cycling Network will be notified prior to the proposed temporary closure and/or diversion of the shared path within the project site, as committed to through mitigation measure C1.13.

Issue

One submission was concerned about how construction will impact parking availability along Broomfield Street particularly given the use of the area by commuters.

Response

A survey of existing parking use in the study area was undertaken in October 2018 and the results were summarised in section 8.2.7 of the EIS. The survey found that the majority of on-street parking users are commuters, with an increase in demand noted before 9:00 am on weekdays, and demand declining after 3:00 pm. The survey noted that even during the highest utilised periods there is some spare parking capacity south of Cabramatta Station. Section 8.3.5 of the EIS recognises that while the available spare capacity would absorb some of the impact to parking there would still be a net loss in parking during construction due to the proposed staging of works along Broomfield Street. To manage this impact alternative parking will be provided wherever feasible and reasonable, as committed to through mitigation measure C1.3. This will include consideration of other privately owned (or vacant) land within close proximity to Cabramatta Station.

As described in section 8.3.5 of the EIS, construction worker parking would be kept to designated compounds and areas designated for construction workers only, resulting in minimal impacts to street parking from construction workers. Mitigation measure C1.5 commits to managing compound sites to minimise construction worker parking on surrounding streets, and to developing a worker car parking strategy in consultation with the relevant local council. The worker car parking strategy would identify measures to reduce the impact on local parking, and potential mitigation options, including public transport use and car share.

8.6.2 Operation impacts

Issue

A number of submissions raised concerns regarding the loss of parking due to the reconfiguration of Broomfield Street. Issues raised included:

- concern about there not being enough parking capacity currently to accommodate parking use due to commuters, let alone if the project results in a decrease in available parking
- concern that the reduction in parking loss due to the project does not consider the need to future proof for the growth of population in the area
- the loss of parking should be offset by the provision of bicycle parking spaces at approximately ten spaces for every car park lost.

Response

Permanent changes to parking due to the project were assessed in Technical Report 1 (Traffic, transport and access impact assessment), and the results are summarised in section 8.4.2 of the EIS. There is currently 135 parking spaces on the western side of Broomfield Street, south of Cabramatta Station and the project would result in a loss of up to 11 of these parking spaces.

While the parking review undertaken for the traffic, transport and access assessment concluded that there is considered to be sufficient parking on Broomfield Street and surrounding areas to accommodate the predicted loss of parking, in response to submissions from the community and Fairfield City Council, ARTC has investigated and evaluated a number of potential car parking solutions to mitigate the proposed loss of parking. The objective of the options assessment was to mitigate the loss of up to 11 parking spaces within 400 metres of Cabramatta Station, as the parking assessment undertaken to inform the EIS identified that the majority of on street parking users are commuters.

As a result of this options assessment, which is summarised in section 5.4 of this report, a selected parking option was identified and would now be delivered as part of the project. This would replace all parking spaces lost within Broomfield Street and would be achieved by reducing the width of some of the median kerbs in Railway Parade and changing some existing parallel parking to angled parking. A new mitigation measure, mitigation measure D11.1 commits to further refining the selected parking option during detailed design and providing the final design to Fairfield City Council. Further information regarding the selected parking option, including the results of an environmental screening assessment which was undertaken to determine where the assessment for the project in the EIS remains applicable to construction and operation of the selected parking option, is provided in section 5.4 of this report.

With regards to the provision of bicycle spaces to mitigate car parking space loss, local active transport issues and policies are matters for councils or Transport for NSW. However, as described in *Sydney's Cycling Future* (Transport for NSW, 2013), the NSW Government is currently working with councils to make cycling a more convenient and safer transport option. This document outlines a number of initiatives that are currently being implemented to prioritise and provide for cycling in Sydney. These include the Bike and Ride initiative, which will make it convenient for customers to ride to transport hubs and leave their bikes securely locked up so that they can transfer to public transport. The provision of secure bicycle parking facilities is being delivered under Transport for NSW's Transport Access Program.

8.7 Noise and vibration

This section discusses concerns raised about potential impacts from noise and vibration.

8.7.1 Construction impacts - general

Issue

A submission raised concern about how domestic animals would be impacted by construction noise.

Response

The assessment of construction noise impacts of the project is provided in Technical Report 2 - Noise and vibration impact assessment, and the results are summarised in section 9.3 of the EIS. The assessment addresses the SEARs, which requires assessment in accordance with relevant guidelines including the *Interim Construction Noise Guide* (ICNG) (DECC, 2009).

The ICNG applies to the management of construction noise in NSW and provides recommendations on construction noise management levels and standard construction periods. The ICNG considers sensitive land uses that have the potential to be impacted by construction noise, including residences, classrooms, hospitals, places of worship, passive and active recreation areas. The noise management levels provided in the ICNG are based on human response and annoyance factors and, as such are not applicable to non-human receivers. Current research also indicates that there are no government policies or widely accepted guidelines with regard to noise criteria for animals. However, information is provided in technical literature and has been reviewed for this response.

The effect of noise on animals can be similar to the effects observed in humans. Noise can adversely affect animals by interfering with communication, cause stress or avoidance reactions and (in the extreme) result in temporary or permanent hearing damage. Experiments have shown that exposure to noise impulses throughout the night-time period resulted in poorer day time task performance by animals (see Fletcher & Busnel, 1978).

The learning ability of many animal species, in regard to familiarisation, is discussed by Fletcher & Busnel (1978). The animal’s initial reaction to a new noise source is fright and avoidance but if other sensory systems are not stimulated (for instance optical or smell), the animal learns quite quickly to ignore the noise source, particularly when it exists in the presence of man.

An assessment of the indirect impacts associated with construction noise on fauna was undertaken as part of the biodiversity impact assessment undertaken to inform the EIS (Technical Report 4 – Biodiversity development assessment report). The biodiversity impact assessment concluded that the majority of construction activities would not generate noise that is above current background levels associated with the rail corridor and that fauna in the study area would be habituated to this background noise therefore, the generation of construction noise is unlikely to significantly affect fauna in the study area.

Mitigation measure C2.1 commits to preparing a construction noise and vibration management plan that would include measures to minimise the potential for noise and vibration impacts on the community, including those listed section 9.2 of this report. Mitigation measures C2.2 and C2.6 to C2.21 also provide commitments in relation to the processes and procedures that would be implemented during construction to manage noise.

8.7.2 Construction impacts – out of hours work

Issue

One submission raised objections to works being undertaken during nighttime hours and requested that any scheduled night time works cease at 8:30 pm.

Response

The proposed construction hours are described in section 7.3.2 of the EIS.

Where possible, construction of the project is proposed to be undertaken during the recommended standard hours defined by the ICNG (DECC, 2009) which are:

- Monday to Friday: 7.00 am to 6.00 pm
- Saturday: 8.00 am to 1.00 pm
- Sundays and public holidays: no work.

However due to the location of the works within or adjacent to an operational rail corridor there is a requirement for some works to be undertaken during periods when trains are not operating (possession periods), including during the evening and night-time, to ensure the safety of workers. ARTC currently schedules routine maintenance possessions on four weekends each calendar year. This work would need to be undertaken over a 48 hour period during the scheduled possessions to ensure all the required works are completed as efficiently as possible.

Additionally, a number of other activities would need to be undertaken during night time periods to minimise safety and traffic impacts, including, but not limited to, the delivery of oversized equipment, the relocation of overhead electricity and the placement of bridge girders using cranes. Limiting the hours within which these works could be undertaken would result in the construction period being extended beyond the estimated two years, which would result in additional impacts to the community.

To reduce impacts on the community as a result of works during the night-time, certain noise intensive plant that has the potential to generate the highest noise levels, including ballast tamping and hydraulic rock breaking, would not be used. The exceptions to this are:

- during a standard weekend rail possession or shut down
- a requirement of a road authority or emergency services.

Wherever possible, the use of noise intensive equipment would be planned to occur outside of the evening and night-time periods. This is committed to through mitigation measure C2.6.

An out of hours protocol would be developed prior to construction commencing. The purpose of the protocol would be to ensure that out of hours works are managed effectively and that noise impacts to the community are minimised. This commitment is confirmed by mitigation measure C2.2, which requires an out of hours protocol to be developed as part of the construction noise and vibration management plan to guide the assessment, management, and approval of works outside recommended standard hours.

Implementation of this protocol would assist in the management of out of hours works and potential noise impacts.

In addition, the implementation of the other construction noise mitigation measures (C2.1, C2.2 and C2.6 to C2.21) would assist in minimising the potential for noise during construction.

8.7.3 Operation impacts – noise

Issue

A couple of submissions were concerned about potential noise impacts associated with operation of the project. Issues raised included:

- concerned about existing noise levels from operation of the SSFL and how the project would increase noise levels as it would allow two trains to pass simultaneously and freight train movement to occur closer to residential receivers
- concerned about how trains would leave their engines idling when using the passing loop and how this would result in noise impacts to residential receivers.

Response

The assessment of the operational noise impacts of the project was provided in Technical Report 2 - Noise and vibration assessment, and the results were summarised in section 9.4 of the EIS. The assessment addresses the SEARs and has been undertaken in accordance with the RING (EPA, 2013).

The operational noise and vibration assessment included assessing the increase in noise levels that would result from trains using the passing loop and SSFL between Cabramatta and Warwick Farm stations. It also took into consideration the increased volume of trains that would use the passing loop and SSFL between Cabramatta and Warwick Farm stations ten years after the passing loop is built.

A noise model was developed as part of the assessment to determine noise levels and potential impacts from the project. The model considered noise sources such as:

- train engine and rolling (interface between wheel and rail) noise during freight train operation
- stretching/bunching noise from wagon couplings as freight trains decelerate/brake into the passing loop and accelerate out of the loop
- engine idling noise at the loop entry and exit points.

The model was informed by noise monitoring that was undertaken to identify existing noise levels in the study area, including those associated with the existing operation of the SSFL.

The RING specifies that mitigation may be considered where certain trigger levels are exceeded, namely:

- L_{Aeq} levels are predicted to exceed 65 dBA during the day and 60 dBA during the night **and** where there is a predicted increase of 2 dBA or more due to the project.
- L_{Amax} levels are predicted to exceed 85 dBA **and** where there is a predicted increase of 3 dBA or more due to the project.

The operational noise impact assessment found that the predicted total rail noise level (L_{Aeq}) would exceed the day time noise trigger level by 2 dBA and the night time noise trigger level by 5.3 dBA at one receiver only (R2289 – located on the second level of 108-110 Broomfield Street). The predicted maximum rail noise level (L_{Amax}) also exceeds the trigger level by 3.2 dB at this location. No other residential receivers were found to experience noise levels due to noise from train passby, stretching/bunching or engine idling above the rail trigger levels noted above.

8.7.4 Operation impacts - vibration

Issue

A couple of submissions raised concerns regarding vibration impacts to their homes due to operation of the SSFL and how the project would exacerbate this.

Response

The assessment of the operational vibration impacts of the project is provided in Technical Report 2 - Noise and vibration assessment, and the results are summarised in section 9.4 of the EIS. The assessment addresses the SEARs and has been undertaken in accordance with the *Assessing Vibration: A Technical Guideline* (DEC, 2006). The assessment considered vibration impacts associated with train movement on the passing loop and SSFL between Cabramatta and Warwick Farm stations, when the passing loop is built and ten years after completion of construction.

The vibration impact assessment compared the predicted future vibration values for day and night time along both the eastern and western sides of the rail corridor, to the respective residential criteria and concluded that the criteria is met at the following distances:

- on the eastern side of the rail corridor, at 13 metres (day) and 18 metres (night)
- on the western side of the rail corridor, at 9 metres (day) and 13 metres (night).

No residential sensitive receivers were identified within the human comfort vibration buffer distances detailed above. The human comfort vibration criteria is more stringent than the structural damage criteria. As no residential receivers have been identified within the human comfort vibration buffer distances, structural vibration impacts at residential receivers are not anticipated as a result of the project.

ARTC operates the existing network in accordance with its existing EPL (EPL #3142). Amongst other things, this requires ARTC to operate a complaints handling service (Enviroline) and ARTC encourages residents to contact them at the time of an incident so that their concerns can be investigated and addressed.

8.8 Air quality

8.8.1 Issue

A couple of submissions raised concerns regarding how operation of the project would result in an increase in diesel emissions in the surrounding areas.

8.8.2 Response

The operational air quality assessment is provided in Technical Report 3 – Air quality impact assessment and the results are summarised in section 10.4 of the EIS. The assessment has been prepared in accordance with relevant guidelines, and addresses the SEARs.

The assessment found that even assuming the highest frequency operation of the passing loop (72 movements within a 24 hour period) there would be no exceedances of the relevant air quality criteria due to the project for pollutants associated with freight train emissions.

Additionally, the project would not result in any significant regional air quality impacts as the emissions would be highly dispersed in the local area.

Freight train services and rolling stock which utilise the ARTC network are currently, and would continue to be, owned and operated by a variety of operators. ARTC works closely with operators to ensure ARTC's regulatory and community expectations for managing the environmental effects from operating trains on the network are met. It is noted that an amendment to the POEO Act was passed on 5 July 2019 to include rolling stock operations as a scheduled activity under Schedule 1 of the Act. From May 2020, rolling stock operators on ARTC's Network in NSW will require an EPL issued by the EPA. This change will mean that rolling stock operators environmental performance outcomes will be regulated by the EPA, which may include regulation of emissions produced by rolling stock.

8.9 Flooding

8.9.1 Issue

One submission was concerned about the existing flash flooding that occurs in drains near number 10 Sussex Street, and how the project would result in additional flooding impacts at this location.

8.9.2 Response

The operational flooding assessment is provided in Technical Report 5 – Hydrology and flooding impact assessment and the results are summarised in section 13.4 of the EIS. The assessment of the existing and potential changes to flooding conditions took into account relevant flood studies and plans.

Flood modelling was undertaken to assess the potential impacts associated with constructing the bridges and other structures near Cabramatta Creek for a full range of flooding events, from the 0.2 per cent to the five per cent AEP event. The flood modelling identified that currently Broomfield Street, between Cabramatta Road West overbridge and the Hume Highway overbridge, is affected by flooding from Cabramatta Creek during the 0.5 per cent AEP flood event and above. This means that flooding is likely to occur in events that have a possibility of occurring every two hundred years to every twenty years, which would explain the existing conditions experienced near 10 Sussex Street.

The flooding assessment found that the inclusion of structures proposed as part of the project, including the proposed Sussex Street bridge, would have a minimal impact on the flooding of Cabramatta Creek for the full range of flood events.

With regards to 10 Sussex Street, the flooding assessment found that there would be a minor increase in flood levels adjacent to this property (up to 25 millimetres increase) due to the project reference design, however this would only occur during a one per cent AEP (a one in 100 year flooding event).

As committed to through mitigation measure D2.5, further refinements of the drainage design will be undertaken during detailed design to mitigate the flood impacts noted above. This will include consideration of design criteria for flood impacts on adjoining land.

8.10 Non-Aboriginal heritage

8.10.1 Issue

One submission was concerned about normal procedures for protecting heritage not being adopted for the project and queried what would be done to prevent damage to heritage items.

8.10.2 Response

The potential non-Aboriginal heritage impacts of the project were assessed by an independent specialist heritage consultant in accordance with the SEARs; the *NSW Heritage Manual 1996* (Heritage Office and Department of Urban Affairs and Planning, 1996); and relevant guidelines under the manual, including *Assessing Heritage Significance* (Heritage Office, 2001), and *Statements of Heritage Impact* (Heritage Office, 2002).

The results of the assessment are provided in Technical Report 8 – Historical heritage assessment and statement of heritage impact, and the results are summarised in Chapter 14 of the EIS.

The assessment considered the potential for impacts to all listed items within and in the vicinity of the project site. As the majority of the project site is within or directly adjacent to a rail corridor, the presence of potential (unlisted) heritage items was considered to be unlikely.

The assessment concluded that there would be no direct impacts (removal of part or all of an item) to heritage listed items due to the project. However there is the potential for minor indirect impacts to two locally listed bridges adjacent to the proposed bridges and the archaeological remains of a locally listed federation

cottage from vibration during construction. Once operational, there may also be minor indirect impacts to the aesthetic significance and views of the two locally listed bridges and indirect impacts to the heritage values of the two station groups by changing the settings of the items.

The project site was also assessed for archaeological potential, and it was concluded that the potential for impacts to archaeological material present or archaeological potential is considered to be low.

Mitigation measures would be implemented to minimise the impacts identified and prevent damage to heritage items. The full list of heritage mitigation measures is provided in Table 9.1 to Table 9.3 of this report and include the following:

- D3.1 and D3.2, which require the project design to minimise adverse impacts to heritage items
- C2.3 to C2.5, which provide for the management of potential vibration impacts to heritage items during construction
- D4.1 and C7.1 to C7.3, which provide for the management of potential impacts to archaeological items, including unidentified archaeological items, during construction.

The implementation of these mitigation measures would ensure the potential for impacts to heritage items is minimised, if not avoided completely.

8.11 Land use and property

8.11.1 Issue

One submission was concerned about the potential for devaluation of properties due to the project and requested compensation for property owners.

8.11.2 Response

The saleability or value of a property is not predetermined on any one characteristic and is influenced by several variables such as specific attributes of the property, supply and demand and fluctuations in the property market. The project relates to an existing rail corridor which has operated passenger services since 1870, and freight rail on the SSFL since 2013. There is no evidence to suggest that real property values in the local area have suffered any downward pressure as a result of these operations. Given the complexity of these factors and the consistency of the project with the existing land uses and operations within the rail corridor, it is unlikely the project would have any direct impact on property demand, value or saleability in the local area. As such, unless a property is affected by an acquisition, no compensation would be provided to property owners.

8.12 Landscape and visual

8.12.1 Issue

One issue raised queries about the landscape concept provided in the EIS, including:

- whether it would run the whole course of the passing loop or just the noise wall
- who would be responsible for maintaining the catenary system and what the cost would be to maintain it
- why is it needed.

8.12.2 Response

The indicative landscape concept design was provided in Figure 17.2 of the EIS. It proposes vertical landscaping in the form of a catenary system and climber to be provided in front of the noise wall on the western side of Broomfield Street, between the intersection with Boundary Lane and Sussex Street. This catenary system would only be affixed to the blank noise wall panels, so as to leave the noise walls with the existing artwork uncovered.

The landscape concept plan was developed to mitigate impacts associated with vegetation removal, which were identified as potential impacts during the preliminary analysis of the potential landscape and visual impacts of the project as well as through consultation with relevant councils. The results of the landscape and visual impact assessment are provided in Technical Report 10 – Landscape and visual impact assessment, and the results are summarised in Chapter 17 of the EIS. The assessment concluded the significance of impact would be low for landscape impacts and moderate for visual impacts along Broomfield Street, as the climbers on the catenary system would be a positive new element.

The landscape design provided in the EIS is a concept design only. As committed to through mitigation measure D6.1 an urban design and landscape plan is currently being developed as part of the detailed design which will build on the existing landscape concept. The urban design and landscape plan will continue to be developed in consultation with Fairfield and Liverpool City Councils. Responsibilities regarding maintenance and cost would be further discussed with the relevant councils during detailed design.

8.13 Socio-economic impacts

8.13.1 Issue

One submission raised concerns regarding how the project would reduce the amenity of the local area and affect the health and wellbeing of the community.

8.13.2 Response

Potential socio-economic and community impacts during construction are acknowledged and assessed in Technical Report 11 – Social impact assessment, and the results are summarised in Chapter 18 of the EIS.

It is acknowledged that the project would have temporary amenity impacts during construction, for residents and those community members who work, visit, or access businesses/community services within the vicinity of the project site. This includes as a result of increased noise and vibration, air quality impacts and traffic. However, the potential for environmental and social disturbance as a result of construction has to be balanced against the long-term benefits of the project.

To manage these impacts, a comprehensive range of management and mitigation measures and strategies would be implemented, including the CEMP, community and stakeholder engagement plan, and the mitigation measures listed in Table 9.1 to Table 9.3 of this report. Further information on the approach to environmental management during construction is provided in section 9.1 of this report. As noted in that section, a CEMP would be prepared prior to construction. This plan would outline the construction conditions, individual management plans, and temporary environmental protection measures to be developed and implemented to manage the impact of construction activities on the local community.

During construction, the project team would continually look for opportunities to reduce the impacts of the project on the local community. As committed to through mitigation measure D7.1, ARTC will continue to work with stakeholders and the community to ensure they are kept informed about the project, including details of potential impacts to assist the community to plan around disruptions wherever possible.

In addition, as described in section 3.3 of this report, a complaints management and handling procedure would be developed by the contractor and defined in the CEMP. This procedure would be used to record, manage, and where required, escalate and mediate complaints during construction.

8.14 Health, safety and hazards

8.14.1 Issue

A couple of submissions raised concerns about how inclusion of the bridge at Sussex Street, and moving the road closer to residents would cause safety impacts to children using the footpath and traffic safety impacts as there are currently a number of crashes due to the existing bridge.

8.14.2 Response

The bridge, width of the road, shared path and footpath have been designed to meet relevant standards and guidelines. These include Fairfield City Council requirements and Australian standards and guidelines including:

- *Guide to Road Design* (Austroads, 2015)
- *AS 2890.5 Parking Facilities Onstreet Parking* (AS, 1993).

Undertaking the design in accordance with these documents ensures both consistency and safety for road users, cyclists and pedestrians. Additionally, the existing kerbside parallel parking on the eastern side of the road is not formal parking as it does not meet current standards. Therefore, the project would replace the existing parallel parking with formalised parking, designed in accordance with the standards noted above, reducing the potential for conflicts between parked cars and road users.

Safety is a fundamental consideration in the design of all elements of the project. As committed to through mitigation measure D9.1 a hazard analysis will be undertaken to identify risks public safety and Safety in Design principles would be adopted (along with other measures) as an integral component of the detailed design of the project. Where safety issues are apparent or remain unresolved, then additional safety measures would be incorporated into the detailed design, as required.

9 REVISED MITIGATION MEASURES

This section provides the approach to environmental management and mitigation for the project. It includes the revised set of mitigation measures.

9.1 Approach to environmental management

The approach to environmental mitigation and management for the project was detailed in section 22.2 of the EIS. In summary it would involve:

- Project design –the project incorporates measures to avoid and minimise impacts.
- Environmental performance outcomes – establishes the intended outcomes to be achieved by the project.
- Mitigation measures – as per the revised set of mitigation measure provided in section 9.2.
- Engagement of a suitably qualified and experienced Environmental Representative (ER) who is independent from the design and construction personnel for the project and those involved in the delivery of it.
- ARTC's Site EMP(s) for enabling works– ARTC's existing Site EMP template will be used to guide the approach to environmental management during the enabling works.
- Project specific CEMP– prepared to guide the approach to environmental management during the main construction works.
- Community and stakeholder engagement plan – The plan would aim to detail the approach to communicate between ARTC and its Construction Contractor(s), and the community and government authorities.
- ARTC's environmental management system.

9.2 Revised mitigation measures

The list of mitigation measures presented in Chapter 22 of the EIS has been updated with consideration given to the submissions received. Some new measures have been added, and the wording of existing measures has been adjusted. Refer to Table 9.1 to Table 9.3. These tables supersedes the mitigation measures presented in the EIS. New mitigation measures or additions to existing mitigation measures are shown in **bold** text, with deletions shown with a ~~strikethrough~~.

The measures are broadly grouped according to the main stage of implementation. However, it is noted that the implementation of some measures may occur across a number of stages.

If the project is approved, the project would be undertaken in accordance with the conditions of approval and the final list of mitigation measures.

Table 9.1 Compilation of revised mitigation measures for detailed design

Ref	Issue	Revised mitigation measures
D1	**Noise and vibration**	
D1.1	Vibration impacts on heritage sites: Villawood Railway Station Group and Liverpool Railway Station Group	The signalling works near Liverpool Railway Station and Villawood Railway Station will be located outside of vibration buffer distances, where possible.
D2	**Hydrology, flooding and water quality**	
D2.1	Stormwater runoff	Where feasible and reasonable, detailed design will result in no net increase in stormwater runoff rates in all storm events, unless it can be demonstrated that increased runoff rates as a result of the project would not increase downstream flood risk.
D2.2	Scour potential	Any existing rip rap that is impacted or removed during construction would be reinstated. This would include the provision of rip rap around the piers and abutments of Cabramatta Creek bridge. The design of the rip rap will take into consideration the size, quantity and type of rip rap with the aim of not causing additional impacts to water quality.
D2.3	Water quality	The project will be designed to ensure there is minimal potential for water quality impacts, including incorporating water sensitive urban design elements.
D2.4	Groundwater	A water license will be obtained as necessary in accordance with Part 5 of the *Water Act 1912* if dewatering of excavations is required.
D2.5	Flooding	Further assessment and design refinement will be undertaken during detailed design with the objective of not exceeding the following flooding characteristics during the one per cent AEP event: • a maximum increase in time of inundation of one hour in a one per cent AEP event • a maximum increase in 50 mm in inundation at properties were floor levels are currently not exceeded • a maximum increase in 10 mm in inundation at properties were floor levels are currently exceeded. In the event this cannot be met further mitigation would be proposed in consultation with the relevant councils.
D3	**Non-Aboriginal heritage**	
D3.1	Changes to aesthetic significance and views to/from Cabramatta (Cabramatta Creek), Railway Parade and Sussex Street Underbridge (I19)	As per the current reference design, detailed design of the bridges will ensure the height, form, abutment and pier locations of both bridges matches the existing SSFL bridges.

Ref	Issue	Revised mitigation measures
D3.2	Changes to the aesthetic significance by the size and placement of the project. obscuring or blocking views to/from: Liverpool Railway Station Group (72) Villawood Railway Station Group (I103)	The visible infrastructure will be as small as possible to not obscure views to/from the item and not to visually dominate the landscape. **The colour and material of the visible infrastructure will be selected to blend with the general colour and material pallet of the rail corridor, where feasible.**
D3.3	Changes to the aesthetic significance of the Federation cottage (I10).	ARTC will consult with Council to request the heritage significance of this item is updated to reflect the fact that the cottage has burnt down.
D4	**Aboriginal heritage**	
D4.1	Potential impacts to areas of high archaeological potential	If works are proposed outside the current project footprint (such as utility relocations) and impacts could occur within areas of high archaeological potential, further assessment in the form of subsurface investigations (test excavations) prior to impacts will be required (refer to methodology provided in Appendix 3 of Technical Report 9 – Aboriginal and cultural heritage impact assessment)..
D4.2	Impacts to archaeological heritage with the area of moderate potential in Jacquie Osmond Reserve.	Further assessment will be carried out in Jacquie Osmond Reserve in the form of subsurface investigations (test excavations) prior to construction commencing (refer to methodology provided in Appendix 3 of Technical Report 9 – Aboriginal and cultural heritage impact assessment). Should any Aboriginal objects be encountered during investigation a long term care agreement setting out the obligations and methods of long term safekeeping will be developed in consultation with the RAPs.
D5	**Land use and property**	
D5.1	Property acquisition	All acquisitions/adjustments will be undertaken in consultation with landowners and **in accordance with** relevant acts.
D5.2	Impacts to services and utilities	Utility and service providers will continue to be consulted during detailed design to identify possible interactions and develop procedures to minimise the potential for service interruptions and impacts on existing land uses.
D5.3	Temporary land use impacts on Council and privately owned land	Individual property agreements/licenses will be developed in consultation with the relevant council and land owners. These will detail any restoration requirements and relocation of impacted infrastructure as required.
D5.4	Temporary land use impacts on Council and privately owned land	The overall disturbance footprint will be refined during detailed design to identify areas where the footprint could be minimised to reduce impacts on existing public recreation land uses and privately owned land. Detailed construction staging of the project will also be considered further during detailed design and will aim to minimise the time that affected land uses are impacted during construction.

Ref	Issue	Revised mitigation measures
D6	**Landscape and visual amenity**	
D6.1	Visual impacts due to addition of new structures and removal of vegetation	An urban design and landscape plan will be developed as part of the detailed design with the objective of maintaining and improving pedestrian and cycling connectivity, reinstating vegetation where possible and, ensuring constructed elements improve on existing design and materiality. It will build on the existing landscape concept and consider the urban design principles and objectives and the mitigation measures provided in this table. The urban design and landscape plan will be developed in consultation with Fairfield and Liverpool City Councils.
D6.2	Vegetation clearance	The urban design and landscape plan will include a planting pallet consistent with the existing area. Native species selected will be of local significance, from the relevant ecological vegetation community and will be sourced from nurseries in the local area, where possible.
D6.3		Where revegetation of riparian areas and bank stabilisation is required, the design will be prepared in consultation with an experienced waterway rehabilitation consultant and Fairfield and Liverpool City Councils.
D6.4		**The urban design and landscape plan will consider replacement trees and planting along Railway Parade within the vicinity of the location of the selected parking option, prioritising options for replacement planting within the western side of the street, where feasible.**
D6.**5**~~4~~	Visual impact from new bridges	The design and materiality of the bridges will integrate with the existing built form in accordance with *Bridge Aesthetics: Design guidelines to improve the appearance of bridges in NSW* (RMS, 2012*).* The bridge design will minimise visual clutter where possible, through incorporating cabling and barriers into a single bridge façade. The bridge design will be in accordance with ARTC's requirements to ensure bridge structures can be visually monitored as part of ongoing maintenance.
D6.**6**~~5~~	Visual impacts from noise wall	The noise walls along Broomfield Street will be reused in the project due to the existing value placed on them by the local community. Where vegetation screening is implemented views to the artwork panels will be retained. Along Broomfield Street where retaining walls are to be replaced, colour is to match existing noise wall. High quality materials, textured and graffiti resistant surfaces will be used, where possible, on retaining walls along Broomfield Street and Jacquie Osmond Reserve to deter graffiti, particularly at lower levels of the walls. The design will be finalised following consultation with maintenance stakeholders.
D6.**7**~~6~~	Light spill	Permanent lighting will be designed in accordance with AS 4282-1997 Control of obtrusive effects of outdoor lighting. This will avoid light spill into residential properties along Broomfield Street and surrounding residential streets and ecologically sensitive areas along Cabramatta Creek.

Ref	Issue	Revised mitigation measures
D7	**Socio- economic impacts**	
D6.1	Socio-economic impacts	ARTC will continue to work with stakeholders and the community to ensure they are informed about the project and have opportunities to provide feedback to the project team. The existing community contact and information tools will remain in place throughout the duration of the project. Consultation prior to and during construction will involve the use of appropriate tools, including, but not limited to, tools such as community information sessions, briefings, and displays; distribution of project materials in a variety of languages; door knocks; and site signage.
D7.2	Community facilities	Prior to construction, consultation will be undertaken with community facilities and event organisers (Cabramatta Moon Festival and Chinese New Year's) with the potential to be impacted by the project, including the cultural centres along Broomfield Street, Fairfield City Council, Liverpool City Council, the SDSA and Lawrence Hargrave Special Education School. Consultation will aim to identify and develop measures to manage the specific construction impacts for individual community facilities and events. These measures would be incorporated into the relevant management plans.
D7.3	Community facilities	During design development consultation will be undertaken with Liverpool City Council and the SDSA to minimise impacts on use of the softball fields due to the presence of the embankment and passing loop.
D7.4	Community facilities	During design development consultation will be undertaken with Lawrence Hargrave Special Education School regarding existing and future construction noise impacts to identify appropriate mitigation measures.
D7.5	Amenity impacts	The community will be given the opportunity through implementation of the existing Stakeholder Engagement Strategy (refer Chapter 4 (Consultation) to provide comment on design and project features which provide local community benefits.
D8	**Waste**	
D8.1	Excess waste generation	Detailed design will include measures to minimise excess spoil generation during construction of the project. This will include a focus on optimising the design to minimise spoil volumes, and the reuse of material on-site.
D9	**Health, safety and environment**	
D9.1	Public health and safety	A hazard analysis will be undertaken during the detailed design stage to identify further risks to public safety from the project, and how these will be mitigated through safety in design and construction methodology.
D9.2	Public safety from collapse of structures, embankments or walls	All structures such as the retaining wall in Jacquie Osmond Reserve and the noise wall on Broomfield Street will be designed to meet appropriate standards, with sufficient tolerances to loads and wind gusts to prevent collapse.
D9.3	Safety of road, pedestrian and cycle connections under the widened Sussex Street bridge	Lighting design under the Sussex Street bridge will consider the Crime Prevention Through Environmental Design principles.

Ref	Issue	Revised mitigation measures
D10	**Climate change and greenhouse gases**	
D10.1	Design development changing climate change risk	ARTC will: • Apply the climate change risk assessment and its existing control measures as incorporated into the reference design, in implementing the project, or • In the event of design changes, during detailed design, review the climate change risks identified in this assessment in order to amend existing control measures or identify additional control measures to reduce the climate change related risks to the project with no 'very high' or 'high' residual climate related risks remaining.
D10.2	Risks from climate change	ARTC will implement all potential adaptation measures identified in Table 21.5 so far as is reasonably practicable to reduce climate change risk.
D10.3	Improvements in climate change projections	In the event of significant new scientific climate change projections becoming available during detailed design, ARTC will review the relevant climate change risks and control measures identified in this assessment in order to confirm that there are no 'very high' or 'high' residual climate related risks remaining.
D10.4	Reduction in greenhouse emissions	Opportunities to reduce greenhouse gas emissions will be investigated during detailed design. This will include: • opportunities for low emission construction materials • locally sourced materials to reduce travel related emissions • use of recycled material options (eg Asphalt).
D11	**Traffic, transport and access**	
D11.1	**Operational parking loss**	**The permanent loss of up to 11 parking spaces on Broomfield Street will be mitigated through the provision of additional parking in Railway Parade, which will be further refined during detailed design. The final design will be provided to Fairfield City Council for information. Design refinement will include incorporation of safety measures through the Safety in Design process, such as "rear to kerb" parking restrictions.**

Table 9.2 Compilation of revised mitigation measures for construction

Ref	Issue	Revised mitigation measures
C1	**Traffic, transport and access**	
C1.1	General impacts of construction activities on traffic, transport, access, pedestrians and cyclists	A construction traffic management plan will be prepared by the contractor and implemented as part of the CEMP. It will include measures to minimise the potential for impacts on the community and the operation of the surrounding road and transport environment, including those listed in this EIS. The construction traffic management plan will be developed in consultation with relevant emergency services, Liverpool City Council, Fairfield City Council, Roads and Maritime Services, and public transport/bus operators.
C1.2	Traffic delays	Oversized vehicles will use designated heavy vehicle routes or routes approved by Roads and Maritime Services. Oversized traffic movements will be carried out, where possible, outside of peak road network periods, minimising the impacts on the road network. Should oversized vehicles be required, the contractor will be responsible for obtaining necessary permits/approvals, where required. Where possible, major road networks such as Cabramatta Road East and the Hume Highway will be used for access to the site by heavy vehicles.
C1.3	Temporary parking space loss	Where parking spaces are lost or access is impeded, particularly for extended periods, alternative parking will be provided wherever feasible and reasonable. This will include consideration of other privately owned (or vacant) land within close proximity to Cabramatta Station.
C1.4	Delays to Emergency services	A minimum lane width of about 3.5 m will be provided along Broomfield Street during construction to facilitate the access of emergency service vehicle.
C1.5	Parking space loss	The project site will be managed to minimise construction worker parking on surrounding streets. A worker car parking strategy will be developed in consultation with the relevant local council to identify measures to reduce the impact on the availability of on street and off street parking. The strategy will identify potential mitigation measures including alternative parking locations. The strategy will encourage contractor staff to: • park within compound sites • use public transport • car share.
C1.6	Traffic impacts	Where possible, heavy vehicle activity will be avoided, during school pick-up and drop-off periods (8:00 am to 9:30 am and 2:30 pm to 4:00 pm school days) in the vicinity of schools, when pedestrian and vehicle activity is generally greater.
C1.7	Traffic impacts	The extent and duration of temporary road closures along Broomfield Street and Sussex Street will be minimised to reduce the impact on local traffic, with diversions in place to the adjoining road network.
C1.8	Traffic impacts	Work areas will provide safe clearances from through traffic lanes in line with Roads and Maritime's Traffic Control at Works Sites Manual. Should road works speed zones be required, the contractor will develop necessary plans and obtain approvals by the governing authority (Roads and Maritime) in consultation with the local council.

Ref	Issue	Revised mitigation measures
C1.9	Residential access	Driveway and pedestrian access to properties adjoining the works is to be maintained. Where disruptions to access cannot be avoided, consultation will be undertaken with the owners and occupants of affected properties, to confirm their access requirements and to discuss alternatives. Potentially affected property owners and residents will be contacted before the commencement of works. Residents will be notified via door knocks, newsletters or letter box drops providing information on the proposed works, working hours and a contact name and number should any enquiries wish to be registered. Open trenches will be filled or covered using road plates at the end of each day to minimise impacts on vehicular access to properties, where necessary.
C1.10	Access to Jacquie Osmond Reserve	The contractor will consult with Liverpool City Council and the relevant sporting associations to minimise potential conflicts between vehicles, pedestrians and cyclists at the reserve, particularly during weekend periods when sporting activities are likely to occur.
C1.11	Informal parking within Jacquie Osmond Reserve	The contractor will consult with Liverpool City Council and the relevant sporting associations with regards to scheduling and access arrangements when works are being undertaken on Cabramatta Creek bridge, to minimise the potential impacts associated with the loss of access to informal parking in Jacquie Osmond Reserve.
C1.12	Heavy vehicles damaging local roads	A dilapidation survey will be undertaken of the Fairfield City Council and Liverpool City Council owned/managed roads within the proposed haulage routes prior to works commencing and provided to the relevant council.
C1.13	Temporary closure of shared path	The Western Sydney Cycling Network **and Bicycle NSW** will be notified prior to the proposed closure and/or diversion of the Parramatta to Liverpool Rail Train Cycleway within the project site.
C2	**Noise and vibration**	
C2.1	General impacts of construction activities on sensitive receivers	A construction noise and vibration management plan will be prepared by the contractor and implemented as part of the CEMP. It will include measures to minimise the potential for noise and vibration impacts on the community, including those listed in this EIS. It will also consider relevant noise mitigation measures and notification procedures outlined in ARTC's **existing EPL (**EPL #3142). The construction noise and vibration management plan will be developed in consultation with Liverpool City Council, Fairfield City Council, and the EPA.
C2.2	Noise impacts during out of hours work	An out of hours protocol will be developed as part of the construction noise and vibration management plan. It will at a minimum: • provide a process for the consideration of out of hours work against the relevant noise and vibration criteria • document procedures to manage potential impacts • identify responsibilities for implementation and management including managing complaints.

Ref	Issue	Revised mitigation measures
C2.3	Vibration impacts on structures including heritage items.	Strategies to minimise the vibration of construction activities will be considered during construction planning. This will include a detailed review of work methods and equipment selection with the aim of avoiding the use of equipment within the relevant vibration safe working buffer distances. Where this is not possible, attended vibration measurements of vibration generating equipment (eg bored piling, vibratory rolling works) will be undertaken prior to works near the sensitive structures located within the vibration buffer distances identified in Figure 4-12 and Figure 4-13 provided in Technical Report 2 – Noise and vibration impact assessment. This will confirm the project specific minimum working distances for vibration intensive activities.
C2.4	Vibration impacts on structures including heritage items.	Building dilapidation surveys will be carried out on all structures located within the vibration buffer distance prior to major project construction activities with the potential to cause property damage.
C2.5	Vibration impacts from the increase number of trains passing by Cabramatta (Cabramatta Creek), Railway Parade and Sussex Street Underbridge (I19).	If following a dilapidation survey of the heritage items the structures are found to be unsound, then a structural engineer will advise if there is a risk from increasing operational train numbers and identify strategies to avoid risks.
C2.6	Noise impacts during sensitive periods	Where feasible and reasonable, construction will be carried out during the standard daytime working hours. The use of highly intensive noise and vibration generating equipment (such as jack and rock hammering, sheet and pile driving, rock breaking and vibratory rolling) less sensitive times (eg the middle of the day).
C2.7	Noise impacts from continuous activities.	Highly intensive noise and vibration generating equipment (such as jack and rock hammering, sheet and pile driving, rock breaking and vibratory rolling) will only be used in continuous blocks not exceeding three hours each, with a minimum respite period of one hour between each block. ‘Continuous’ includes any period during which there is less than one hour respite between ceasing and recommencing any of the work. Additionally, this equipment will not be used for more than two consecutive nights over any seven day period adjacent to the same sensitive receivers.
C2.8	Noise impacts from worker activities	All employees, contractors and subcontractors are to receive an environmental induction. The induction will include at least: • all relevant project specific and standard noise and vibration mitigation measures • relevant licence and approval conditions • permissible hours of work • any limitations on noise generating activities with special audible characteristics • location of nearest sensitive receivers • construction employee parking areas • designated loading/unloading areas and procedures • site opening/closing times (including deliveries) • environmental incident procedures.
C2.9	Noise impacts from worker activities	While on site, construction workers will refrain from: • swearing or unnecessary shouting or loud stereos/radios on site • dropping of materials from height, throwing of metal items and slamming of doors • excessive revving of plant and vehicle engines • uncontrolled release of compressed air.

Ref	Issue	Revised mitigation measures
C2.10	Construction traffic noise	Traffic flow, parking and loading/unloading areas will be planned to minimise reversing movements within the site.
C2.11	Construction traffic noise	To reduce the impact of noise from construction traffic the following mitigation measures will be implemented: • Loading and unloading of materials/deliveries will occur as far as possible from sensitive receivers. • Site access points and roads will be selected as far as possible away from sensitive receivers. • Dedicated loading/unloading areas will be shielded if close to sensitive receivers, where reasonable and feasible. • Delivery vehicles will be fitted with straps rather than chains for unloading, wherever possible. • Vehicle movements will be scheduled away from sensitive receivers and during less sensitive times, where possible. • The speed of vehicles within and approaching construction compounds will be reduced • The use of engine compression brakes during night time periods will be avoided, where possible • On-site storage capacity will be maximised to reduce the need for truck movements during sensitive times. • Vehicles will be fitted with a maintained original equipment manufacturer exhaust silencer that complies with the National Transport Commissions *National Stationary Exhaust Noise Test Procedures for In-service Motor Vehicles* (2006).
C2.12	Construction noise and vibration	Quieter and less vibration emitting construction methods and equipment will be used where feasible and reasonable. For example, when piling is required, bored piles rather than impact-driven piles will minimise noise and vibration impacts. Similarly, diaphragm wall construction techniques, in lieu of sheet piling, will have significant noise and vibration benefits.
C2.13	Construction noise and vibration	Where practicable, materials will be pre-fabricated and/or prepared off-site to reduce noise with special audible characteristics occurring on site. Materials can then be delivered to site for installation.
C2.14	Noise from construction equipment	The noise of plant and equipment must have operating Sound Power or Sound Pressure Levels compliant with the allowable noise levels.
C2.15	Noise from construction equipment	To reduce the impact of noise from construction equipment the following mitigation measures will be implemented: • The offset distance between noisy plant and adjacent sensitive receivers will be maximised. • Plant used intermittently will be throttled or shut down. • Noise-emitting plant will be directed away from sensitive receivers.
C2.16	Noise from construction equipment	Non-tonal reversing beepers (or an equivalent mechanism) will be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work, including delivery vehicles.
C2.17	Noise from construction equipment	Noise from mobile plant will be reduced where possible, through additional fittings including: • residential grade mufflers • damped hammers such as ‘City’ Model Rammer Hammers • air parking brake engagement silenced.
C2.18	Noise impact from compound (C1)	Use of the construction compound (C1) near Warwick Farm Station will where practicable, be limited to standard hours only with the exception of plant storage and material delivery.

Ref	Issue	Revised mitigation measures
C2.19	Noise from construction compounds	Stationary noise sources on construction compounds will be enclosed or shielded where practicable, to ensure that the occupational health and safety of workers is maintained. Appendix F of AS 2436:1981 lists materials suitable for shielding.
C2.20	Noise from construction compounds	Structures will be used to shield residential receivers from noise where practicable such as site shed placement; earth bunds; fencing; erection of operational stage noise barriers (where practicable) and consideration of site topography when situating plant.
C2.21	Construction noise resulting in highly intrusive levels	A noise monitoring program will be carried out for the duration of works at sensitive receivers identified as experiencing highly intrusive noise levels and as a result of complaints received, in accordance with the CEMP.
C2.22	Vibration impacts on heritage sites: Cabramatta (Cabramatta Creek), Railway Parade and Sussex Street Underbridge	Where building dilapidation surveys indicate that the heritage listed bridges are unsound, then the conservative criteria of 3.0 mm/s provided by DIN 4150-3 will be used for construction equipment used within the vibration buffer distances, where practicable.
C3	**Air quality**	
C3.1	Dust deposition and decrease in receptor amenity – minor and temporary	Dust suppression will be undertaken as required using water sprays, water carts or other media on: • unpaved work areas subject to traffic or wind • sand, spoil and aggregate stockpiles • the loading and unloading of dust generating materials.
C3.2	Vehicle emissions	Plant and equipment will be maintained in good condition and in accordance with manufacturer's specifications to minimise spills and air emissions that may cause nuisance.
C3.3	Dust deposition and decrease in receptor amenity – minor and temporary	If the works are creating levels of dust which significantly impact on residential amenity, the works will be modified or stopped until the dust hazard is reduced to an acceptable level.
C3.4	Dust deposition and decrease in receptor amenity – minor and temporary	The size of stockpiles will be minimised, where possible.
C3.5	Dust deposition and decrease in receptor amenity – minor and temporary	Construction vehicles with potential for loss of loads (such as dust or litter) will be covered when using public roads
C4	**Biodiversity**	
C4.1	Vegetation clearance	Impacts to *Acacia pubescens* will be avoided. The locations of *Acacia pubescens* will be marked on plans, outlined in the CEMP, fenced on site, and avoided. Signage will be placed on relevant fencing to inform of prohibited activities in that area as part of the works.
C4.2	Vegetation clearance	Disturbance of vegetation will be limited to the minimum necessary to construct works. Micro-siting of infrastructure will be undertaken during detailed design where practicable to minimise or avoid impacts on planted native species.

Ref	Issue	Revised mitigation measures
C4.3	Vegetation clearance	Where the project site adjoins native vegetation, the limits of clearing will be marked and temporary fencing or flagging tape installed around the vegetated area prior to the commencement of construction activities to avoid unnecessary vegetation and habitat removal or damage.
C4.4	Vegetation clearance	Equipment storage and stockpiling of resources will be restricted to designated areas within compound sites in cleared land.
C4.5	Vegetation clearance	The design and placement of any associated ancillary works such as utilities or signalling outside of the project site will avoid impacts to *Acacia pubescens* or other biodiversity values. These works will affect only cleared land or exotic vegetation.
C4.6	Revegetation	Following removal of the temporary shared path between Sussex Street and Cabramatta Creek, revegetation will be undertaken to stabilise the site. Opportunities to work with local groups such as the Fairfield Creeks and Wetlands Group will be explored where possible. Revegetation will aim to be consistent with the pre-existing vegetation and surrounding vegetation.
C4.7	Weeds	Weed management actions will be included in the CEMP to manage weeds in accordance with the NSW Weed Control Handbook (DPI, 2018). This will include the management and disposal of the weeds that were recorded within the project site including priority weeds in accordance with the biosecurity duties under the *Biosecurity Act 2015*.
C4.8	Weeds	Vehicles and other equipment to be used within the rail corridor will be cleaned to minimise seeds and plant material entering the project site to prevent the introduction of further exotic plant species or disease. This will include the use of vehicle wash bays or portable vehicle wash equipment such as high pressure wash units, shovels, crow bars or stiff brushes.
C4.9	Fauna habitat	The CEMP will include the locations of potential roost sites as identified in this report (eg. hollow-bearing trees, disused buildings, bridges and culverts). The CEMP will include measures to manage potential impacts to roost sites such as: • Any potential roost sites that will be removed or modified will be checked for roosting bats immediately prior to work. • Culverts are to remain open on at least one side at all times to allow any roosting bats to fly in or out. • Habitat to be identified for the release of mibrobats or any fauna encountered during clearing surveys • Habitat trees will be felled using equipment that allows the trees to be lowered wo the ground with minimal impact (eg claw extension) • Animals that emerge from felled trees will be captured, inspected for injury, then relocated to pre-determined habitat identified for fauna release. • Where the presence or potential presence of roosting bats is noted then management actions for managing bats will be implemented in accordance with the CEMP.
C4.10	Fauna habitat	An unexpected finds procedure will be developed specifying measures for the management of any threatened biota or habitat resources identified during construction. The unexpected finds procedure will include the requirement for work to stop immediately if any threatened fauna is encountered and the Construction Environmental Manager to be notified. Work will recommence only once relevant approvals have been obtained as required. The species will be included in subsequent toolbox talks.
C4.11	Fauna habitat	Protocols to prevent introduction or spread of chytrid fungus will be implemented following OEH Hygiene protocol for the control of disease in frogs (DECC, 2008b).

Ref	Issue	Revised mitigation measures
C4.12	Fauna habitat	A suitably qualified person will be present during the removal of potential fauna habitat (ie the hollow-bearing tree in Jacqui Osmond Reserve and areas of planted native species) to avoid impacts on resident fauna and to salvage habitat resources as far as is practicable. Clearing surveys will include: • inspections of vegetation for resident fauna and/or nests or other signs of fauna occupancy • capture and relocation or captive rearing of less mobile fauna (such as nestling birds) by a trained fauna handler and with assistance from Wildlife Information Rescue and Education Service (WIRES) as required • inspection and identification/marking of hollow-bearing trees or other habitat resources adjacent to the project site to help ensure against accidental impacts • salvage of habitat features such as mature tree trunks and woody debris within the project site and placement within revegetation areas as far as is practicable (eg if vegetated areas are not separated by fences).
C5	**Soils and contamination**	
C5.1	General soil and erosion management	A soil and water management plan will be prepared as part of the CEMP for the project and implemented for the duration of construction, in accordance with Soils and Construction - Managing Urban Stormwater Volume 1 (Landcom, 2004) and Volume 2D (DECC, 2008a) (commonly known as 'the Blue Book) The soil and water management plan will include but not be limited to: • a primary erosion and sedimentation control plan and a maintenance schedule for ongoing maintenance of temporary erosion and sediment controls. The erosion and sedimentation control plan will include site-specific details for managing sediment and erosion near Cabramatta Creek and associated drainage lines • measures and controls for the management of disturbed and stockpiled soils, including surface stabilisation of disturbed ground, covering of stockpiles where appropriate and implementation of clean-water diversions • an incident emergency spill procedure which will include measures to avoid spillages of fuels, chemicals, and fluids onto any surfaces or into any adjacent/nearby waterways.
C5.2	Acid sulfate soils	A field pH testing and field peroxide pH testing regime will be undertaken prior to piling work around Cabramatta Creek, in accordance with *the Acid Sulfate Soils Assessment Guidelines* (ASSMAC, 1998). Should ASS or potential ASS be identified during the testing, then measures to manage the potential impacts associated with encountering ASS or potential ASS will need to be developed and implemented in accordance with the *Acid Sulfate Soils Assessment Guidelines* (ASSMAC, 1998).
C5.3	Unexpected contamination **and ASS**	An unexpected findings protocol pertaining to contamination **and ASS** will be included in the soils and water management plan. The protocol will include procedures for the assessment and management of unexpected contamination **and ASS** encountered (if any) during construction, **including making the site safe, carrying out an assessment of the finds, and managing the finds based on the results of the assessment**.
C5.4	Unexpected contamination **and ASS**	Awareness training will be provided for all onsite staff to assist in the identification of potentially contaminated material. In the event that indicators of contamination **or ASS** are encountered during construction (such as odours, **soil discolouration** or visually contaminated materials), work in the area will cease, and the finds will be managed in accordance with the unexpected contamination finds protocol.

Ref	Issue	Revised mitigation measures
C5.5	Contamination of soils	Prior to the acceptance of any imported fill onsite (regardless of volume), the following actions will be taken to reduce the risk of receiving contaminated material: • all fill used will be checked to confirm it is virgin excavated natural material (VENM) (eg clay, gravel, sand, soil or rock) or excavated natural material (ENM) (eg naturally occurring rock and soil) that is not mixed with any other waste • the supplier will provide formal certification that the fill material is clean VENM or ENM • the supplier will provide information on what activities previously occurred onsite where their fill was sourced • signs of contamination will be checked for, such as odours (chemical/petrol), staining from chemicals, and rubbish such as bricks, timber, and masonite • the delivery of the material will be supervised to check the material received matches the material ordered • all required documents and records will be maintained.
C5.6	Contamination incident management	Spill containment kits will be present and maintained on site during all activities
C5.7	Contamination incident management	All staff will be inducted about incident and emergency procedures in accordance with the incident emergency spill procedure and made aware of the locations of spill containment kits. Information regarding the correct and safe storage and handling of fuels and chemicals will be communicated to personnel.
C6	**Hydrology, flooding and water quality**	
C6.1	Flooding, changes to surface water and water quality	A flood management procedure will be prepared as part of the soil and water management plan. It will include specific controls to be implemented during wet weather or forecasts of heavy rainfall for works undertaken near Cabramatta Creek and Jacquie Osmond Reserve and appropriate monitoring strategies following the flood to verify design performance and impact predictions It will also include a flood warning and evacuation procedure for emergency management of flooding up to the PMF event. Development of a flood warning and evacuation procedure for the project will be undertaken in consultation with stakeholders including Liverpool City Council and Fairfield City Council and the NSW SES.
C6.2	Flooding	The site layout and staging of construction activities will: • avoid or minimise obstruction of overland flow paths and limit the extent of flow diversion required • consider how the works will affect the existing stormwater network such that alternatives are in place prior to any disconnection or diversion of stormwater infrastructure.
C6.3	Flooding	Detailed construction planning will consider flood risk for compounds and work sites near Jacquie Osmond Reserve and Cabramatta Creek. This will include identification of measures to not worsen existing flooding characteristics. Not worsen is defined as: • a maximum increase in flood levels of 50 mm in a one per cent AEP event • a maximum increase in time of inundation of one hour in a one per cent AEP event • no increase in the potential for soil erosion and scouring from any increase in flow velocity in a one per cent AEP flood event.
C6.4	Watercourse impacts	Works within or near Cabramatta Creek will be undertaken with consideration given to the NSW Department of Primary Industries (Water) *Guidelines for controlled activities on waterfront land – Riparian corridors* (2018).

Ref	Issue	Revised mitigation measures
C6.5	Water quality	Dewatered groundwater will be stored and reused on site for wetting down and reducing dust in disturbed areas (within existing erosion and sediment controls), or for irrigation in grassed areas. Requirements for testing will be included in the soils and water management plan and will include the following at a minimum: • No visible sheen or odour is noted. • Water pH is between 6.5 and 8.5. • Total suspended solids are less than 60 mg/L (approximately equivalent to a turbidity level of 50 NTU). Water may be dosed with gypsum, alum or a similar product to reduce sediment levels if required. • All litter and debris must be filtered out and removed prior to reuse. • Pump-out events are supervised at all times, and the pump is positioned to prevent reuse of sediment-laden water settled at the bottom of the trench or tank. • Sludge from the bottom of the trench or tank can be placed in a shallow pit lined with heavy duty plastic sheeting to dry out (evaporation pit). Once the sludge has dried out sufficiently to allow it to be spaded this waste can be stored with excess excavated spoil and disposed in accordance with the findings of the preliminary waste classification assessment (refer to Technical Report 6 – Soils and contamination impact assessment).
C6.6	Water quality	A water quality monitoring program will be developed and implemented, to monitor water quality due to the proximity of construction activities to surface water receiving environments. The program will include relevant water quality objectives, parameters, and criteria and specific monitoring locations identified in consultation with DPI (Water) and the EPA.
C7	**Non-Aboriginal heritage**	
C7.1	Disturbance to possible archaeological remains within the curtilage of the Federation cottage (I10)	Works in the road corridor including utility works that need to be adjusted will not encroach on the curtilage of this heritage item so as not to disturb any possible archaeological remains.
C7.2	Impact to archaeological heritage	The CEMP will contain measures to protect non-Aboriginal archaeological relics. This will include an unexpected finds protocol and heritage induction materials to ensure all onsite staff can identify items with potential archaeological heritage significance. During pre-work briefings, onsite staff will be made aware of the unexpected finds procedure and obligations under the *Heritage Act 1977*.
C7.3	Impact to archaeological heritage	The unexpected finds protocol will include the following at a minimum: In the event that unexpected archaeological remains, relics, or potential heritage items are discovered during construction, all works in the immediate area would cease, and the remains and potential items would be assessed by a qualified archaeologist or heritage consultant. If necessary, the Heritage Division of OEH would be notified in accordance with the requirements of section 146 of the *Heritage Act 1977.*
C8	**Aboriginal heritage**	
C8.1	Impact to archaeological heritage	The CEMP will contain measures to protect Aboriginal heritage. This will include an unexpected finds protocol and heritage induction materials to ensure all onsite staff can identify items with potential archaeological Aboriginal heritage significance. During pre-work briefings, onsite staff will be made aware of the unexpected finds procedure and obligations under the *National Parks and Wildlife Act 1974*. The unexpected finds protocol will be prepared and provided to all staff and contractors as part of a site induction.

Ref	Issue	Revised mitigation measures
C8.2	Impact to archaeological heritage	The unexpected finds protocol will include the following at a minimum: If potential Aboriginal items are uncovered, works within 10 metres of the item will cease and the find should not be moved. The item would then be assessed and managed by qualified archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations which may include notifying the OEH and Aboriginal stakeholders.
C8.3	Damage to artefact found	A long term care agreement for any artefacts found as part of the works will be developed in consultation with the RAPs.
C8.4	Impacts to archaeological heritage with the area of high potential in Warwick Farm Recreational Reserve.	Areas of high archaeological potential will be clearly marked and fenced off as exclusion zones to ensure these areas are not impacted on by the proposed works. If changes to the proposed works occur which will result in impacts to these areas, subsurface investigations (test excavations) will be required.
C8.5	Impacts to unexpected finds	Consistent with the *NSW Skeletal Remains: Guidelines for Management of Human Remains* (Heritage Office, 1998), if any suspected human remains are discovered during any activity the following will occur: 1. Immediately cease all work at that location and not further move or disturb the remains. 2. Notify the NSW Police and OEH's Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location. 3. Not recommence work at that location unless authorised in writing by OEH.
C9	**Land use and property**	
C9.1	Temporary use	Temporary use areas, including public open space, will be restored to their pre-existing condition (as a minimum) as soon as practicable following completion of construction. This will be undertaken in consultation with the relevant council.
C10	**Land use and visual amenity**	
C10.1	Visual impact from construction compounds and work sites	Construction compounds located within Jacquie Osmond Reserve, Warwick Farm Recreation Reserve and within the rail corridor should, where possible, have screening measures implemented such as hoarding or temporary vegetation. Where equipment or stockpiles are to be located in a visually prominent location for any reasonable period of time, screening measures and practices will be incorporated to ensure sites are kept tidy.
C10.2	Temporary light spill	Temporary lighting required during the construction period will be sited and designed to avoid light spill into residential properties along Broomfield Street and surrounding residential streets and ecologically sensitive areas along Cabramatta Creek.
C10.3	Vegetation to be retained	Existing vegetation will be protected and retained where possible, particularly mature canopy trees. Tree removal and protection measures for trees to be retained, will be carried out as stated in the Arboricultural assessment provided in Appendix B of Technical Report 10 – Landscape and visual impact assessment.
C11	**Socio-economic impacts**	
C11.1	Economic benefits	Local suppliers will be identified and approached for procurement of goods and services where practicable.

Ref	Issue	Revised mitigation measures
C11.2	Community facilities	Access to community facilities and infrastructure will be maintained during construction. Where alternative access arrangements need to be made, these would be developed in consultation with relevant service providers, and communicated to users.
C11.3	**Community facilities**	**Opportunities for the provision of appropriate temporary lighting for the SDSA to facilitate night games during construction (when the softball diamonds are impacted) will be explored in consultation with the SDSA and Liverpool City Council. Any provision of temporary lighting will avoid light spill into surrounding residential properties and ecologically sensitive areas, including the Grey-headed flying fox camp.**
C12	**Waste**	
C12.1	Waste generation and recycling	A recycling target of at least 90 per cent will be adopted for the project. Where possible and fit for purpose; materials will be reused within the project before off-site reuse or disposal options are pursued
C12.2	Waste management	A waste management procedure will be prepared and implemented as part of the CEMP. It will include measures to minimise the potential for impacts on the local community and environment, including those listed in Table 19.5.
C12.3	Waste segregation	A waste segregation bin scheme will be included in the CEMP and will include locations of segregated bins within compounds, to facilitate segregation and prevent cross contamination.
C12.4	Materials	Material quantities will be recorded to monitor usage during each stage of construction.
C12.5	Waste and spoil management	Spoil will be managed in accordance with the spoil management hierarchy provided in Table 19.3.
C12.6	Waste and spoil management	A reusable spoil target of 90 percent will be adopted for the project. Where possible and fit for purpose, spoil will be beneficially reused within the project before off-site reuse or disposal options are pursued.
C12.7	Waste and spoil management	Construction waste will be minimised by accurately calculating materials brought to the site and limiting materials packaging.
C12.8	Waste and spoil management	All waste will be assessed, classified, managed and disposed of in accordance with the *Waste Classification Guidelines* (EPA, 2014a) and waste would be managed in accordance with *The Australian Rail Track Corporation excavated material order 2019*.
C12.9	Waste and spoil management	Waste segregation bins will be located at various locations within the project area, if space permits, to facilitate segregation and prevent cross contamination.
C13	**Health, safety and environment**	
C13.1	Public safety from, fires, explosions, flooding and inundation	The CEMP will include emergency response procedures in consultation with relevant stakeholders. It would include measures to minimise the potential for health and safety impacts on the local community and environment such as fire management procedures.
C13.2	Public safety from collapse of structures, embankments or walls	Construction methodology will be selected to ensure collapse of partially built structures so not occur during construction. The CEMP will include emergency response procedures in consultation with relevant stakeholders. It would include measures to minimise the potential for health and safety impacts on the local community and environment should an incident occur.

Ref	Issue	Revised mitigation measures
C13.3	Rupture or damage to services and utilities	The location of utilities, services, and other infrastructure will be identified prior to construction to determine requirements for access to, diversion, protection and/or support. This will include as required, undertaking utilities investigations, including intrusive investigations, and consultation with service providers.
C13.4	Anxiety, confusion and safety concerns from changes to roads, footpaths and cycle routes	A construction traffic management plan will be prepared as part of the CEMP as per mitigation measure C1.1. This will detail the actions and infrastructure needed to ensure a continuous, safe and efficient movement of traffic for both the general public and construction workers. This will include defined routes, diversions, signage, safe crossing points for pedestrians and cyclists and where needed, traffic management staff.
C13.5	Public health and safety from falling items contact with construction sites.	An appropriate layout of compounds sites, construction methodology and hoardings to will be established to prevent any construction items exiting the site in an uncontrolled manner. This will meet all relevant requirements of NSW workplace safety laws.
C13.6	Reduced health benefits from changes to areas of public recreation and active transport routes	Public consultation will be carried out prior and during construction to inform the public about the routes to access and the availability of public reserves and softball area. Signage will be provided to identify access points to reach areas of public recreation and active transport routes. Consultation with key stakeholders such as Southern Districts Softball Association will be carried out to ensure the active lifestyle of members could be maintained at this location.
C13.7	Unauthorised access to the project site resulting in injury or fatalities	NSW workplace safety laws which require construction sites to have adequate site security, such as appropriate fencing will be followed. Appropriate actions or security devices will be used to prevent construction plant and equipment being activated by unauthorised people.
C13.8	Reduced public use of Jacquie Osmond Reserve and Warwick Farm Recreation Reserve	All public areas will be returned to their pre-construction condition and the same public access routes to these areas. The existing 12 softball diamonds within Jacquie Osmond Reserve will be reinstated to pre-construction condition in consultation with the Southern Districts Softball Association.
C14	**Climate change and greenhouse gases**	
C14.1	Emission of greenhouse gases	The CEMP will include the following requirements: • All plant and equipment used during the construction works will be regularly maintained to ensure fuel efficiency. • Sustainable procurement practices will be adopted where feasible • Plant and equipment will be switched off when not in constant use and not left idling. • Air conditioning and lights in site compound buildings will be turned off when not in use. • Energy efficient vehicles or equipment will be selected where available.

Table 9.3 Compilation of revised mitigation measures for operation

Ref	Issue	Revised mitigation measures
O1	**Noise and vibration**	
O1.1	Impacts to second floor of ~~106~~ **108 – 110** Broomfield Street	Receiver**s** at ~~106~~ **108 – 110** Broomfield Street will be consulted regarding potential noise mitigation. This may include a review of the existing internal acoustic properties of the building and identification of where improvements can be made to reduce the exceedance of the trigger level.
O2	**Air quality**	
O2.1	Emissions - Negligible	The project will be managed in accordance with ARTC's existing EPL (EPL #3142) and ARTC's standard operating procedures including those within the Environmental Management System.
O3	**Biodiversity**	
O3.1	Weeds	Maintenance activities within the rail corridor and weed management during operation will be undertaken in accordance with ARTC's standard operating procedures and the relevant requirements of the *Biosecurity Act 2015*.
O4	**Soils and contamination**	
O4.1	Soil erosion and sedimentation	Erosion and sediment controls will be implemented during maintenance activities where soils are exposed, in accordance with ARTC's standard environmental management measures included within its Environmental Management System.
O4.2	Contamination	ARTC's existing spill response procedures will be complied with to minimise the potential for impacts on the local community and the environment as a result of any leaks and spills. Additionally leaks and spills will be managed in accordance with ARTC's existing EPL (EPL #3142).
O5	**Waste**	
O5.1	Waste management	Waste management measures will be implemented in accordance ARTC's standard environmental management measures included within its Environmental Management System and the mitigation measures listed in Table 19.6.
O6	**Health, safety and hazards**	
O6.1	Unauthorised access to the rail corridor	Security of the rail corridor will be undertaken in accordance with ARTC's standard operating procedures and risk management framework which will include continued maintenance of security features such as fencing.
O6.2	Public health and safety from emissions/leaks of dangerous goods and hazardous materials	Operation of the project will be undertaken in accordance with ARTC's standard operating procedures and **ARTC's existing EPL** (EPL #3142).

THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK

10 CONCLUSION

This section provides a synthesis of the findings of the Submissions Report and concludes the environmental impact assessment process.

10.1 Overview

The EIS included a comprehensive assessment of the potential environmental impacts associated with the project and, where appropriate, proposed mitigation and management measures to address these potential impacts. Consultation was undertaken with the community and key stakeholders throughout the environmental impact assessment process, to allow early identification of key issues and addressing of those issues, where possible. The EIS concluded that with the implementation of the proposed mitigation and management measures the potential environmental impacts of the project would be adequately managed.

The Department of Planning, Industry and Environment placed the EIS on public exhibition between 30 August 2019 and 28 September 2019. During this time, the project team undertook further consultation with stakeholders to encourage feedback on the project.

A total of 17 submissions were received, comprising seven from community members, seven from public authorities and three from organisations.

10.2 Summary of response to issues raised

10.2.1 Key issues raised

The top key issues raised by community members were related to:

- noise and vibration, with operational noise being a key concern
- traffic, transport and access, with parking impacts during operation being a key concern
- project need and background, with alternatives/options to the project being a key issue raised.

Key issues raised by public authorities and organisations included, but were not limited to:

- construction and operational noise
- parking impacts during operation
- landscape and visual amenity impacts due to the removal of vegetation

10.2.2 Response

Chapters 6 to 8 of this report provides responses to each issue raised by the community, public authorities and organisations.

In response to some of the key issues raised in the submissions further clarification regarding brake noise and parking impacts, including a selected parking option, is provided in Chapter 5 of this report.

10.3 Performance outcomes

10.3.1 Project consistency

The project as described in this Submissions Report is consistent with:

- the project description provided in Chapter 6 (Project features and operation) and Chapter 7 (Construction) of the EIS
- the Federal and State strategic planning and policy documents discussed in Chapter 5 (Project background, needs and options) of the EIS

- the objectives of the project as specified in section 1.3 of the EIS
- the project justification and benefits discussed in Chapter 5 (Project background, needs and options) and summarised in section 23.2 of the EIS.

10.3.2 Environmental and social performance

The SEARs identified a number of desired performance outcomes for the project.

These outcomes were reviewed in section 22.4 of the EIS, based on the outcomes of the environmental impact assessment and the implementation of the mitigation measures identified as part of the impact assessment process. The project specific environmental performance outcomes have not changed from those presented in the EIS.

10.4 Concluding statement

The project involves the provision of rail track and other works to provide a passing loop for freight trains between Warwick Farm and Cabramatta stations. The project is needed to meet the demands for increased freight rail capacity along the SSFL.

The project was described in the EIS, which was exhibited to provide the community, government agencies and key stakeholders with an opportunity to respond to the project. Submissions regarding the project have been considered in this report.

Based on issues raised, some of the mitigation measures presented in the EIS have been updated and some new mitigation measures have been added. In response to some of the submissions received, clarifications were also provided around the following issues:

- impacts associated with brake noise and brake squeal
- parking impacts during operation and commitment to provide replacement parking on Railway Parade which will result in net zero loss of parking during the operational phase.

With the exception of the minor changes related to the revised mitigation measures presented in this Submissions Report, , the submissions have not resulted in changes to the project from that described in the EIS. The project for which approval is sought, is presented in Chapter 6 (Project features and operation) and Chapter 7 (Construction) of the EIS.

To manage the potential impacts identified by the EIS, and in some cases remove them completely, section 9.2 of this report lists the mitigation measures that would be implemented. The environmental performance of the project would be managed in accordance with the approach described in section 22.2 of the EIS. This includes implementing Site EMP(s) during enabling works, the CEMP and community and stakeholder engagement plan during main construction works and ARTC's environmental management system during operation. This would also ensure compliance with relevant legislation and any conditions of approval.

With the implementation of the proposed mitigation and management measures the potential environmental impacts of the project would be adequately managed.

10.5 Next steps

The Department of Planning, Industry and Environment will, on behalf of the Minister for Planning and Public Spaces, review the EIS and this Submissions Report. Once the Department of Planning, Industry and Environment has completed their assessment, a draft assessment report will be prepared for the Secretary of the Department of Planning, Industry and Environment.

The final assessment report will then be provided to the Minister for Planning and Public Spaces, who will determine the project.

A copy of this Submissions Report will be published on the Department of Planning, Industry and Environment's website, as will the Minister for Planning and Public Spaces' determination, including any conditions of approval and the environmental assessment report, if the project is approved.

THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK

11 REFERENCES

Australian Rail Track Corporation (ARTC) 2018, *ARTC Noise Prediction and Mitigation Guidelines*, ARTC, May 2018.

ARTC 2015, *2015-2024 Sydney Metropolitan Freight Strategy*, ARTC, October 2015, http://www.artc.com.au/uploads/2015-Sydney-Metro-Strategy-Final.pdf.

Australian Standards (AS) 1993, *AS2890.5 Parking Facilities Onstreet Parking*, AS, Sydney.

Austroads 2015, *Guide to Road Design Austroads,* Austroads, Sydney, September 2015.

Department of Environment and Conservation (DEC) 2005, *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW,* DEC, Sydney, August 2005.

Department of Environment and Conservation 2006, *Assessing Vibration: a Technical Guideline,* DEC, Sydney, February 2006.

Department of Environment and Climate Change (DECC), 2008 *Managing Urban Stormwater: Soils and Construction Volume 2A,* DECC, Sydney, January 2008.

Department of Environment and Climate Change (DECC), 2009, *Interim Construction Noise Guide* (ICNG), DECC, Sydney, July 2009.

Department of Industry 2017, *Making it Happen in the Regions: Regional Development Framework*, June 2017, http://walgettams.com.au/_literature_174801/Regional_Development_Framework

Department of Infrastructure, Planning and Natural Resources (DIPNR), 2004a, *Guideline for the Preparation of Environmental Management Plans*, Sydney, October 2004.

DIPNR, 2004b, *Planning guidelines for walking and cycling,* DIPNR, Sydney, December 2004.

Department of Planning, Industry and Environment 2018, State significant infrastructure Standard Conditions of Approval (Linear Infrastructure), September 2018, https://www.planning.nsw.gov.au/Assess-and-Regulate/Development-Assessment/Planning-Approval-Pathways/State-Significant-Infrastructure?acc_section=state_significant_infrastructure__ssi__indicative_standard_conditions_of_approval__linear_infrastructure_

Environmental Protection Agency (EPA) 2013, *Rail Infrastructure Noise Guideline*, EPA, Sydney, May 2013.

EPA, 2014, *Waste Classification Guidelines*, EPA, Sydney, November 2014.

Fletcher, JL and Busnel, RG 1978, 'Effects of noise on wildlife'*, New York Academic Press*, vol. 300, pp. 74

Greater Sydney Commission 2018, *Greater Sydney Region Plan A Metropolis of Three Cities – connecting people*, June 2018, https://www.greater.sydney/metropolis-of-three-cities.

Heritage Office 2001, *Assessing Heritage Significance,* NSW Heritage Office, Sydney, July 2001.

Heritage Office 2002, *Statements of Heritage Impact,* NSW Heritage Office, Sydney, September 2002.

Infrastructure Australia 2016, *Australian Infrastructure Plan, Priorities and Reforms for our Nation's Future*, February 2016, https://www.infrastructureaustralia.gov.au/sites/default/files/2019-06/Australian_Infrastructure_Plan.pdf.

Infrastructure NSW 2018, *Building Momentum State Infrastructure Strategy 2018–2038*, February 2018, https://insw-sis.visualise.today/documents/INSW_2018SIS_BuildingMomentum.pdf.

Landcom 2004, *Managing Urban Stormwater: Soils and Construction Volume 1 (the Blue Book,* March 2004, https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Water/Water-quality/managing-urban-stormwater-soils-construction-volume-1-fourth-edition.pdf.

NSW Ports 2015, *Navigating the Future - NSW Ports' 30 Year Master Plan*, October 2015, https://www.nswports.com.au/assets/Uploads/Publications/NSW-Ports-Master-Plan-2015.pdf.

Peng, J, Bullen, R, Kean, S 2014, *The effects of vegetation on road traffic noise,* Inter.noise conference 2014, https://www.researchgate.net/publication/271020849_The_effects_of_vegetation_on_road_traffic_noise

Richard Heggie Associates Pty Ltd, 2000, *RAC Line-based Noise PRP Study Noise Source Working Paper*, September 2000.

Roads and Maritime Services (RMS) 2012, *Bridge Aesthetics: Design guidelines to improve the appearance of bridges in NSW,* RMS, Sydney, October 2012.

Schulten, C, Weber, C, Croft, B, Hanson, D 2015, 'Considerations in Modelling Freight Rail Noise', *Acoustics Australia*, vol 43, pp. 251-263.

Transport for NSW 2013, *Sydney's Cycling Future*, December 2013, https://www.transport.nsw.gov.au/sites/default/files/media/documents/2017/sydneys-cycling-future-web.pdf.

Transport for NSW 2018a, *Future Transport Strategy 2056,* March 2018, https://future.transport.nsw.gov.au/sites/default/files/media/documents/2018/Future_Transport_2056_Strategy.pdf.

Transport for NSW 2018b, *NSW Freight and Ports Plan 2018-2023,* September 2018, https://www.transport.nsw.gov.au/system/files/media/documents/2018/TNSW%20Freight%20and%20Ports%20Plan%202018-2023_0.pdf.

Transport for NSW 2019, *Construction Noise and Vibration Strategy*, 24 April 2019, https://www.transport.nsw.gov.au/system/files/media/documents/2019/Planning-Environment-Sustainability-Construction-Noise-and-Vibration-Strategy-ST-157.pdf.

World Health Organisation (WHO) 2018, *Environmental Noise Guidelines for Europe,* WHO, Copenhagen, November 2018.

APPENDIX

THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK

Appendix A **REGISTER OF COMMUNITY SUBMISSIONS**

Table A-1 Summary of community/organisation submissions and response locations

Sub No	Submitter	Location	Key Issue Raised	Sub-issues	Report Section
1	Name withheld	Canley Vale	Project description – design features	-	8.4.1
			Traffic, transport and access	Operation – parking	8.6.2
2	Matthew Gee Kwun Chan	Earlwood	Consultation	-	8.1.1
			Project description – design features	-	8.4.7
			Heritage	-	8.10.1
3	Name withheld	Cabramatta	Traffic, Transport and Access	Operation – parking	8.6.2
			Noise and vibration	Construction – noise	8.7.1
4	Name withheld	Cabramatta	Project description – design features	-	8.4.3
			Traffic, transport and access	Operation – parking	8.6.2
			Noise and Vibration	Operation – noise	8.7.3
			Landscape and visual	-	8.12.1
			Project options	-	8.3.1
5	Robyn Thomas	Cabramatta	Health and safety	-	8.14.1
			Health and safety	-	8.14.1
			Noise and vibration	Operation – noise	8.7.3
			Air Quality	-	8.8.1
			Noise and vibration	Operation – vibration	8.7.4
			Flooding	-	8.9.1

Sub No	Submitter	Location	Key Issue Raised	Sub-issues	Report Section
6	John Anderson	Wattle Grove	Air Quality	-	8.8.1
			Project need	-	8.2.1
			Traffic, transport and access	Operation – other	8.6.2
			Consultation	-	8.1.1
7	Name withheld	Cabramatta	Project options	-	8.3.1
			Project options	-	8.3.1
			Traffic, transport and access	Operation – parking	8.6.2
			Project description – design features	-	8.4.5
			Health and safety	-	8.14.1
			Socio-economic	-	8.13.1
			Traffic, transport and access	Construction – access	8.6.1
			Traffic, transport and access	Construction – parking	8.6.1
			Project description – construction	-	8.5.1
			Land use and property	-	8.11.1
			Noise and vibration	Construction – noise	8.7.1
			Noise and vibration	Operation – vibration	8.7.4
			Noise and vibration	Operation – noise	8.7.3

THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK

Document Status

Revision	Author	Reviewer	Approved for Issue		
		Name	Name	Signature	Date
0	Aryel Pyliotis	Kate Day	Simon Page		20/2/20

CABRAMATTA LOOP PROJECT

SUBMISSIONS REPORT