NSW GOVERNMENT

Transport Access Program

Roseville Station Upgrade

Review of Environmental Factors

Artist's impression of the proposed Roseville Station Upgrade, subject to detailed design

June 2020

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Figures

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Abbreviations

Term	Meaning
AHIMS	Aboriginal Heritage Information Management System
ALR Act	*Aboriginal Land Rights Act 1983* (NSW)
AS	Australian Standard
ASA	Asset Standards Authority (refer to Definitions)
ASS	Acid Sulfate Soils
BCA	Building Code of Australia
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BS	British Standard
CBD	Central Business District
CEMP	Construction Environmental Management Plan
CCTV	Closed Circuit Television
CLM Act	*Contaminated Land Management Act 1997* (NSW)
CM Act	*Coastal Management Act 2016* (NSW)
CNVMP	Construction Noise and Vibration Management Plan
D&C	Design & Construct
DBH	Diameter Breast Height
DDA	*Disability Discrimination Act 1992* (Cwlth)
DoAWE	Department of the Agriculture, Water and the Environment (Cwlth)
DPIE	NSW Department of Planning, Industry and Environment
DSAPT	*Disability Standards for Accessible Public Transport (2002)*
ECM	Environmental Controls Map
EES	NSW Environment, Energy and Science (Division of Department of Planning Industry and Environment) (formerly OEH)
EMS	Environmental Management System
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000* (NSW)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development (refer to Definitions)
FM Act	*Fisheries Management Act 1994* (NSW)
Heritage Act	*Heritage Act 1977* (NSW)
ICNG	*Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009).
Infrastructure SEPP	*State Environmental Planning Policy (Infrastructure) 2007* (NSW)
IS rating	Infrastructure Sustainability rating under ISCA rating tool (v 1.2)

Term	Meaning
ISCA	Infrastructure Sustainability Council of Australia
LEP	Local Environmental Plan
LGA	Local Government Area
MCA	Multi-criteria analysis
NES	National Environmental Significance (refers to matters of National Environmental Significance under the EPBC Act)
NorBE	Neutral or Beneficial Effect
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NSW	New South Wales
OEH	Formerly NSW Office of the Environment and Heritage
PDP	Public Domain Plan
PoEO Act	*Protection of the Environment Operations Act 1997* (NSW)
REF	Review of Environmental Factors (this document)
Roads Act	*Roads Act 1993* (NSW)
Roads and Maritime	NSW Roads and Maritime Services
SEPP	State Environmental Planning Policy
SoHI	Statement of Heritage Impact
SHI	State Heritage Inventory
SHR	State Heritage Register
SREP	Sydney Regional Environmental Plan
SW Act	*Sydney Water Act 1994* (NSW)
Transport for NSW	Transport for New South Wales
TPZ	Tree Protection Zone
UDP	Urban Design Plan
WARR Act	*Waste Avoidance and Resource Recovery Act 2001* (NSW)
WM Act	*Water Management Act 2000* (NSW)

Definitions

Term	Meaning
'A' Frequency weighting	Frequency weightings are used to adjust sound level meters so that they are measuring and reporting noise levels that represent what humans hear. The human ear is more sensitive to midrange frequencies between 500 Hz and 6 kHz (for example a child's scream) and less sensitive to very low or very high pitch noises. Sound level meters have inbuilt frequency weighting networks that very roughly approximate the human loudness response at low sound levels. It should be noted that the human loudness response is not the same as the human annoyance response to sound. Here low frequency sounds can be more annoying than midrange frequency sounds even at very low loudness levels. The 'A' weighting is the most commonly used frequency weighting for occupational and environmental noise assessments.
Asset Standards Authority	The ASA is an independent body within Transport for NSW, responsible for engineering governance, assurance of design safety, and ensuring the integrity of transport and infrastructure assets.
Average Recurrence Interval	The likelihood of occurrence, expressed in terms of the long-term average number of years, between flood events as large as or larger than the design flood event. For example, floods with a discharge as large as or larger than the 100-year ARI flood will occur on average once every 100-years.
Concept design	The concept design is the preliminary design presented in this REF, which would be refined by the Construction Contractor (should the Proposal proceed) to a design suitable for construction (subject to Transport for NSW acceptance).
dBA	see 'A' Frequency weighting
Decibel (dB)	The decibel (dB) is a unit used to measure the intensity of a sound by comparing it to a given value on a logarithmic scale. The logarithmic scale allows a wide range of values to be compressed into a more comprehensible range, typically 0–120 dB. Noise levels in decibels cannot be added arithmetically since they are logarithmic numbers. If one machine is generating a noise level of 50 dB, and another similar machine is placed beside it, the level will increase to 53 dB (from 10 log10 (10(50/10) + 10(50/10)) and not 100 dB. The human ear has a vast sound-sensitivity range of over a thousand billion to one so the logarithmic decibel scale is useful for acoustical assessments.
Construction Contractor	The entity appointed by Transport for NSW to undertake the construction of the Proposal. The Construction Contractor is therefore responsible for all work on the project, both design and construction.
Detailed design	Detailed design broadly refers to the process that the Construction Contractor undertakes (should the Proposal proceed) to refine the concept design to a design suitable for construction (subject to Transport for NSW acceptance).
Determining authority	A Minister or public authority on whose behalf an activity is to be carried out or public authority whose approval is required to carry out an activity (under Division 5.1 of the EP&A Act).
Disability Standards for Accessible Public Transport	The Commonwealth *Disability Standards for Accessible Public Transport 2002* (as amended), authorised under the Commonwealth *Disability Discrimination Act 1992* (DDA) for the purpose of removing discrimination 'as far as possible' against people with disabilities. The Transport Standards cover premises, infrastructure and conveyances, and apply to public transport operators and premises providers.

Term	Meaning
Ecologically Sustainable Development	As defined by clause 7(4) Schedule 2 of the EP&A Regulation. Development that uses, conserves and enhances the resources of the community so that ecological processes on which life depends are maintained, and the total quality of life, now and in the future, can be increased.
Interchange	Transport interchange refers to the area/s where passengers transit between vehicles or between transport modes. It includes the pedestrian pathways and cycle facilities in and around an interchange.
Noise catchment area (NCA)	Areas containing noise sensitive receivers that have been categorised based on a similar noise environment.
Noise management level (NML)	An NML is a criteria for managing noise levels associated with an activity. They are site/project specific and are calculated based on the level of ambient noise (represented by the rating background level (RBL)) already at the site. An NML will consist of the RBL plus an allowable increase in noise emissions (e.g. RBL + 10 dB). If noise emissions increase above the NML, sensitive receivers are likely to be disturbed. There are usually two types of NML, 'noise affected' and 'highly noise affected.' The noise affected level represents the point above which there may be some community reaction to noise. The highly noise affected level represents the point above which there may be strong community reaction to noise.
Noise sensitive receiver	In addition to residential dwellings, noise sensitive receivers include, but are not limited to, hotels, entertainment venues, pre-schools and day care facilities, educational institutions (e.g. schools, TAFE colleges), health care facilities (e.g. nursing homes, hospitals), recording studios and places of worship/religious facilities (e.g. churches).
Out of hours works	Defined as works undertaken *outside* standard construction hours (i.e. outside of 7 am to 6 pm Monday to Friday, 8 am to 1 pm Saturday and no work on Sundays/public holidays).
Proponent	A person or body proposing to carry out an activity under Division 5.1 of the EP&A Act.
Proposal	The construction and operation of the Roseville Station Upgrade.
Rail possession / shutdown	Shutdown is the term used by railway building/maintenance contractors to indicate that they have taken possession of the track (usually a section of track) for a specified period, where no trains operate for a specified time. This is necessary to ensure the safety of workers and rail users.
Sensitive receivers	Land uses which are sensitive to potential noise, air and visual impacts, such as residential dwellings, schools and hospitals.
Sydney Trains	From 1 July 2013, Sydney Trains replaced CityRail as the provider of metropolitan train services for Sydney.
The Proposal	The construction and operation of the Roseville Station Upgrade.
Vegetation Offset Guide	The Transport for NSW guide that applies where there is vegetation clearing proposed, and where the impact of the proposed clearing is not deemed 'significant' for the purposes of Section 5.5 of the EP&A Act.

Executive summary

Overview

Transport for NSW (Transport for New South Wales) is responsible for strategy, planning, policy, procurement, regulation, funding allocation and other non-service delivery functions for all modes of transport in NSW including road, rail, ferry, light rail, point to point, cycling and walking. Transport for NSW is the proponent for the Roseville Station Upgrade (the 'Proposal').

The Proposal is part of the Transport Access Program, a NSW Government initiative to provide a better experience for public transport customers by delivering accessible, modern secure and integrated transport infrastructure

As part of this program, the Proposal would aim to provide a station precinct that is accessible to those with a disability, limited mobility, parents/carers with prams, and customers with luggage.

The Proposal would provide:

- two new lifts connecting the existing footbridge to the Hill Street station entrance and the station platforms
- a new canopy on Hill Street station entrance
- a regraded entry footpath and ramp between the existing Pacific Highway bus stop and the station entry
- regrading of the existing pedestrian footpaths along the Pacific Highway and Hill Street
- upgrade works to the existing footbridge and stairs including anti-throw screens, hand rails and balustrades
- a new platform canopy at the boarding assistance zone
- modification of the station building to include:
- one new family accessible toilet
- upgrade to the existing toilets to provide one female ambulant toilet and one male ambulant toilet
- upgrade of existing store room to a station services equipment room (SSER)
- the provision of new and upgraded interchange facilities including:
- two accessible parking spaces
- an accessible kiss and ride bay
- new covered bus shelter with seating
- five bicycle racks (undercover).

This Review of Environmental Factors (REF) has been prepared to assess all matters affecting or likely to affect the environment by reason of the construction and operation of the Proposal under the provisions of Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Subject to approval, construction is expected to commence in mid-2020 and take around 18 months to complete. A detailed description of the Proposal is provided in Chapter 3 of this REF, while an overview of the Proposal is shown in Figure ES.1 and a photomontage shown in Figure ES.2.

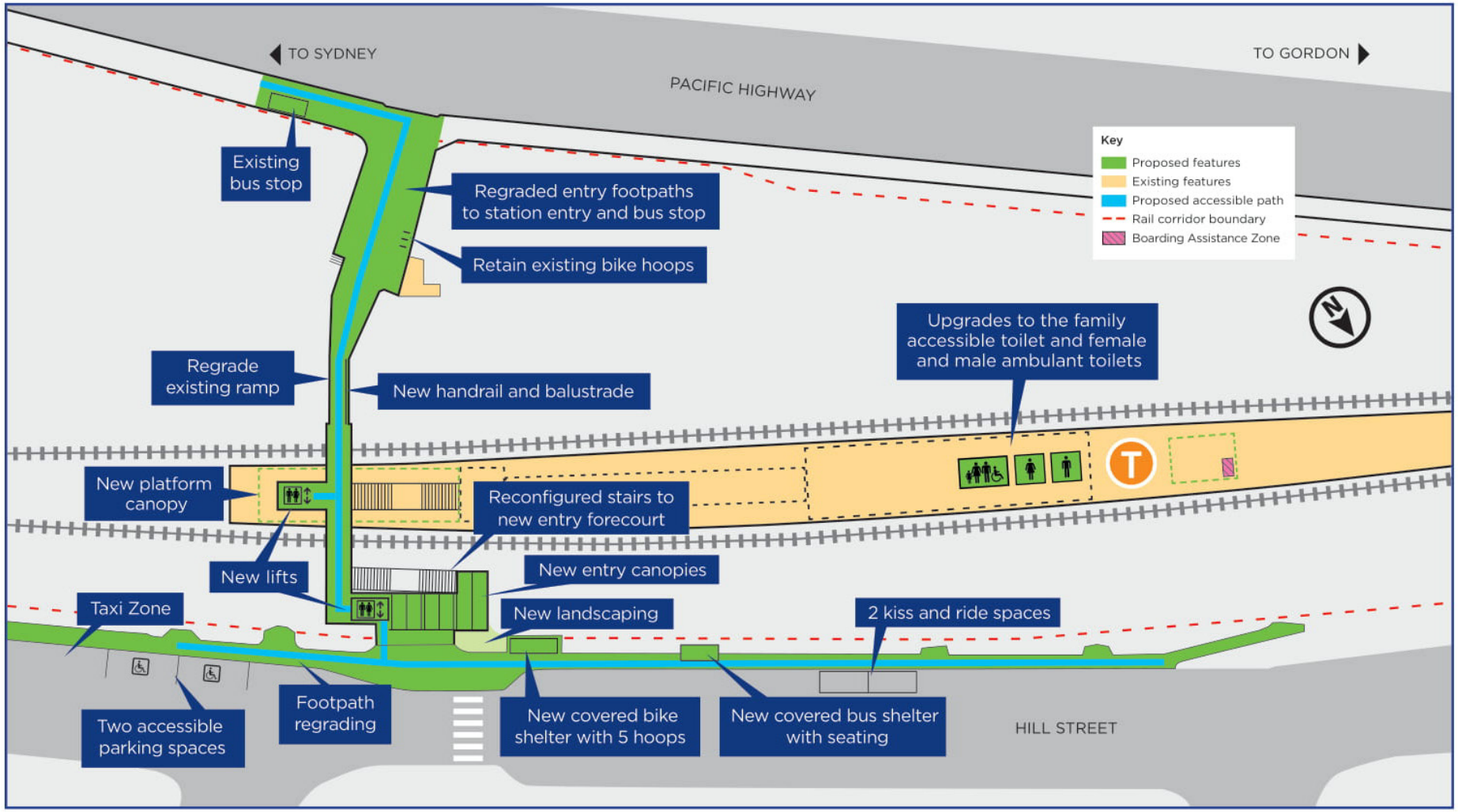


Figure ES.1 Key features of the Proposal

Figure ES.2 Photomontage of the Proposal (subject to detailed design)

Need for the Proposal

The Proposal would ensure that Roseville Station would meet legislative requirements under the Commonwealth *Disability Discrimination Act 1992* (DDA) and the *Disability Standards for Accessible Public Transport 2002* (DSAPT).

The Proposal has been designed to drive a stronger customer experience outcome, to deliver improved travel to and between modes, encourage greater public transport use and better integrate interchanges with the role and function of town centres. The Proposal would also assist in responding to forecasted growth in the region and as such would support growth in commercial and residential development.

Chapter 2 of this REF further describes the need for the Proposal and outlines the options considered in developing the design.

Community and stakeholder consultation

Early engagement was undertaken for the Proposal in February 2019. Feedback received during this period has been used to develop the early concept design of the Proposal.

Community consultation activities for the Proposal would be undertaken during the public display period of this REF and the public invited to submit feedback to help Transport for NSW understand what is important to customers and the community. The REF would be displayed for a period of two weeks. An online feedback portal is available for stakeholders at http://www.nsw.gov.au/roseville-station-upgrade. Further information about these specific consultation activities is included in Section 5.3 of this REF.

During the display period a Project Infoline (1800 684 490) and email address (projects@transport.nsw.gov.au) would also be available for members of the public to make enquiries.

In accordance with the requirements of the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP), consultation is required with local councils and/or public authorities in certain circumstances, including where council managed infrastructure is affected. Consultation with Ku-ring-gai Council was undertaken during the development of design options, the preferred option and ongoing design refinements. Consultation would continue through the detailed design and construction of the Proposal.

Feedback can be sent to:

- projects@transport.nsw.gov.au
- Transport Access Program – Roseville Station Upgrade

  Associate Director Environmental Impact Assessment
  Transport for NSW
  Locked Bag 6501
  St Leonards NSW 2065

Or submitted:

- via yoursay.transport.nsw.gov.au/Roseville
- via the project web page www.transport.nsw.gov.au/Roseville

Transport for NSW would review and assess all feedback received during the public display period, prior to determining whether or not to proceed with the Proposal.

Should the Proposal proceed to construction, the community would be kept informed throughout the duration of the construction period. Figure ES.3 shows the planning approval and consultation process for the Proposal.

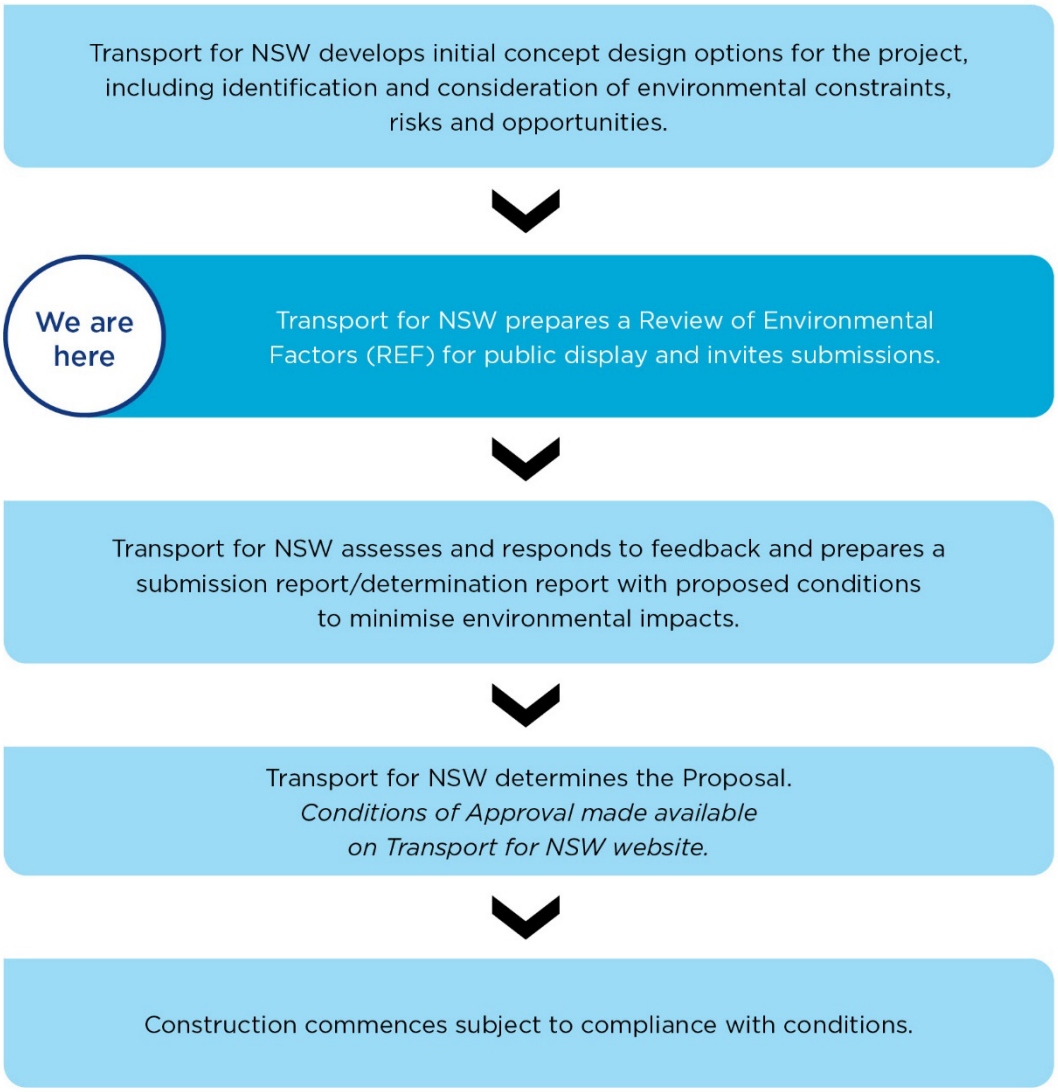


Figure ES.3 Planning approval and consultation process for the Proposal

Environmental impact assessment

This REF identifies the potential environmental benefits and impacts of the Proposal and outlines the mitigation measures to reduce the identified impacts.

The Proposal would provide the following benefits:

- a station that provides improved accessibility to people with a disability, limited mobility, parents/carers with prams and customers with luggage
- modern, secure and integrated transport infrastructure to meet the needs of a growing population.

The following key impacts have been identified should the Proposal proceed:

- increased traffic due to lane closure along Hill Street and the Pacific Highway during rail shut down periods
- closure of the commuter car park for the duration of construction for use as a site compound and worker facilities
- temporary and minor disruptions to the community and commuters for access to the station during construction and rail shut down periods

- noise exceedances during most construction scenarios during standard construction hours
- noise exceedances during most construction scenarios for predicted sleep disturbance
- a minor to moderate adverse heritage impact to the station due to the installation of anti-throw screens on the footbridge, ramp modifications, new lifts and vegetation removal
- moderate adverse visual impacts due to the installation of lifts, expanded Hill Street station entrance and removal of vegetation to accommodate these works
- loss of vegetation and the removal of 12 trees
- permanent closure of the retail kiosk near the entrance of the Pacific Highway.

Further information regarding these impacts is provided in Chapter 6 of the REF.

Conclusion

This REF has been prepared having regard to sections 5.5 to 5.7 of the EP&A Act and clause 228 of the EP&A Regulation, to ensure that Transport for NSW takes into account to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the Proposal.

The detailed design of the Proposal would also be designed in accordance with the *NSW Sustainable Design Guidelines – Version 4.0* (TfNSW, 2019a)/ISCA rating tool (v 1.2/2.0) taking into account the principles of ecologically sustainable development (ESD).

Should the Proposal proceed, any potential associated adverse impacts would be appropriately managed in accordance with the mitigation measures outlined in this REF, and the Conditions of Approval imposed in the Determination Report. This would ensure the Proposal is delivered to maximise benefit to the community and minimise any adverse impacts on the environment.

In considering the overall potential impacts outlined in this REF, the Proposal is unlikely to significantly affect the environment including critical habitat or threatened species, populations, ecological communities or their habitats.

1. Introduction

Transport for New South Wales (Transport for NSW) is responsible for strategy, planning, policy, procurement, regulation, funding allocation and other non-service delivery functions for all modes of transport in NSW including road, rail, ferry, light rail, point to point, cycling and walking. Transport for NSW is the proponent for the Roseville Station Upgrade (the 'Proposal').

1.1. Overview of the Proposal

1.1.1. Need for the Proposal

The NSW Government is committed to facilitating and encouraging use of public transport, such as trains, by upgrading stations to make them more accessible, and improving interchanges around stations with other modes of transport such as buses, bicycles and cars.

The Transport Access Program (TAP) is a NSW Government initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure.

Roseville Station has been identified for an accessibility upgrade as it does not currently meet key requirements of the Commonwealth *Disability Discrimination Act 1992* (DDA) and associated requirements of the *Disability Standards for Accessible Public Transport 2002* (DSAPT).

Non-DSAPT compliant access points, paths and stairs to Roseville Station platforms do not facilitate equal access for people with reduced mobility, a disability, parents/carers with prams, or customers with luggage.

The Proposal would provide safe and equitable access to the platforms and to the pedestrian network surrounding the station. Customer facilities and amenities would also be improved including provision of accessible toilet facilities and platforms. The upgrades would provide an improved customer experience for existing and future users of the station.

Potential future increases in patronage have also been taken into consideration during the design development.

1.1.2. Key features

The key features of the Proposal are shown in Figure 1.1 and summarised as follows:

- two new lifts connecting the existing footbridge to the Hill Street station entrance and the station platforms
- a new canopy on Hill Street station entrance
- a regraded entry footpath and ramp between the existing Pacific Highway bus stop and the station entry
- regrading of the existing pedestrian footpaths along the Pacific Highway and Hill Street
- upgrade works to the existing footbridge and stairs including anti-throw screens, hand rails and balustrades
- a new platform canopy at the boarding assistance zone

- modification of the station building to include:
  - one new family accessible toilet
  - upgrade to the existing toilets to provide one female ambulant toilet and one male ambulant toilet
  - upgrade of the existing store room to a SSER
- the provision of new and upgraded interchange facilities including:
  - two accessible parking spaces
    - accessible kiss and ride bay
    - new covered bus shelter with seating
    - five bicycle racks (undercover).

Subject to planning approval, construction is expected to commence in mid-2020 and take around 18 months to complete.

A detailed description of the Proposal is provided in Chapter 3 of this Review of Environmental Factors (REF).

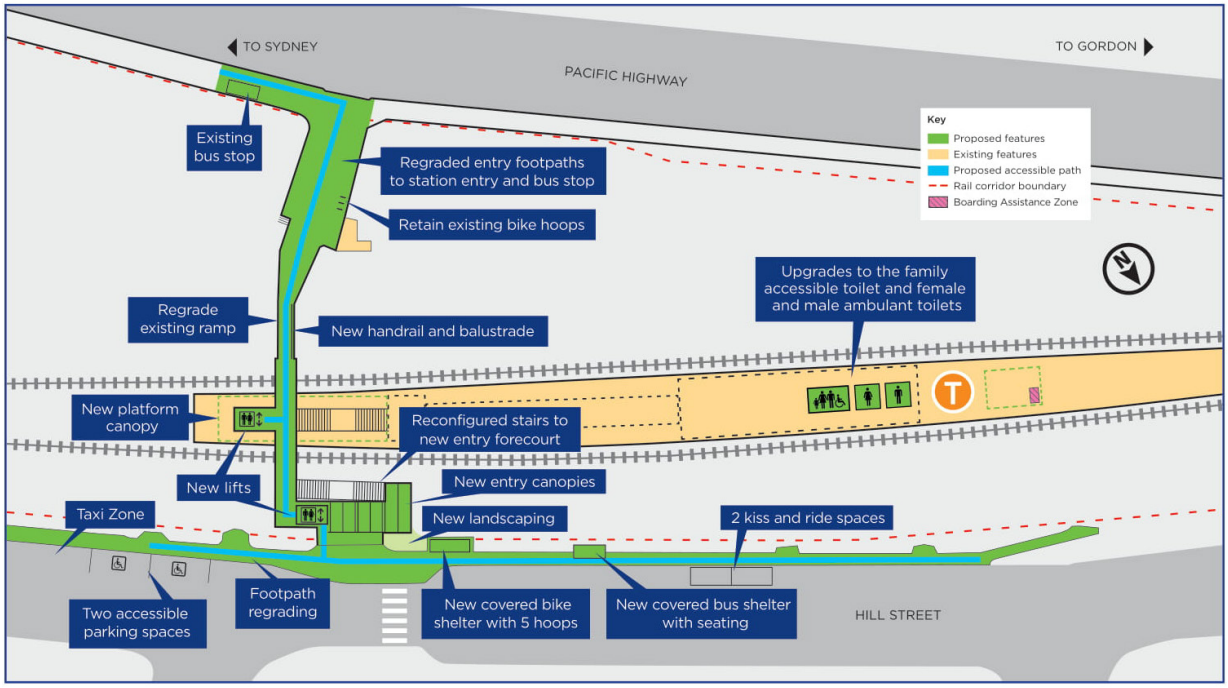


Figure 1.1 Key features of the Proposal

1.2. Location of the Proposal

The Proposal is located in the suburb of Roseville in the Ku-ring-gai Council local government area (LGA) located about 13 kilometres from Central Station. The regional location of the Proposal is shown in Figure 1.2.

The Proposal area is generally bounded by Hill Street to the east and the Pacific Highway to the west. The area around Roseville Station consists mostly of retail shops including the Roseville Shopping Village and commercial areas on either side of the rail corridor. Low to medium density residential areas are located to the north and south of the Proposal area.

Roseville Station is located on the T1 North Shore Line providing public transport links between Sydney CBD and Hornsby and intercity connections. Platform 1 provides train services towards Central Station, Sydney and Platform 2 provides train services to Hornsby.

The Proposal would be located within the confines of the existing station and adjoining roadway/pedestrian footpath and would include the existing footbridge.

Existing Roseville Station infrastructure includes the following:

- the station which is within the rail corridor on land managed by RailCorp
- rail infrastructure managed by Sydney Trains
- the commuter car park is located on land managed by Sydney Trains.

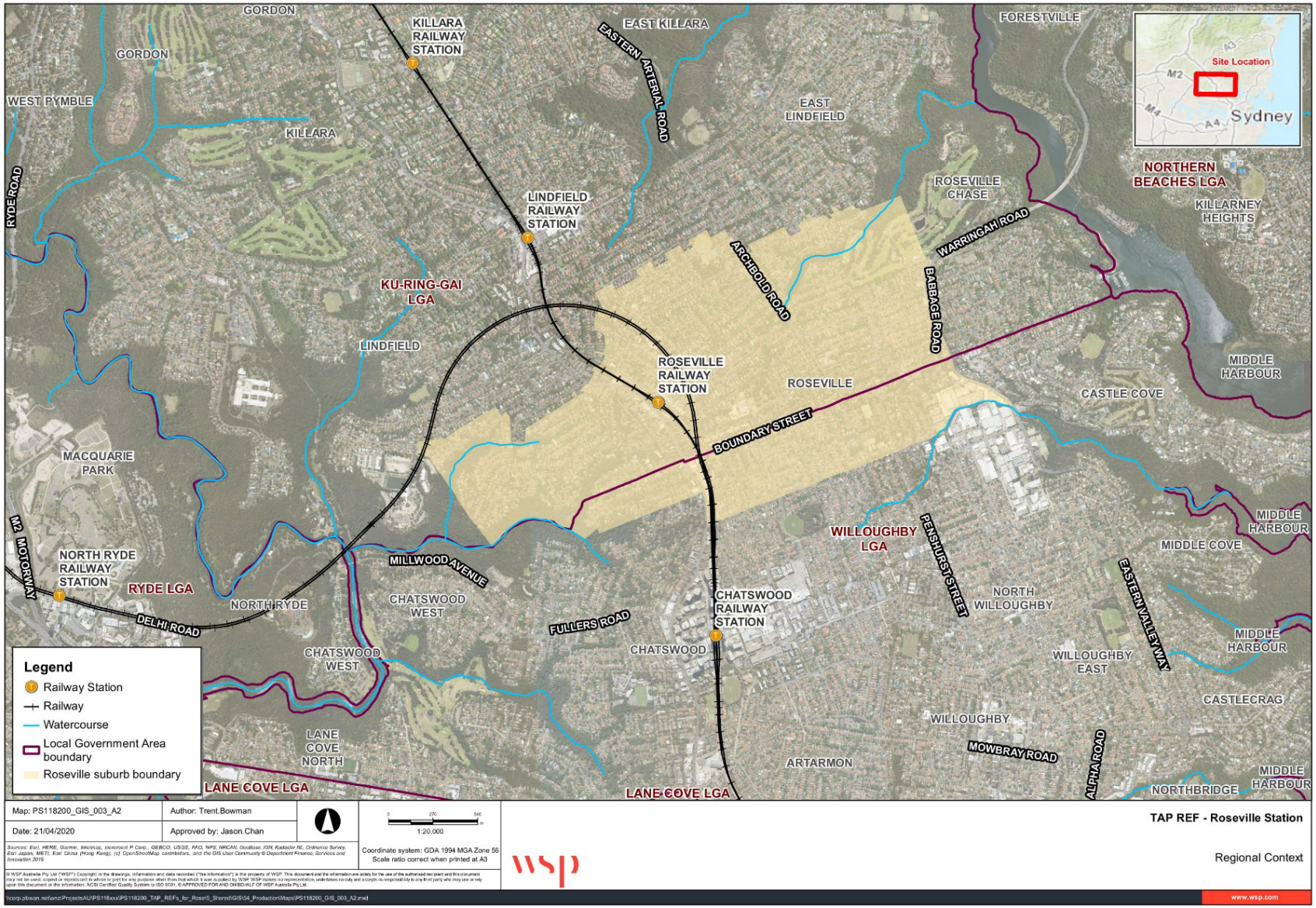


Figure 1.2 Regional context

1.3. Existing infrastructure and land uses

1.3.1. Station access and facilities

Roseville Station consists of a single island platform which is accessed via a set of stairs from the footbridge. Current access to the footbridge is provided at two points:

- the eastern entrance via Hill Street. Commuters can access the footbridge via adjoining stairs
- the western entrance to the footbridge via a small forecourt off the Pacific Highway and ramp.

On the platform, the station facilities include toilets and station staff office. It also includes a canopy to provide customers with weather protection for seating, an Opal top-up machine, help points and Opal card readers.

1.3.2. Interchange facilities

A commuter car park is located off Hill Street with 31 spaces to the north of the station about 150 metres away from the entrance. Street parking is available for commuters on surrounding streets around the station. Timed parking is further available at Roseville Shopping Village on Hill Street and outside clearway times on the Pacific Highway. There is a kiss and ride bay with two spaces and a taxi zone available near the station entrance on Hill Street.

Three bus stops are located near Roseville Station:

- a stop located on Hill Street, around 40 metres from the platform access and service bus route 558 (Chatswood to Linfield)
- a stop located on the Pacific Highway adjacent to Roseville Station near the pedestrian crossing. The stop serves bus route 565 (Macquarie University to Chatswood)
- a stop located on the Pacific Highway across from Roseville Station.

There are two bike racks accommodating up to 12 bikes each adjacent to the station entrances along the Pacific Highway and Hill Street.

The site location of Roseville Station is shown in Figure 1.3. Photos of the existing infrastructure are shown in Figure 1.4 to Figure 1.9.

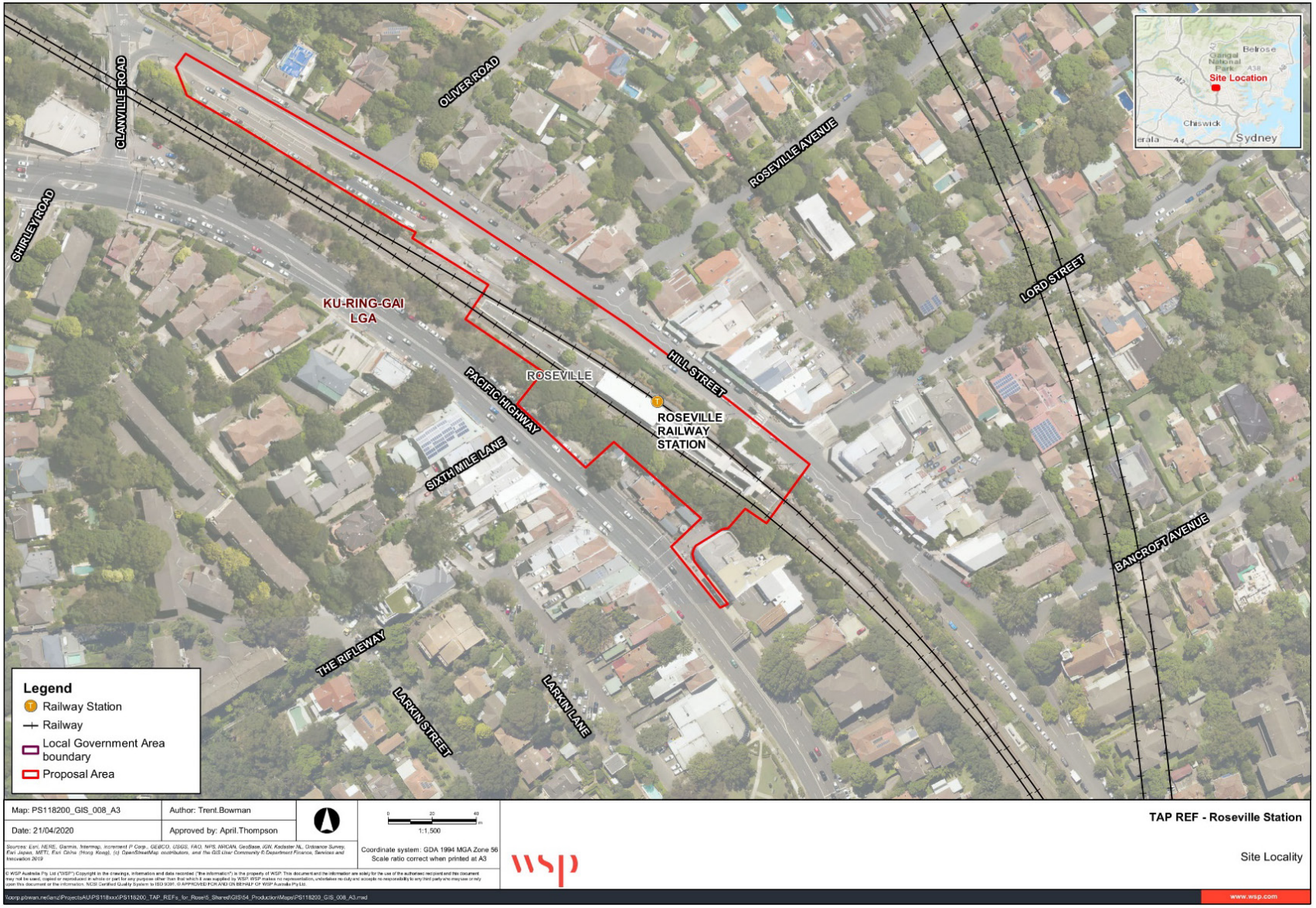


Figure 1.3 Site locality map

Figure 1.4 View of station entrance along Hill Street

Figure 1.5 View of station entrance along the Pacific Highway

Figure 1.6 View of pedestrian plaza station entrance from the Pacific Highway

Figure 1.7 View of pedestrian footbridge connecting toward the Pacific Highway

Figure 1.8 View from footbridge of Platform 2 and footbridge stairs

Figure 1.9 View from Platform 2 of stairs and footbridge

1.4. Purpose of this Review of Environmental Factors

This REF has been prepared by Transport for NSW to assess the potential impacts of the Proposal. For the purposes of these works, Transport for NSW is the proponent and the determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The purpose of this REF is to describe the Proposal, to assess the likely impacts of the Proposal having regard to the provisions of Section 5.5 of the EP&A Act, and to identify mitigation measures to reduce the likely impacts of the Proposal. This REF has been prepared in accordance with clause 228 of the *Environment Planning and Assessment Regulation 2000* (EP&A Regulation).

This assessment has also considered the relevant provisions of other relevant environmental legislation, including the *Biodiversity Conservation Act 2016* (BC Act), *Fisheries Management Act 1994* (FM Act) and the *Roads Act 1993* (Roads Act).

Having regard to the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), this REF considers the potential for the Proposal to have a significant impact on matters of National Environmental Significance (NES) or Commonwealth land, and the need to make a referral to the Commonwealth Minister for the Environment for any necessary approvals under the EPBC Act. Refer to Chapter 4 for more information on statutory considerations.

2. Need for the Proposal

Chapter 2 discusses the need and objectives of the Proposal, having regard to the objectives of the TAP and the specific objectives of the Proposal. This chapter also provides a summary of the options that have been considered during development of the Proposal and why the preferred option has been chosen.

2.1. Strategic justification

Improving transport customer experience is the focus of the NSW Government's transport initiatives. Transport interchanges and train stations are important gateways to the transport system and as such play a critical role in shaping the customer's experience and perception of public transport.

The Roseville Station Upgrade, the subject of this REF, forms part of the TAP. This program is designed to drive a stronger customer experience outcome to deliver seamless travel to and between transport modes, encourage greater public transport use and better integrate station interchanges with the role and function of town centres and developing urban centres in regional areas of NSW.

Table 2.1 identifies key NSW government policies applicable to the Proposal as part of the strategic justification. Further details of the statutory considerations relating to Commonwealth and NSW Government legislation are discussed in Chapter 4 of this REF.

Table 2.1 Key NSW Government policies and strategies applicable to the Proposal

Policy / Strategy	Overview	How the Proposal aligns
Future Transport Strategy 2056 (TfNSW, 2018a)	*Future Transport Strategy 2056* is an update of NSW's *Long Term Transport Master Plan*. It is a suite of strategies and plans for transport to provide an integrated vision for the state. *Future Transport Strategy 2056* identifies 12 customer outcomes to guide transport investment in Greater Sydney. These outcomes include transport providing convenient access, supporting attractive places and providing 30-minute access for customers to their nearest centre by public transport.	The Proposal supports the vision of the *Future Transport Strategy 2056* by providing accessible services for people who currently find it difficult to access public transport services. The proposed new lifts and accessible paths included in the Proposal would allow people with mobility constraints to access public transport. Greater accessibility would also mean better connections to places and opportunities for employment, education, business and leisure. The Proposal has also considered increased patronage with upgrades of covered bicycle parking, accessible parking and kiss and ride bays in the design development to accommodate the forecast Sydney Trains patronage growth, changing travel patterns and sustainability targets.

Policy / Strategy	Overview	How the Proposal aligns
Disability Inclusion Action Plan 2018-2022 (TfNSW, 2017a)	The *Disability Inclusion Action Plan 2018-2022* was developed by Transport for NSW in consultation with the Accessible Transport Advisory Committee, which consists of representatives from peak disability and ageing organisations within NSW. The Disability Plan identifies the challenges, the achievements to date, the considerable undertaking that is required to finish the job and provides a solid and practical foundation for future progress over the next five years.	The Proposal has been developed with consideration of the objectives outlined in this Plan and seeks to improve and provide equitable access to public transport facilities.
NSW State Infrastructure Strategy 2018-2038 *(NSW Government, 2018)*	The *NSW State Infrastructure Strategy 2018–2038* builds on the NSW Government's major long-term infrastructure plans over the last seven years. The strategy sets out the government's priorities for the next 20 years, and combined with the *Future Transport Strategy 2056*, the Greater Sydney Region Plan and the Regional Development Framework, brings together infrastructure investment and land-use planning for our cities and regions. Public transport is viewed as critical to urban productivity, expanding employment opportunities by connecting people to jobs, reducing congestion, and supporting delivery of urban renewal.	The Proposal supports investment in rail infrastructure and aligns with the need to continue to provide urban public transport to support Sydney's increasing population. The Proposal is also consistent with overall aims and objectives of the *Future Transport Strategy 2056* to improve transport infrastructure across NSW.
NSW: Premier Priorities (NSW Government, 2019)	In June 2019, 14 new Premier's Priorities were announced that would allow the Government to measure and deliver in areas where NSW can do better. The key policy priorities, include the following: • a strong economy • highest quality education • well-connected communities with quality local environments • putting customer at the centre of everything we do • breaking the cycle of disadvantage.	The Proposal aligns with these objectives as the Proposal would provide increased access for the community and provide improved connections for communities and support the disadvantaged.

Policy / Strategy	Overview	How the Proposal aligns
A Metropolis of Three Cities - Greater Sydney Region Plan (Greater Sydney Commission, 2018a)	The *Greater Sydney Region Plan* is the NSW Government's 40-year land use plan for Sydney. It establishes a vision for a metropolis of three cities – the Eastern Harbour City, Central River City and Western Parkland City.	The Proposal particularly supports Objective 7 of the Three Cities Plan which is to ensure 'services and infrastructure meet communities' changing needs' It would achieve this by increasing the accessibility of places and transport for all people that use Roseville Station.
North District Plan (*Greater Sydney Commission, 2018b*)	The *North District Plan* is a 20-year plan to manage growth in the context of economic, social and environmental matters to achieve the 40-year vision for Greater Sydney. It helps guide the implementation of Greater Sydney Region Plan, A Metropolis of Three Cities, at a district level and is a bridge between regional and local planning.	The Proposal is located within the North District. The Proposal would assist in meeting the Planning Priorities for the Northern District by providing services and social infrastructure to meet people's changing needs. It would achieve this by increasing the accessibility of Roseville and public transport within the suburb, ensuring people with disability can easily access a range of services.
Access and Disability Inclusion Plan 2019 – 2023 *(Ku-ring-gai Council, 2019a)*	The *Access and Disability Inclusion Plan 2019 – 2023* identifies key strategies to address access barriers or access opportunities, ensuring that all organisational practices are proactive in meeting the needs of all people of all abilities and information are inclusive for all members of the community. Relevant actions identified in the plan include: • access in the built environment • public transport and parking • local business and services • Council services.	The Proposal would assist in achieving the long term goal of the *Access and Disability Inclusion Plan* as it would help provide an accessible public transport option that meets the diverse and changing needs of the community in the Ku-ring-gai LGA.

2.2. Objectives of the Transport Access Program

The TAP is a NSW Government initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure. The program aims to provide:

- stations that are accessible to people with disabilities, limited mobility, parents/carers with prams, and customers with luggage
- modern buildings and facilities for all transport modes that meet the needs of a growing population
- modern interchanges that support an integrated network and allow seamless transfers between all transport modes for all customers
- safety improvements including extra lighting, help points, lift alarm, fences and security measures for car parks and interchanges, including stations, bus stops and wharves

- signage improvements so customers can easily use public transport and transfer between modes at interchanges
- other improvements and maintenance such as painting, new fencing and roof replacements.

2.3. Objectives of the Proposal

The specific objectives of the Roseville Station Upgrade are to:

- provide a station that is accessible to customers with a disability, limited mobility, parents/carers with prams and customers with luggage
- improve customer experience by improving accessibility for people with mobility issues (including increased access to station facilities such as the toilets, drinking fountain, telephone booth and accessible parking spaces)
- improve pedestrian connectivity between the station and bus stops
- reduce potential pedestrian conflict and crowding points along the platform
- improve integration with the surrounding precinct
- improve customer safety
- improve wayfinding in and around the station
- respond to the heritage values of the site
- improve customer amenity.

2.3.1. Design development

The need for an upgrade was required as the station does not currently meet the DDA or requirements of DSAPT. In 2015, AECOM was engaged to prepare a *Scoping Design Report* (AECOM, 2015) for the station. The report identified the following key access constraints and issues at Roseville Station:

- the existing station entrances are not currently accessible for all customers from Hill Street and the Pacific Highway
- there is no DSAPT compliant direct access from adjacent street entrances to the platforms (currently stair-only access)
- connectivity between transport modes (such as kiss and ride bays, taxi and public transport connections) is not DSAPT compliant for accessibility purposes.

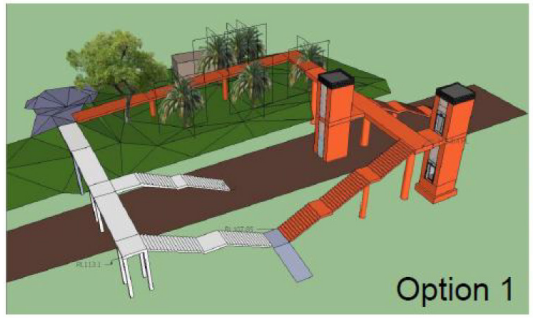
2.4. Options considered

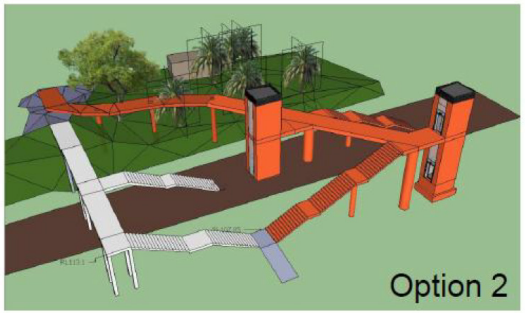
To achieve the desired project outcomes, early concept design development included a range of options that are described in the following sections.

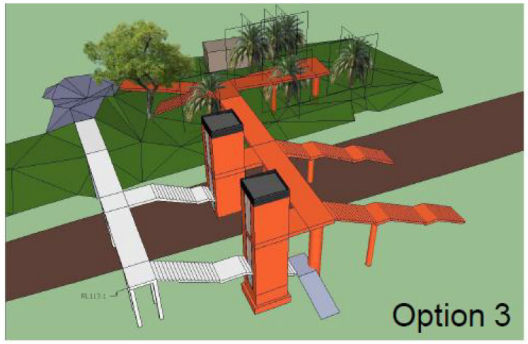
Overall, six options were assessed including a ‘do-nothing’ option. These options are outlined and compared in Table 2.2. The options generally differ in the following design aspects:

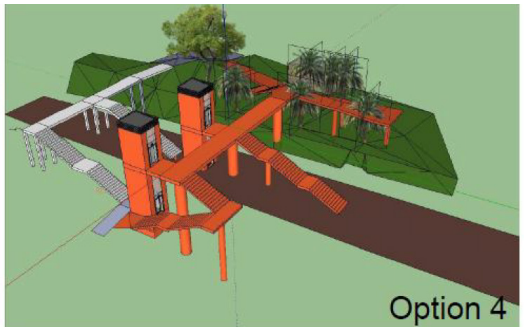
- footbridge location
- stair/ramp access configurations.

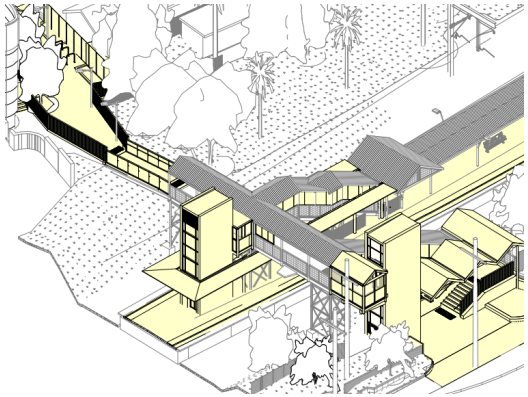
Table 2.2 Long list options comparison

Option	Pros	Cons
 <u>Option 1</u> Replacement of the existing pedestrian footbridge with a new footbridge north of the platform and extending the footpath connection through the existing vegetation from the Pacific Highway entrance. Access from Hill Street would be at the same location with new stairs facing south and connection to a lift.	• the existing entries would be maintained minimising station entrance on Hill Street and the Pacific Highway • the use of existing footbridge would be maintained during construction minimising historical heritage impacts • the location of platform stairs would provide a more centrally loaded platform improving customer access to the station.	• this option would result in increased travel time for customers from the extended ramp • this option would result in an expanded footprint due to the large footprint required for additional structure of the new lifts, walkway and footbridge • the upgraded walkway would pass through the heritage garden impacting the historical significance of the station.

Option	Pros	Cons
 <u>Option 2</u> Replacement of the existing pedestrian footbridge as a new footbridge north of the platform and extending the footpath connection diagonally through the existing vegetation and across the existing platform from the Pacific Highway entrance. Access from Hill Street would be the same as Option 1.	Similar to that for Option 1.	Similar to that for Option 1.

Option	Pros	Cons
 <u>Option 3</u> Replacement of the existing pedestrian footbridge as a new footbridge toward the centre of the existing platform. Ramp access from the Pacific Highway would traverse through the existing vegetation. Access from Hill Street would be at the same location and connect directly to the new lift with stairs shifted facing north.	• the design would have a compact bridge footprint minimising potential impacts • the location of platform stairs would provide a more centrally loaded platform improving customer access to the station.	• the existing entrance would require modification increasing environmental impacts to biodiversity and heritage • this option would result in increased travel time for customers due to the extended ramp • the upgraded walkway would pass through the heritage garden impacting the historical significance of the station • temporary stairs and access points would be required during construction resulting in customer disruption and increased visual impacts.

Option	Pros	Cons
 <u>Option 4</u>[1] Replacement of the existing pedestrian footbridge as a new footbridge and ramp access connection to the Pacific Highway is similar to Option 3. Access from Hill Street would also be at the same location but include north and south facing stair access.	Similar to that for Option 3.	• this option would result in increased travel time for customers accessing the station due to the extended ramp along the Pacific Highway • the upgraded walkway would pass through the heritage garden impacting the historical significance of the station.

Option	Pros	Cons
 Option 5 – modifying existing footbridge Utilise existing footbridge and upgrade station access points along the Pacific Highway and Hill Street for accessibility. Minor modifications would include re-graded footpath and installation of new lifts.	• this option would have the smallest proposal footprint with minimal environmental impacts to biodiversity • this option would provide design compatibility for visual and heritage considerations reducing potential visual impacts.	• this option would have potential ongoing maintenance required of older structure (e.g. existing footbridge) • this option would result in modifying the station entrances along the Pacific Highway and Hill Road with some access impacts.
Option 6 – Do nothing Maintain the existing Roseville Station as is with no upgrades or modifications.	• the station would remain open with no closures and operate as normal.	• the current station design would continue to be non-DSAPT compliant • there would be additional ongoing maintenance and costs due to the aging existing infrastructure required.

[1]Option 4 in the Scoping Design Report also included three sub-options with various structure options and minor modifications.

2.4.1. Assessment of identified options

The options were qualitatively compared across the following 15 criteria:

- DDA compliance
- Building Code of Australia compliance
- fire engineering and life safety
- pedestrian circulation analysis
- Customer experience and wayfinding
- crime prevention through environmental design
- risk and security
- structural analysis
- building services considerations
- utilities
- flooding
- environmental considerations
- heritage
- constructability
- standards compliance matrix[1]

[1]Including standards by Australian Government, Australian Standards, NSW Government, Sydney Trains, TfNSW

As well as the assessment of the options against the criteria, internal and external consultation was undertaken through the Stakeholder Working Group and engagement with Ku-ring-gai Council.

2.5. Justification for the preferred option

The 'do nothing' option was not considered a feasible alternative as it would be inconsistent with the legislative requirements of the DDA and NSW Government objectives for improving the accessibility of transport interchanges and train stations across NSW. This is a priority of the TAP as described in Section 2.2. The 'do nothing' option would also not encourage the use of public transport and would not meet the needs of the Roseville community. The 'do nothing' option was therefore not considered further.

Based on the remaining options, Option 5 – modifying the existing footbridge, was identified as the preferred option based on the following advantages:

- achieves DSAPT compliance with the least negative impacts
- maintains and improves existing entries along Hill Street (via new lift and stairs) and the Pacific Highway (new ramp and stairs)
- direct access provided to the footbridge from the Pacific Highway for enhanced customer journey
- provides minimal environmental impacts with a reduced footprint
- the design would be compatible with the visual and heritage components of the Roseville Station.

3. Proposal description

Chapter 3 describes the Proposal and summarises key design parameters and construction methodology. The description of the Proposal is based on a concept design and is subject to detailed design.

3.1. The Proposal

The Proposal involves an accessibility upgrade of Roseville Station as part of the TAP which would improve accessibility and amenity for customers. The Proposal would include the following key elements:

- two new lifts connecting the existing footbridge to the Hill Street station entrance and the station platforms
- a regraded entry footpath and ramp between the existing Pacific Highway bus stop and the station entry
- regrading of the existing pedestrian footpaths along the Pacific Highway and Hill Street
- upgrade works to the existing footbridge and stairs including anti-throw screens, hand rails and balustrades
- a new platform canopy at the boarding assistance zone
- modification of the station building to include:
  - one new family accessible toilet
  - upgrade to the existing toilets to provide one female ambulant toilet and one male ambulant toilet
  - upgrade of existing store room to a SSER
- the provision of additional accessibility features including:
  - two accessible parking spaces
  - an accessible kiss and ride bay
  - new covered bus shelter with seating
  - five bicycle racks (undercover).

3.2. Scope of works

Details of the proposed work at the station to improve accessibility and customer experience include the following components.

3.2.1. Station access

Works to provide DSAPT compliant access to the station would include:

- construction of a new lift connecting the Hill Street entry to the existing footbridge
- construction of a new lift connecting the existing footbridge to the station platforms
- modification to the existing footbridge including the following:
  - addition of extensions to create lift landings
  - regrading of the existing ramp entrances to provide accessible access
  - provision of anti-throw screens to the footbridge and existing stairs

- installation of a weather protection canopy at the Hill Street station entrance connecting the footpath, the lift entry and the existing footbridge and stairs at this location
- installation of steps from the existing heritage building and access ramp from the Pacific Highway to the existing footbridge
- additional works including provision of DSAPT compliant handrails, nosing and tactile surfaces on stairs and ramps.

3.2.2. Platform works

Platform works at the station would include:

- the installation of weather protection canopies at the following locations:
  - along either side of the platforms near the new lifts
  - between the stairs and existing station building
  - over the existing boarding assistant zone on the northern end of the platform
- line marking of the boarding assistant zones on each platform
- regrading and resurfacing of the platforms connecting the new lifts, boarding assistance zones and existing station building
- removal and replacement of the existing tactile ground surface indicators (TGSI) throughout the station.

3.2.3. Station building works

Works to the station buildings would include:

- reconfiguration of the existing toilets to include a new family accessible toilet and modification of the existing station building to accommodate one female ambulant toilet and one male ambulant toilet
- minor modification to the existing store room to provide the SSER room, including relocation of communication racks and new electrical racks and equipment.

3.2.4. Interchange works

Interchange upgrade works to improve connectivity within the station precinct would include:

- provision of two new accessible parking spaces and an accessible kiss and ride bay with a waiting shelter along Hill Street
- relocation of the existing bus stop along Hill Street about 500 metres north of Roseville Station including a shelter, seats and an upgrade to achieve DSAPT compliance
- provision of new sheltered seating along the south side of Hill Street near the kiss and ride bay, and taxi zone
- upgrade of existing bus shelter seating along the Pacific Highway station entrance to be DSAPT compliant
- regrading of the footpath along Hill Street to be accessible for the new entry point connecting the proposed Hill Street lift, accessible parking spaces, accessible kiss and ride bay, bus stop and pedestrian crossing
- regrading of the footpath along the Pacific Highway providing accessibility from the bus stop to the station entry ramp

- installation of steps from the existing heritage building and the accessible entry path and ramp near the Pacific Highway station entry toward the existing footbridge
- the provision of five undercover bicycle rack spaces near the Hill Street entrance at the location of the existing the bus shelter and retaining the three bicycle hoops near the Pacific Highway entrance.

3.2.5. Ancillary works

Additional ancillary works within the station precinct including:

- relocation and suitable reinstatement of existing infrastructure (e.g. seats, signage, fencing and rubbish bins) which may be required to be temporarily removed to construct the Proposal
- provision of anti-graffiti coating to all new and modified hard surfaces
- provision of upgraded lighting along new accessible areas including footpath, parking, kiss and ride bay, station entries and bus stop
- improvements to existing station systems (including installing new CCTV cameras as required, installing new LED lighting, installing new Public Address speakers as required)
- provision of new passenger information displays as required
- provision of, or relocating existing help points, water fountains, pay phones and an Opal top up machine
- temporary site compounds for storage of material and equipment utilising the existing commuter car park
- temporary work (where required) during construction to maintain access to the station
- relocation or protection of any identified services, utilities and electrical works
- provision of new kerbs, guttering, drainage adjustments, footpath modifications, line-marking, signage and landscaping adjacent to Hill Street and the Pacific Highway.

3.2.6. Materials and finishes

Materials and finishes for the Proposal would be selected based on the criteria of durability, maintenance and cost effectiveness, and to minimise visual impacts. Life cycle impacts would also be taken into account in the selection process through the consideration of environmental impacts of materials from the point of extraction, transportation, operations and end of life.

Availability and constructability are important criteria to ensure that materials can be readily sourced and that the structure can be built with ease and efficiency. Materials would also be selected for their application based on their suitability for meeting design requirements.

Subject to detailed design, the Proposal would include the following materials and finishes for the key elements:

- lift structure – concrete lift shaft with glazing, painted steel canopy, prefinished metal roof sheeting and downpipes and soffit lining to canopies
- footpaths and ramps – stainless steel handrails, concrete with non-slip textured finish and broom finished concrete pathways.

An Urban Design Plan including a Public Domain Plan would be prepared by the Construction Contractor (prior to finalisation of the detailed design) for endorsement by Transport for NSW. The detailed design would be submitted to Transport for NSW's Urban Design and Sustainability Review Panel for comment before being accepted by Transport for NSW.

3.3. Design development

3.3.1. Engineering and environmental constraints

There are a number of constraints which have influenced the design development of the Proposal.

Existing structures: the placement and integrity of existing structures were considered during the development of the design e.g. the platforms, station buildings and pedestrian bridge.

Sydney Trains' requirements: modifications for existing structures and new structures within the rail corridor are required to be designed and constructed with consideration of train impact loads, structural clearances to the track, and safe working provisions.

Heritage: Roseville Station is identified as being of local heritage significance, including the historic gardens, which have been identified as having exceptional significance to the station and within the broader suburban setting.

Construction access: customer access to the station is required to be maintained throughout the construction period, except during rail shut down periods.

3.3.2. Design standards

The Proposal has been, and would continue to be designed during detailed design having regard to the following design standards:

- Disability Standards for Accessible Public Transport 2002 (issued under the Commonwealth Disability Discrimination Act 1992)
- Building Code of Australia (BCA)
- relevant Australian Standards
- Transport for NSW Asset Standards Authority standards
- Sydney Trains standards
- Guidelines for the Development of Public Transport Interchange Facilities (Ministry of Transport, 2008).
- Crime Prevention Through Environmental Design (CPTED) principles
- Council standards, codes and guidelines (where relevant)
- *Sydney Trains Heritage Guidelines and Conservation Guide* for canopies, interpretation, conduit and fixings, railway bridge and platforms (Sydney Trains, 2018)
- other Transport for NSW policies and guidelines.

3.3.3. Sustainability in design

The Proposal is targeting a rating using the Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability (IS) Rating Scheme v1.2. The rating scheme provides an independent and consistent methodology for the application and evaluation of sustainability outcomes in infrastructure projects. The sustainability outcomes address environmental, social, economic and governance aspects, energy and greenhouse gases.

The IS Rating Scheme is grouped into six key themes:

- management and governance
- using resources
- emissions, pollution and waste
- ecology
- people and place
- innovation.

These sustainability themes are divided into 15 performance categories, against which the Proposal would be independently assessed and assigned a rating level. The Proposal is targeting an 'Excellent' rating under the IS Rating Scheme version 1.2.

3.4. Construction activities

3.4.1. Work methodology

Subject to approval, construction is expected to commence in mid-2020 and take around 18 months to complete. The construction methodology would be further developed during the detailed design of the Proposal by the nominated Construction Contractor in consultation with Transport for NSW.

The proposed construction activities for the Proposal are identified in Table 3.1. This staging is indicative and is based on the current concept design and may change once the detailed design methodology is finalised.

Table 3.1 Indicative construction staging for key activities

Activity	Works completed	Work Hours and Timing (indicative)[1]
Activity 1: Site establishment, enabling works and site compound	• establish site compounds (including erecting fencing, tree protection zones, site offices, amenities and plant/material storage areas) • establish temporary facilities as required (e.g. temporary access stairs, temporary toilets, temporary construction lights) • erect site hoarding/fencing as required • service location and relocation.	Standard hours (i.e. daytime) 2 months
Activity 2: Lift works	• excavate for lift pits/foundations • waterproof (as required), install reinforcement, formwork and concrete to form the lift pit • erect glass and steel shaft structure • lift installation and commissioning • implement architectural fit-out around lift shaft including new awning over the lift.	Standard hours, night-works and rail shut down period 12 months

Activity	Works completed	Work Hours and Timing (indicative)[1]
Activity 3: Ramp upgrade	• upgrade along the Pacific Highway entrance including: – earthworks for new ramp grading – install ramp formwork and structure – install ramp fit-out of new hand rails, seating and TGSI's – regrading of existing footpath. • upgrade along Hill Street and station entrance including: – regrading of existing footpath – adjust existing stair for new access and entrance canopy area with new canopy – removal of existing canopy – build retaining wall to support existing stairs – install paving and finishes	Standard hours 6 months
Activity 4: Kiss and ride and accessible parking space	• reconfigure the existing roadway on Hill Street (kerb, line marking, etc.) to accommodate the upgraded accessible parking and kiss and ride space	Standard hours, night works and rail shut down period 4 months
Activity 5: Station building and platform works	• install canopy connecting from new lift to boarding assistance zones • provide line marking at boarding assistance zones • provision of a new family accessible toilet and modification of existing station building to accommodate one female ambulant toilet and one male ambulant toilet • modification of station staff office and storage • upgrade of waiting rooms to be DSAPT compliant.	Standard hours, night works and rail shut down period 18 months
Activity 6: Demobilisation	• install other ancillary features and landscaping • remove hoardings • clear site • remove environmental, safety and traffic controls.	Standard hours 2 months
Activity 7: Existing bridge refurbishment	• set up access protection to existing bridge • modify existing footbridge with improved accessibility at station entrances along the Pacific Highway and Hill Street • install anti-throw screens.	Standard hours, night works and rail shut down period 12 months
Activity 8: High Voltage (HV) power realignment	• upgrade electrical supply including metering board, cabling and any distribution boards as needed.	Standard hours, night works and rail shut down period 6 months

Note 1: Some exceedances may occur during night works (mainly shut downs); however they would be limited to about 10 nights throughout the construction period.

3.4.2. Plant and equipment

An indicative list of plant and equipment that would be required is provided below. Additional equipment that would likely to be used would be identified during detailed design by the Construction Contractor.

- Chainsaw
- Concrete pump
- Concrete saw
- Concrete truck
- Coring machine
- Crane
- Elevated working platform
- Excavator
- Forklift
- Franna crane
- Generator
- Grinders
- Hand tools
- Hi-rail truck
- Impact wrenches
- Jack hammers
- Lighting tower
- Pavement laying machine
- Piling (bored)
- Rock anchoring rig
- Sand blasting plant
- Shotcrete machine
- Sucker truck
- Trucks (medium rigid)
- Vibrating roller
- Vibrators
- Water truck
- Welding plant

3.4.3. Working hours

For this REF, most of the construction works required for the Proposal were assessed as occurring during recommended standard NSW Environment Protection Authority (EPA) construction hours, which are as follows:

- 7.00 am to 6.00 pm Monday to Friday
- 8.00 am to 1.00 pm Saturdays
- no work on Sundays or public holidays.

Certain works may need to occur outside of standard construction hours. These would occur during scheduled Sydney Trains track maintenance periods. Sydney Trains has scheduled routine rail shutdowns that would occur regardless of the Proposal when part of the rail network is temporarily closed for maintenance and trains are not operating.

Out of hours works would be required at some points during the construction period to minimise disruptions to customers, pedestrians, motorists and nearby sensitive receivers; and to ensure the safety of staff. It is estimated that about five rail shutdowns would be utilised to facilitate the following activities:

- site survey and services location investigations within and around the rail corridor
- piling, excavation of pits and installation of lift shafts
- stabilisation and grading of platforms
- installation of electrical containment
- services relocations.

Out of hours works may also be planned outside rail shutdown periods to reduce the impact on the community. Any additional out of hours works would be assessed under the Transport for NSW out of hours procedure. Approval from Transport for NSW would be required for any out of hours work and the affected community would be notified one week prior as outlined in the Transport for NSW *Construction Noise and Vibration Strategy* (TfNSW, 2019b) (refer to Section 6.3 for further details).

3.4.4. Workforce

The peak number of construction vehicles and workforce for the Proposal would be as follows:

Construction vehicles

- up to 15 light vehicles and two heavy vehicles per day during the typical construction period
- up to 60 light vehicles and 15 heavy vehicles per day during the weekend rail shut down periods.

Workforce

- up to 15 workers per day during the typical construction period
- up to 40 workers per day during the weekend rail shut down periods.

3.4.5. Earthworks

Excavations and earthworks would generally be required for the following:

- the construction of both new lift pits, which would require excavation through the platform surface into the existing soil/fill at this location
- installation of electrical work
- other minor civil works including foundation for structures and trenching activities for service adjustment and relocations.

The Proposal would require the excavation of about 300 cubic metres of material, which would be reused onsite where possible, or disposed of in accordance with relevant legislative requirements. The detailed design would confirm the volume of materials excavated to accommodate the lift pits and foundations, and other ancillary work

3.4.6. Source and quantity of materials

The source and final quantities of materials would be determined during the detailed design phase of the Proposal. This would consider maximising the reuse of existing materials, use of materials with recycled content and the selection of low carbon materials where practicable and aligning with the requirements of the IS Rating Scheme version 1.2. Materials would be sourced from local suppliers where practicable.

The Proposal would also consider life cycle impacts. The life cycle impacts of a material are calculated by assessing the environmental impacts from the point of extraction, through to transportation, use, operation and end of life.

3.4.7. Traffic access and vehicle movements

Traffic and transport impacts associated with the Proposal are assessed in Section 6.1 of this REF. The potential traffic and access impacts expected during the construction of the Proposal include:

- higher road safety risk levels associated with construction vehicle-pedestrian interactions
- parking impacts due to full closure of the commuter car park (31 car spaces) during the construction phase
- minor disruptions to pedestrian/cyclist movements in and around the station
- the minor increase in traffic on the local road network due to temporary lane closures of the Pacific Highway and Hill Street during rail shut down periods.

A detailed construction methodology and associated management plans (such as a Construction Environmental Management Plan (CEMP)) would be developed during the detailed design phase of the Proposal to manage potential traffic and access impacts.

3.4.8. Ancillary facilities

Temporary construction compounds would be required to accommodate construction activities associated with the Proposal including a site office, amenities, laydown and storage areas for materials, construction plant and equipment.

Two areas have been identified for proposed construction compound/laydown areas as shown in Figure 3.1. These sites are:

- the commuter car park located on the north side of the station along Hill Street which is proposed to be used as a construction compound
- the roadway and cleared area on the south side of the station along the Pacific Highway which is proposed to be used as a laydown area for deliveries and temporary storage during rail shut down periods.

Impacts associated with using these areas during construction have been considered in the environmental impact assessment presented in Chapter 6. The assessment also included requirements for rehabilitation of these areas.

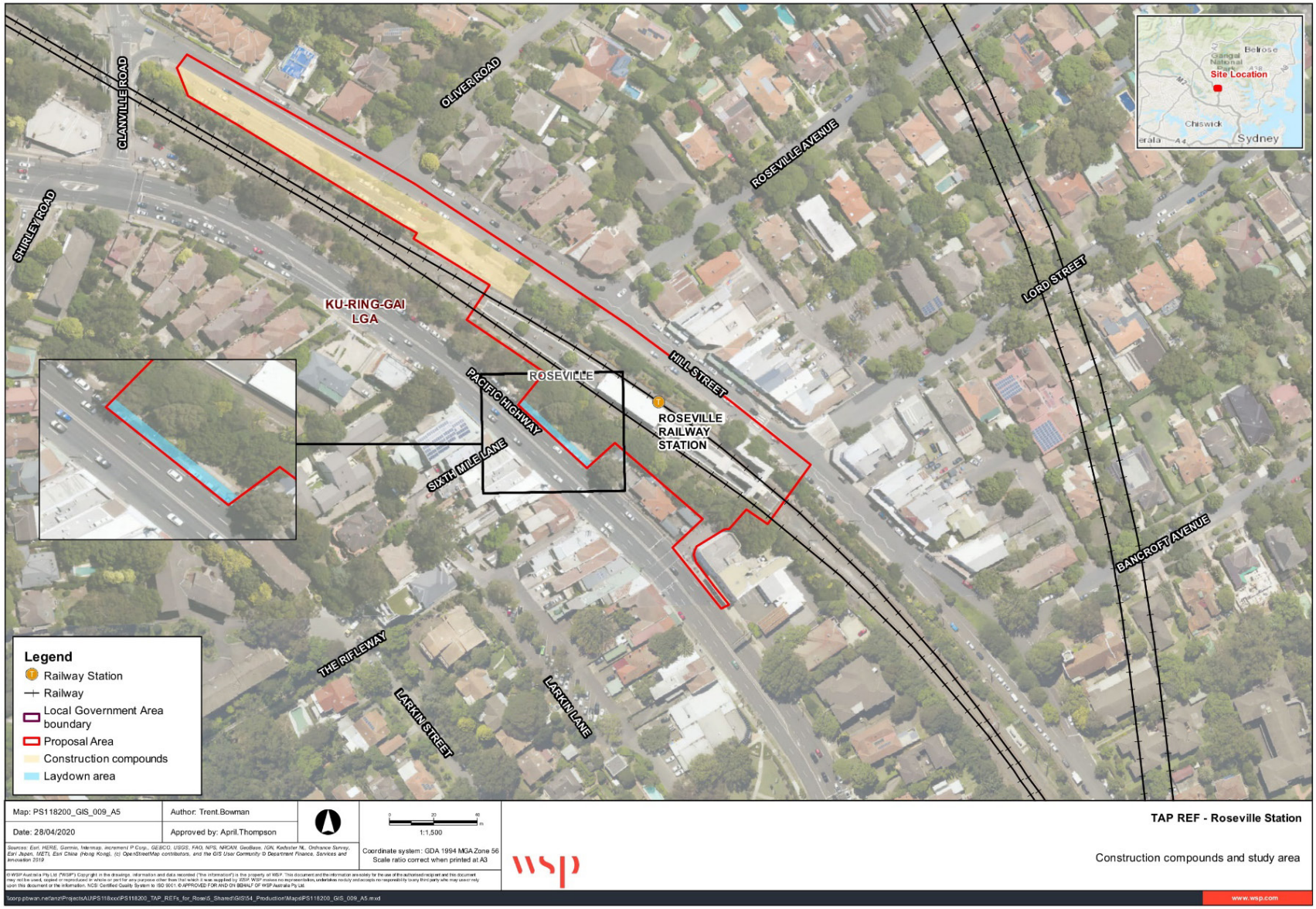


Figure 3.1 Roseville Station construction footprint and compound areas

3.4.9. Public utility adjustments

The Proposal has been designed to avoid relocation of services where feasible, however further investigation would likely be undertaken during detailed design.

A power supply upgrade, replacement of the existing transformer and high voltage works would be required to provide sufficient capacity for the proposed new lifts. The extent of the required upgrade would be assessed during detailed design and would be designed to the standards of and approved by the relevant utility authorities or Transport for NSW.

Relocation of public utility adjustments would occur prior to the commencement of major construction of the Proposal. Work that may affect services would be undertaken in consultation with the respective utility authorities.

3.5. Property acquisition

Transport for NSW does not propose to acquire any property as part of the Proposal. No temporary licence to occupy or lease of the construction compound area would be required as Sydney Trains owns the commuter car park land on Hill Street.

As part of the Proposal, the retail lease for the kiosk situated on the existing footbridge would cease. This process would not involve any property acquisition.

3.6. Operation and maintenance

The future operation and maintenance of Roseville Station is subject to further discussions with Sydney Trains, Transport for NSW and Ku-ring-gai Council. However, the Proposal is not anticipated to substantially alter the current operating arrangements.

Structures and landscaping within the rail corridor would continue to be maintained by Sydney Trains.

4. Statutory considerations

Chapter 4 provides a summary of the statutory considerations relating to the Proposal including a consideration of NSW Government polices/strategies, NSW legislation (particularly the EP&A Act), environmental planning instruments, and Commonwealth legislation.

4.1. Commonwealth legislation

4.1.1. Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places - defined in the EPBC Act as 'matters of National Environmental Significance (NES)'. The EPBC Act requires the assessment of whether the Proposal is likely to significantly impact on matters of NES or Commonwealth land. These matters are considered in full in Appendix A.

As the Proposal would not or is not likely to have a significant impact on any matters of NES or on Commonwealth land, a referral to the Commonwealth Minister for the Environment is not required.

4.1.2. Other Commonwealth legislation

Other Commonwealth legislation applicable to the Proposal is discussed in Table 4.1.

Table 4.1 Other Commonwealth legislation applicable to the Proposal

Applicable legislation	Considerations
Aboriginal and Torres Strait Islander Heritage Protection Act 1984	There is an obligation on a person who discovers anything which he or she has reasonable grounds to suspect are Aboriginal remains to report that discovery to the Minister for the Environment, giving particulars of the remains and their location. The Proposal does not include any previously identified Aboriginal sites and/or places (refer Section 6.4); however, considerations for unexpected finds are detailed in the mitigation measures in Section 6.16.3 as it applies to this Act.
Disability Discrimination Act 1992 (DDA Act)	This Act aims to eliminate as far as possible, discrimination against persons on the ground of disability in areas including access to premises and the provision of facilities, services and land. The Proposal would be designed having regard to the requirements of this Act. The key objective of the Proposal is to improve the accessibility of Roseville Station which is consistent with the objectives of this Act.

4.2. NSW legislation and regulations

4.2.1. Transport Administration Act 1988

The *Transport Administration Act 1988* establishes Transport for NSW as a public authority who is to exercise its functions in a manner that promotes certain common objectives, including to promote the delivery of transport services in an environmentally sustainable manner.

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

a) *to provide an efficient and accountable framework for the governance of the delivery of transport services,*

b) *to promote the integration of the transport system,*

c) *to enable effective planning and delivery of transport infrastructure and services,*

d) *to facilitate the mobilisation and prioritisation of key resources across the transport sector,*

e) *to co-ordinate the activities of those engaged in the delivery of transport services,*

f) *to maintain independent regulatory arrangements for securing the safety of transport services.*

4.2.2. Environmental Planning and Assessment Act 1979

The EP&A Act establishes the system of environmental planning and assessment in NSW. This Proposal is subject to the environmental impact assessment and planning approval requirements of Division 5.1 of the EP&A Act. Division 5.1 specifies the environmental impact assessment requirements for activities undertaken by public authorities, such as Transport for NSW, which do not require development consent under Part 4 of the Act.

In accordance with Section 5.5 of the EP&A Act, Transport for NSW, as the proponent and determining authority, must examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the Proposal.

Clause 228 of the EP&A Regulation prescribes the minimum factors which must be considered when determining if an activity assessed under Division 5.1 of the EP&A Act has or is likely to have a significant effect on the environment. Chapter 6 of the REF provides an environmental impact assessment of the Proposal in accordance with clause 228 and Appendix B specifically responds to the factors for consideration under clause 228.

4.2.3. Other NSW legislation and regulations

Table 4.2 provides a list of other relevant legislation applicable to the Proposal.

Table 4.2 Other NSW legislation applicable to the Proposal

Applicable legislation	Considerations
Biodiversity Conservation Act 2016 (BC Act)	Under Section 2.4 of the BC Act, it is an offence to damage the habitat of a threatened species or threatened ecological community, as listed in Schedule 1 and 2 of the Act. Part 7, Division 2 of the BC Act specifies the requirements for biodiversity assessment. Generally, development that is likely to significantly affect threatened species is required to be accompanied by a Biodiversity Development Assessment Report and concurrence from the NSW Environment, Energy and Science (EES, formerly the Office of Environment and Heritage). However, under Section 7.8(4), an Environmental Impact Statement is not required for an activity for which a Species Impact Statement has been prepared in accordance with the BC Act if, other than the impact on protected species, the activity does not and is not likely to significantly affect the environment. The site does not contain suitable habitat for any listed threatened species or community and is unlikely to have a significant impact on any threatened species or community (refer to Section 6.6 for further details).

Applicable legislation	Considerations
Biosecurity Act 2015	Clause 22 requires any person who deals with a biosecurity matter has a duty to ensure that in so far as is reasonably practicable, the potential biosecurity risk is prevented, eliminated or minimised. Appropriate management methods would be implemented during construction if declared noxious weeds in the Ku-ring-gai LGA are identified (refer to Section 6.6). Four Priority Weeds were identified including the following: • Asparagus Fern* (*Asparagus aethiopicus*) • Cape Broom* (*Genista monspessulana*) • Lantana* (*Lantana camara*) • African Olive (*Olea europea* var. *cuspidata*) *also listed as Weeds of National Significance
Contaminated Land Management Act 1997 (CLM Act)	The CLM Act regulates significantly contaminated land through requirements for notification to the EPA, investigation, remediation and recovery of costs from the person responsible The NSW EPA must be notified by the property owner in writing of any contamination identified within the Proposal site in accordance with the requirements of Section 60 of the CLM Act. The site has not been declared under the CLM Act as being significantly contaminated (refer to Section 6.8).
Heritage Act 1977 (Heritage Act)	Sections 57 and 60 require approval for works which may have an impact upon items listed on the State Heritage Register. Sections 139 and 140 require similarly require approval where relics are likely to be exposed. For any works which may have an impact upon items listed on a Section 170 heritage and conservation register maintained by a government agency, notification to the Heritage Division may be required. The Proposal does not require a demolition notice under s170A of the Heritage Act as the works involve only minor additions and alterations to the existing station to accommodate the expanded station entrance on Hill Street.
Protection of the Environment Operations Act 1997 (PoEO Act)	The Proposal does not involve a 'scheduled activity' under Schedule 1 of the PoEO Act. Accordingly, an Environment Protection Licence is not required for the Proposal. However, in accordance with Part 5.7 of the PoEO Act, Transport for NSW would notify the EPA of any pollution incidents that occur onsite. This would be managed in the CEMP to be prepared and implemented by the Construction Contractor.
Roads Act 1993 (Roads Act)	Section 138 of the Roads Act requires consent from the relevant road authority for the carrying out of work in, on or over a public road. During construction, a road occupancy licence and consultation with the relevant road authority, local council, Transport Management Centre and Transport for NSW would be required for the road and lane closure of Hill Street and the Pacific Highway.
Waste Avoidance and Resource Recovery Act 2001 (WARR Act)	Transport for NSW would carry out the Proposal having regard to the requirements of the WARR Act. A site-specific Waste Management Plan would be prepared during detailed design.
Water Management Act 2000 (WM Act)	The Proposal would not involve any water use (from a natural source e.g. aquifer, river – only from the network), water management work, drainage or flood work, controlled activities or aquifer interference.

4.2.4. Key State Environmental Planning Policies

State Environmental Planning Policy (Infrastructure) 2007

The Infrastructure SEPP is the key environmental planning instrument which determines the permissibility of a proposal and under which part of the EP&A Act an activity or development may be assessed.

Division 15, Clause 79 of the Infrastructure SEPP allows for certain types of development to be carried out by or on behalf of a public authority without consent on any land (i.e. assessable under Division 5.1 of the EP&A Act). Specifically, Clause 79(1) of the Infrastructure SEPP states that:

> *'Development for the purpose of a railway or rail infrastructure facilities may be carried out by or on behalf of a public authority without consent on any land.'*

Clause 78 defines 'rail infrastructure facilities' as including elements such as:

> *a) 'railway tracks, associated track structures, cuttings, drainage systems, fences, tunnels, ventilation shafts, emergency accessways, bridges, embankments, level crossings and roads, pedestrian and cycleway facilities.'*
>
> *d) 'railway stations, station platforms and areas in a station complex that commuters use to get access to the platforms'*
>
> *e) public amenities for commuters*
>
> *f) associated public transport facilities for railway stations…'*

Consequently, development consent is not required for the Proposal which is classified as a rail infrastructure facility, however the environmental impacts of the Proposal have been assessed under the provisions of Division 5.1 of the EP&A Act.

Part 2 of the Infrastructure SEPP contains provisions for public authorities to consult with local councils and other agencies prior to the commencement of certain types of development. Section 5.2 of this REF discusses the consultation undertaken under the requirements of the Infrastructure SEPP.

The Infrastructure SEPP prevails over all other environmental planning instruments except where there is an inconsistency with *State Environmental Planning Policy (State Significant Precincts) 2005* or certain provisions of *State Environmental Planning Policy (Coastal Management) 2018*. The Proposal does not require consideration under these SEPPs and therefore do not require further consideration as part of this REF.

State Environmental Planning Policy (Koala Habitat Protection) 2019

The *State Environmental Planning Policy (Koala Habitat Protection) 2019* recently replaced the repealed *State Environmental Planning Policy No. 44 – Koala Habitat Protection* (SEPP 44). This SEPP aims to encourage the proper conservation and management of natural vegetation areas that provide habitat for koalas to ensure that permanent, free living areas are maintained over their present range. The policy applies to a number of LGAs across NSW, including the Ku-ring-gai LGA which the Roseville Station is located within. As the Proposal is to be assessed under Division 5.1 of the EP&A Act, this SEPP does not formally apply. However, the provisions of this SEPP have still been considered in the preparation of this REF.

State Environmental Planning Policy 55 – Remediation of Land

State Environmental Planning Policy No.55 – Remediation of Land (SEPP 55) provides a State-wide approach to the remediation of contaminated land for the purpose of minimising the risk of harm to the health of humans and the environment. While consent for the Proposal is not required, the provisions of SEPP 55 have been considered in the preparation of this REF.

Section 6.8 of this REF contains an assessment of the potential contamination impacts of the Proposal. It is not expected that any large-scale remediation (Category 1) work would be required as part of the Proposal. The proposed land use would not differ to the existing use and is, therefore, would unlikely to be affected by any potential contaminants that exist within the rail corridor.

Impacts of contaminated lands and potential remediation are in Section 6.8.

4.2.5. Ku-ring-gai Council Plans

Community Strategic Plan 2038

The *Community Strategic Plan 2038* (Ku-ring-gai Council 2018) is the long-term strategic plan for the future of the Ku-ring-gai LGA and published in 2018. The plan includes six themes informed by the community, key local plans, policies and government policy. This strategic plan identifies in one of its themes of access, traffic and transport in providing safe, reliable and affordable public and private travel, transport and infrastructure. Station upgrades of the Roseville Station as discussed in Chapter 3 align and contribute to Ku-ring-gai's long-term plan.

Local Environmental Plan (Local Centres) 2012 and 2015

The Proposal is located within the Ku-ring-gai LGA. The Infrastructure SEPP prevails over all other environmental planning instruments (such as LEPs). During the preparation of this REF, the provisions of *Ku-ring-gai Local Environmental Plan (Local Centres) 2012* and *Ku-ring-gai Local Environmental Plan 2015* were considered (refer to Table 4.3 which identifies land use specific to the Proposal) and are shown in Figure 4.1.

Table 4.3 Relevant provisions of the Ku-ring-gai LEP (Local Centres) 2012 and 2015

Provision description	Relevance to the Proposal
Clause 2.3 – Zone objectives and Land Use Table	**Applicable land zones** • SP2 Infrastructure (Railway Infrastructure) for the proposed work associated with the Station and footbridge • B2 Local Centre for the proposed work associate with the interchange zone along Hill Street **Zone objectives** • SP2 Infrastructure (Railway) – to provide for infrastructure and related uses and to prevent development that is not compatible with or that may detract from the provision of infrastructure. • B2 Local Centre – to provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area. – to encourage employment opportunities in accessible locations. – to maximise public transport patronage and encourage walking and cycling. – to provide for residential housing close to public transport, services and employment opportunities. – to encourage mixed use buildings that effectively integrate suitable business, office, residential, retail and other development.

Provision description	Relevance to the Proposal
	The Proposal is consistent with the objectives of SP2 as development of a rail infrastructure is permissible with consent for rail facilities. B2 zone objectives are supported as the upgrade of Roseville Station would continue to improve and support the local community and businesses near the station as well as provide an improved public transport to residences. As the provisions of ISEPP prevail over the Ku-ring-gai LEP, development consent from the Ku-ring-gai Council is not required.
Clause 6.1 – Earthworks	Clause 6.1 of the Ku-ring-gai LEP (Local Centres) aims to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land. By virtue of Clause 5(3) and 79 of the Infrastructure SEPP, the Proposal is permissible without development consent. Consideration of the potential impacts and mitigation measures for earthworks for the Proposal is outlined in Section 6.8.

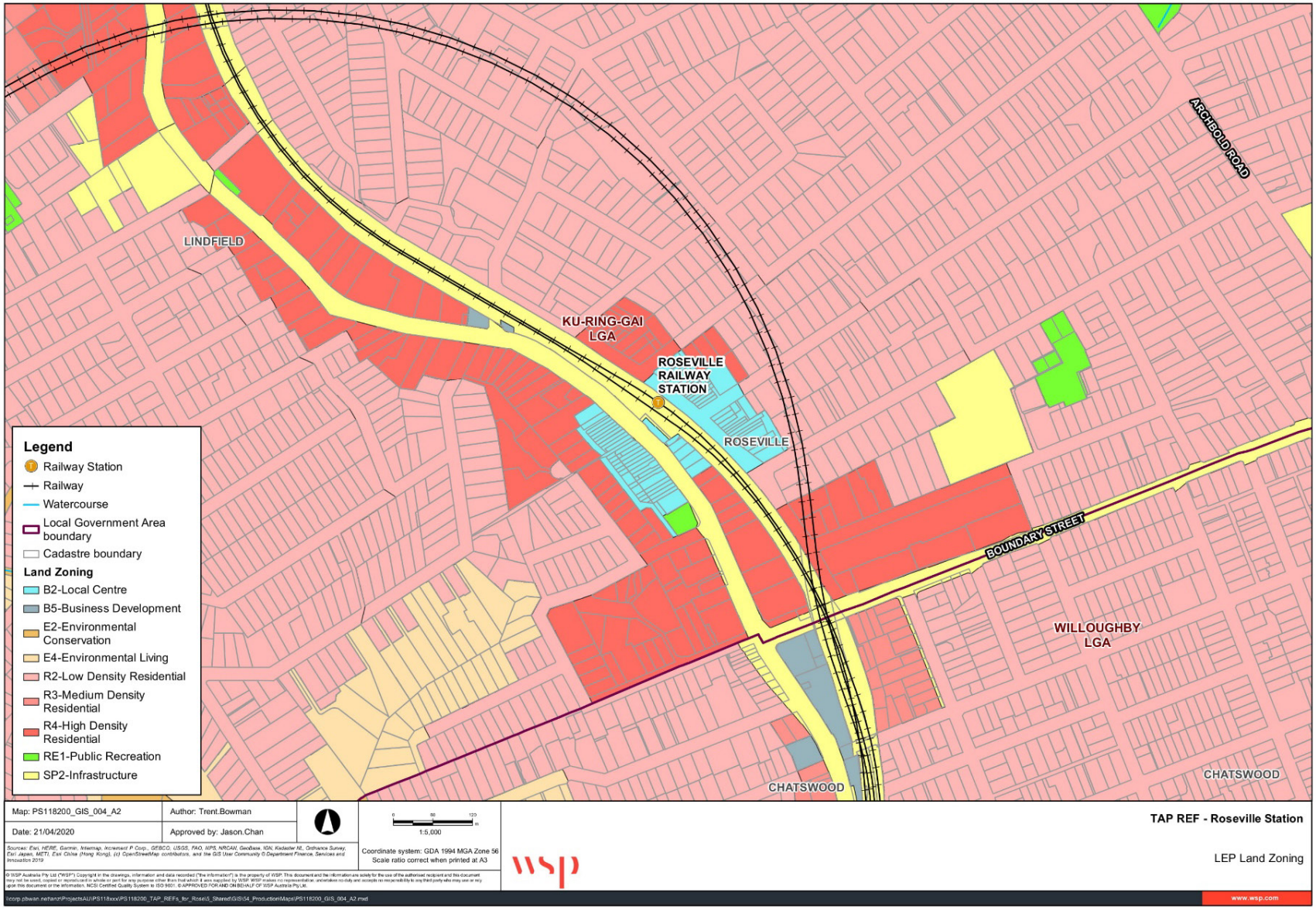


Figure 4.1 LEP zoning map

4.3. Ecologically sustainable development

Transport for NSW is committed to ensuring that its projects are implemented in a manner that is consistent with the principles of ecologically sustainable development (ESD). The principles of ESD are generally defined under the provisions of clause 7(4) of Schedule 2 to the EP&A Regulation as:

- the precautionary principle – if there are threats of serious or irreversible damage, a lack of full scientific uncertainty should not be used as a reason for postponing measures to prevent environmental degradation
- intergenerational equity – the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations
- conservation of biological diversity and ecological integrity – the diversity of genes, species, populations and their communities, as well as the ecosystems and habitats they belong to, should be maintained or improved to ensure their survival
- improved valuation, pricing and incentive mechanisms – environmental factors should be included in the valuation of assets and services.

The principles of ESD have been adopted by Transport for NSW throughout the development and assessment of the Proposal. Section 4.3 summarises how ESD has been incorporated in the design development of the Proposal. Section 6.13 includes an assessment of the Proposal on sustainability, and Section 7.2 lists mitigation measures to ensure ESD principles are incorporated during the construction phase of the Proposal.

5. Community and stakeholder consultation

Chapter 5 discusses the consultation strategy adopted for the Proposal and the results of consultation with the community, relevant government agencies and stakeholders.

5.1. Stakeholder consultation during concept design

Early engagement was undertaken in February 2019 on an initial concept design for Roseville Station Upgrade with the local community and key stakeholders including Ku-ring-gai Council. The design featured a new footbridge, with the removal of the old footbridge. The majority of community and stakeholder feedback supported the Proposal. However, the community also identified a preference to maintain the existing footbridge to reduce visual impact and preserve the existing character of the station, and also maintain the historical garden adjacent to the station.

Ongoing engagement with varying Transport for NSW, Sydney Trains and Council representatives has been undertaken to provide feedback on the scope of work for the Proposal, and to also participate in the development and assessment of the station improvement options.

5.2. Consultation requirements under the Infrastructure SEPP

Part 2, Division 1 of the Infrastructure SEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. Clauses 13 to 16 of the Infrastructure SEPP require that public authorities undertake consultation with councils and other agencies, when proposing to carry out development without consent.

Table 5.1 provides details of consultation requirements under the Infrastructure SEPP for the Proposal.

Table 5.1 Infrastructure SEPP consultation requirements

Clause	Clause particulars	Relevance to the Proposal
Clause 13 | Consultation with Councils – development with impacts on council related infrastructure and services	Consultation is required where the Proposal would result in: • substantial impact on stormwater management services • generating traffic that would place a local road system under strain • involve connection to or impact on a council owned sewerage system • involve connection to and substantial use of council owned water supply • significantly disrupt pedestrian or vehicle movement • involve significant excavation to a road surface or footpath for which Council has responsibility.	The Proposal includes work that would: • cause temporary disruption of pedestrian and vehicle movement during construction • impact on Council-operated footpaths during regrading • temporarily impact the availability of the commuter car park for use as the construction compound. Consultation with Ku-ring-gai Council would continue to be undertaken as part of the public display of the REF, detailed design and throughout the construction phases of the Proposal.

Clause	Clause particulars	Relevance to the Proposal
Clause 14 | Consultation with Councils – development with impacts on local heritage	Where railway station works: • has a 'not minor or inconsequential impact' on local heritage item (if not also a State heritage item) • substantially impact on a heritage conservation area.	The Proposal would have a minor to moderate heritage impact on the Roseville Station group primarily due to works on upgrades of the Hill Street entrance. Impacts would be a result of the removal of trees, vegetation and planter boxes. Refer to Section 6.5 for details on heritage impacts.
Clause 15 | Consultation with Councils – development with impacts on flood liable land	Where railway station works: • impact on land that is susceptible to flooding – reference would be made to *Floodplain Development Manual: the management of flood liable land.*	The Proposal is not located on land that is susceptible to flooding. Consultation with Ku-ring-gai Council is not required in regard to this aspect (refer to Section 6.9).
Clause 15A **Consultation with Councils – development with impacts on certain land within the coastal zone**	Where railway station works: • impact on land within a coastal vulnerability area and is inconsistent with certified coastal management program that applies to that land	The Proposal is not located within a coastal vulnerability area as per the *Coastal Management Act 2016*. Consultation with Ku-ring-gai Council is not required in regard to this aspect.
Clause 15AA Consultation with State Emergency Service – development with impacts on flood liable land	Where railway station works: • impact on flood liable land - written notice must be given (together with a scope of works) to the State Emergency Services and taken into consideration any response to the notice received from the State Emergency Service within 21 days after the notice is given.	The Proposal is not located on land that is susceptible to flooding. Consultation with State Emergency Service is not required in regard to this aspect (refer to Section 6.9).
Clause 16 | Consultation with public authorities other than Councils	For *specified development* which includes consultation with the NSW Environment, Energy and Science for development that is undertaken adjacent to land reserved under the *National Parks and Wildlife Act 1974*, and other agencies specified by the Infrastructure SEPP where relevant. Although not a specific Infrastructure SEPP requirement, other agencies Transport for NSW may consult with could include: • Roads and Maritime • Sydney Trains • EES (formerly OEH).	The Proposal is not located nearby or within any lands reserved under the *National Parks and Wildlife Act 1974*. Consultation with the EES is not required in regard to this aspect.

5.3. Consultation strategy

The consultation strategy for the Proposal was developed to encourage stakeholder and community involvement and foster interactions between stakeholders, the community and the project team.

The consultation strategy that was developed, having regard to the requirements of the planning process ensures that stakeholders, customers and the community are informed of the Proposal and have the opportunity to provide input.

The objectives of the consultation strategy are to:

- provide accurate and timely information about the Proposal and REF process to relevant stakeholders
- raise awareness of the various components of the Proposal and the specialist environmental investigations
- ensure that the directly impacted community is aware of the REF and consulted where appropriate
- provide opportunities for stakeholders and the community to express their view about the Proposal
- understand and access valuable local knowledge from the community and stakeholders
- record the details and input from community engagement activities
- build positive relationships with identified community stakeholders
- ensure a comprehensive and transparent approach.

5.3.1. Public display

The REF display strategy adopts a range of consultation mechanisms, including:

- public display of the REF on the project web page
- installation of information signage at the station with QR codes taking customers to the project webpage
- distribution of a project newsletter outlining the Proposal and inviting feedback on the REF to the local community and making it available for collection by rail customers at the station
- advertisement of the REF public display in local newspapers with a link to the Transport for NSW website that includes a summary of the Proposal and information on how to provide feedback
- consultation with Ku-ring-gai council, Sydney Trains and other non-community stakeholders
- targeted social media campaigns.

Community consultation activities for the Proposal would be undertaken during the public display of this REF. The display period of the REF would be advertised in the week that the public display commences. The REF would be displayed for a period of about two weeks.

The REF would be placed on public display on the TfNSW website[1], Your Say website[2] . Under normal circumstances, printed copies of the REF would be available at varying locations. However, due to the COVID-19 restrictions, these will not be available for this Proposal.

Further information on the Proposal may be requested by contacting the Project Infoline (1800 684 490) or by email[3].

Feedback can be sent to:

- projects@transport.nsw.gov.au
- Transport Access Program – Roseville Station Upgrade

  Associate Director Environmental Impact Assessment
  Transport for NSW
  Locked Bag 6501
  St Leonards NSW 2065

Or submitted:

- via yoursay.transport.nsw.gov.au/Roseville
- via the project web page www.transport.nsw.gov.au/Roseville

Following the consideration of feedback received during the public display period, Transport for NSW would determine whether to proceed with the Proposal and what conditions would be imposed on the project should it proceed.

5.4. Aboriginal community involvement

An Aboriginal Heritage Information Management System (AHIMS) search was undertaken for the area covered by the Proposal plus a 200-metre radius, on 24 February 2020 . No Aboriginal sites were identified in or near the Proposal (NSW Department of Environment and Heritage, 2020).

The extensive landscape modification that has occurred across the Proposal suggests that intact evidence of Aboriginal land use is unlikely to occur within the boundaries of the Proposal. Similarly, the high level of disturbance would suggest that the archaeological potential of the area is low. Therefore, it was not considered necessary to undertake specific Aboriginal consultation.

5.5. Ongoing consultation

At the conclusion of the public display period for this REF, Transport for NSW would acknowledge receipt of feedback from each respondent. The issues raised by the respondents would be considered by Transport for NSW before determining whether to proceed with the Proposal (refer Section 3.1). Ongoing consultation with key stakeholders including Sydney Trains and Ku-ring-gai Council would continue throughout detailed design and construction.

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[1] https://www.transport.nsw.gov.au/roseville

[2] https://www.nsw.gov.au/improving-nsw/have-your-say/roseville-station-upgrade

[3] projects@transport.nsw.gov.au

Should Transport for NSW determine to proceed with the Proposal, the Determination Report would be made available on the Transport for NSW website. This report would summarise the key impacts identified in this REF, demonstrate how Transport for NSW considered issues raised during the public display period, and include a summary of mitigation measures proposed to minimise the impacts of the Proposal.

Should Transport for NSW determine to proceed with the Proposal, the project team would keep the community, councils and other key stakeholders informed of the process, identify any further issues as they arise, and develop additional mitigation measures to minimise the impacts of the Proposal. The interaction with the community would be undertaken in accordance with a Community Liaison Management Plan to be developed prior to the commencement of construction.

5.5.1. Effect of COVID-19 on engagement

In response to the evolving COVID-19 situation, Transport for NSW is following NSW Health advice and changing the way it approaches community consultation for important transport infrastructure projects.

It is important for the community to have their say on all transport infrastructure projects and while this isn't business as usual, Transport for NSW will ensure all appropriate community consultation is carried out.

This means consultation will be carried out in different ways, including via social media, teleconferencing and video conferencing, to ensure the community can practice social distancing.

Transport for NSW will continue to deliver projects across NSW, while ensuring the safety of all staff and the community.

6. Environmental impact assessment

Chapter 6 of the REF provides a detailed description of the likely environmental impacts associated with the construction and operation of the Proposal. For each likely impact, the existing environment is characterised and then an assessment is undertaken as to how the Proposal would impact on the existing environment.

Project-specific mitigation measures are discussed in each of the sub-sections, while a full list of mitigation measures for the Proposal is provided in Section 7.2.

This environmental impact assessment has been undertaken in accordance with clause 228 of the EP&A Regulation. A checklist of clause 228 factors and how they have been specifically addressed in this REF is included at Appendix B.

6.1. Traffic and transport

This section provides a summary of the *Traffic, Transport and Access Impact Assessment* prepared by WSP (2020a), refer to Technical Paper 1. The assessment included the following tasks:

- review of the existing traffic, public transport, parking, pedestrian and cyclist conditions within the Proposal area
- assessment of station access issues relating to the proposed upgrades during construction.
- identification of suggested improvements and mitigation measures that might be implemented to minimise the traffic and road safety related impacts created by the proposed upgrades.

6.1.1. Existing environment

Surrounding road network

Roseville Station is between the Pacific Highway and Hill Street with the surrounding network made up of mainly local and residential streets. The posted speed limit for the roads within the area are generally 50 kilometres per hour with typically one lane in each direction.

The Pacific Highway is classified as a State road with posted speed limit of 60 kilometres per hour with three lanes in each direction. Traffic volumes along the Pacific Highway are relatively high during the AM and PM peak periods, with approximately 2,600 northbound in the PM (4:00 to 6:00 pm) and about 2,300 southbound in the AM (7:00 to 9:00 am).

The area surrounding Roseville Station has had no fatal incidents within the five-year period between January 2014 and December 2018. Crash data adjacent to Roseville Station identified that most incidents occurred on the Pacific Highway with 40 incidents recorded. Among these incidents, there were no fatalities, 11 serious injuries and eight involving pedestrians and vehicles.

Parking

The commuter car park on Hill Street has capacity for 31 vehicles and is located over 150 metres away from the Roseville Station entrance. There is on-street, unrestricted parking adjacent to this commuter car park and on each of the site streets off Hill Street.

Other parking near the station also includes a free, two-hour restricted council car park accessed from Lord Street which can accommodate around 60 vehicles. This car park is however primarily used for the small retail area on Hill Street.

The surrounding roads including Hill Street, Oliver Road, Roseville Avenue, Lord Street, Bancroft Avenue and Victoria Street have a mix of half, one, two and four-hour restricted parking generally between 8:30 am and 6:00 pm on weekdays and 8:30 am and 12:30 pm on weekends, with some areas restricted between 10:00 am and 6:00 pm on weekdays. On the Pacific Highway side of the station, kerbsides have a mix of clearway, no parking, half hour and one hour restrictions. Clearways operate along the Pacific Highway on weekdays between 6:00 am and 10:00 am southbound and 3:00 pm and 7:00 pm northbound.

Taxi and kiss and ride

There is a dedicated space allocated to both taxis and kiss and ride with space for one vehicle each immediately adjacent to the entry and exit of the station on Hill Street.

Public transport

Rail

Roseville Station is serviced by two rail lines including:

- T1 North Shore Line: City to Berowra via Gordon and reversed
- T9 Northern Line: Hornsby to North Shore via City and reversed.

Platform 1 services trains travelling southbound toward Central Station with services every 15 minutes during peak periods. Platform 2 services trains travelling northbound to Gordon, Hornsby and the Greater Central Coast and Newcastle regions. The T1 line, during AM and PM peak periods, operates about every three to nine minutes.

Bus

There are three bus routes that service Roseville Station including:

- Route 558 (Chatswood to Lindfield)
- Route 565 (Chatswood to Macquarie University)
- Route N90 (Hornsby to City Town Hall via Chatswood).

Bus stops near the station are located along Hill Street and the Pacific Highway.

Active transport (bike and pedestrian)

Pedestrian access to and from Roseville Station is via footpaths connecting to Hill Street and Pacific Highway with stair access to platforms. The grades leading into each access point are steep and may limit some mobility impaired customers (e.g. parents with prams and the elderly). Access to the station is currently limited through stair-only access to the platforms.

The following pedestrian facilities are currently provided at Roseville Station:

- pedestrian overpass
- zebra crossing at the Hill Street entrance
- stairs to the station on the Hill Street side
- signalised crossing at the Pacific Highway entrance
- a ramp to the station on the Pacific Highway side
- stair access to the platforms (no wheelchair accessibility) available from both entrances.

No formal cycle routes connect to Roseville Station directly although on road, unmarked and informal routes are suggested (Ku-ring-gai Council, 2016a). The informal cycle routes run parallel to the Pacific Highway between Chatswood and Gordon. Roseville Station has two formal cycle racks for storage which accommodate 12 bicycles each, holding up to 24 bicycles.

6.1.2. Potential impacts

a) Construction phase

Site compound and haulage routes

As identified in Section 3.4, the construction compound is required to accommodate construction activities including a site office, amenities, laydown and storage area for materials, parking for workforce and storage of construction plant and equipment.

The main compound site would occupy the existing commuter car park located along the northern side of the railway line, on Hill Street. Access to this site would be provided via the existing entry and exit points at the commuter car park. The footpath along Hill Street would be maintained during the use of this site. There would also be a small laydown area along the Pacific Highway which is expected to be used primarily during rail shut down periods for temporary laydown, storage and deliveries. A road occupancy licence would be required to use the Pacific Highway during these rail shut down periods and detailed further in the mitigation measures in Section 6.1.3.

The wider road network would accommodate heavy vehicles travelling to Roseville Station as the Pacific Highway is an approved 19 metre B-double route which would cover all vehicles required for the Proposal. Currently, a three-tonne Gross Vehicle Mass load limit is applied on Hill Road between its intersection with Clanville Road to the north and Boundary Road to the south. Since the main compound site and the northern section of the Proposal can be only accessed via Hill Road, a temporary access permit for overweight vehicles would be required to be obtained by the Construction Contractor prior to commencement of heavy vehicle movements on this road.

Figure 6.1 shows potential routes that could cater for heavy vehicle access to and from the compound site. Most heavy items (such as lift shafts) and other deliveries would be craned directly into position during a rail shut down period. The final construction haulage route would be determined by the Construction Contractor during the detailed design of the Proposal.

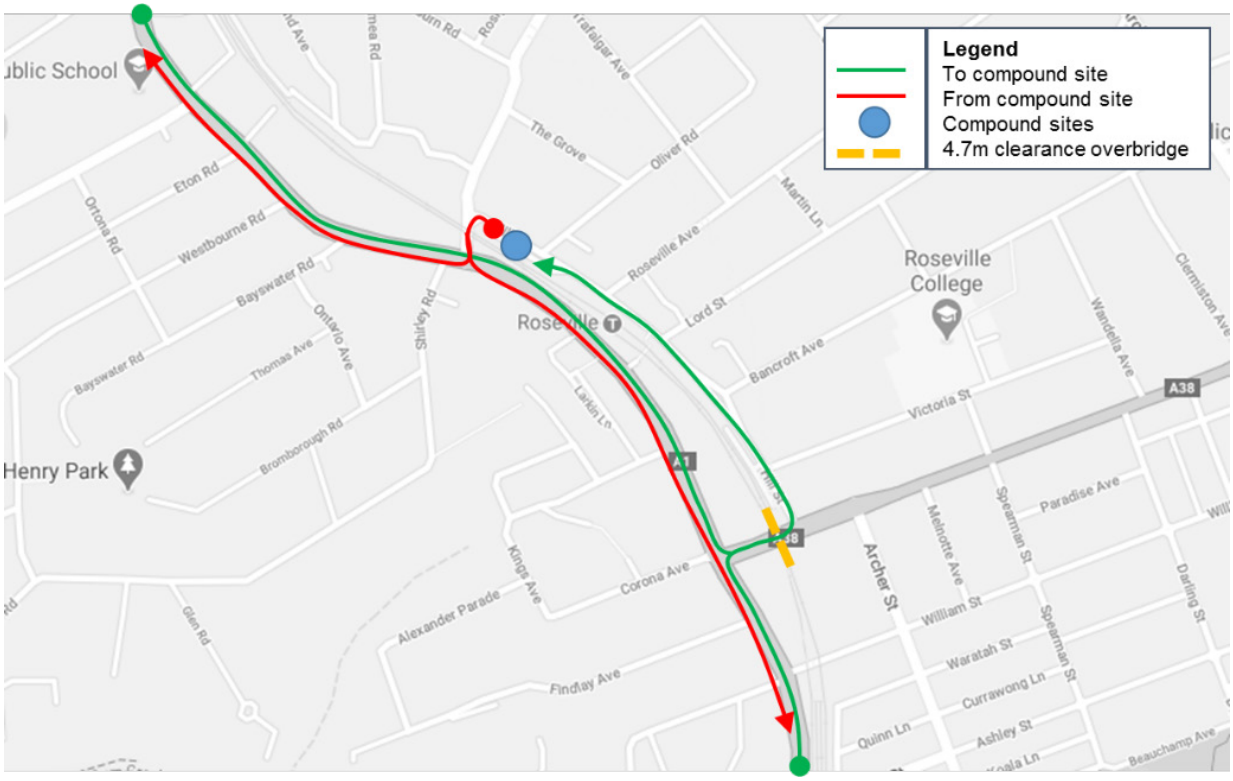

Figure 6.1 Potential haulage routes to and from the Roseville Station compound site

Traffic

Vehicle trips generated by the Proposal would be mostly light vehicles (including utility vans) from construction workers. Trips generated by heavy vehicles would be minimal and infrequent and associated with the delivery and removal of materials, plants, and equipment as required.

The traffic generated as a part of the construction works is not expected to exceed around 15 light vehicles and two heavy vehicles on average per day during the typical construction period. During rail shut down periods, these numbers would increase to around 60 light vehicles and around 15 heavy vehicles per day. However, the majority of the construction light vehicle inbound trips would occur before the morning road network peak and likewise, outbound trips would generally occur before the evening peak.

Impacts from the generated construction traffic would be minimal as the surrounding road network and intersections would accommodate the Proposal and perform within capacity.

Access

Along the Pacific Highway and Hill Street, there may be some lane closures during construction. Impacts are expected to be minor as the traffic volumes observed were low due to the government recommended movement and travel restrictions from COVID-19; however, this scenario and typical conditions were taken into consideration for purposes of the assessment. Any required lane closures would be scheduled for night periods and during rail shutdown periods in order to minimise potential traffic impacts. Lane closures identified include the following:

- the parking lane along the Pacific Highway adjacent to laydown area for deliveries and drop offs during off-peak periods
- full lane closure of Hill Street during rail shut down periods
- closure of the parking lane during standard construction periods.

Emergency vehicle access

Access for emergency vehicles would be maintained at the construction sites in accordance with emergency vehicle requirements. Emergency services would be advised of all planned changes to traffic arrangements prior to applying the changes. Advice would include information about upcoming lane closure, traffic disruptions, anticipated delays to traffic, extended times of work and locations of any road possessions.

Parking

The commuter car park would require a full closure and a temporary loss of 31 spaces which would not be available for the duration of construction for the Proposal. As mentioned in Section 3.4.8, the commuter car park would operate as a construction laydown and compound area. Alternative parking options for commuters include the following:

- finding alternative on-street parking
- catching public transport from another station.

There would be sufficient on-street parking within walking distance; however alternative options presented would increase travel time from existing travel times from the existing commuter car park.

During rail shutdown periods, not all construction staff would be able to use the existing commuter car park due to the limited parking spaces available. There would be sufficient off-street parking for all staff. Staff would be encouraged to carpool to limit the overall impact on parking. As the station would be closed, there would be no access to commuters and rail users so no parking impacts would occur. There is sufficient parking in the area to accommodate staff and the community.

Kiss and ride

During construction, there may be disruptions to taxi and kiss and ride bay access adjacent the station along Hill Street. However, the potential impacts would be expected to be minimal and temporary with abundant short-term parking (half, one, two and four-hour) also along Hill Street.

Public transport

Roseville Station and the nearby bus stops would remain operational during the normal day to day construction periods to ensure no impact on these services occurs.

During planned rail shutdown periods, it is expected that bus replacement services would provide service to rail customers which would likely operate from Hill Street. The public bus operation would not be affected by the Proposal and would continue to run from both Hill Street and the Pacific Highway.

No impacts are anticipated to existing bus or rail services operation during construction.

Active transport

Pedestrian

The existing access points to Roseville Station would be maintained during the typical construction work period. There would only be impacts to pedestrians when the existing overbridge is closed to the public during the weekend rail shutdown periods. Access to the station would not be required during shutdown periods as there would be no train services. However, this will impact any pedestrians moving between the Pacific Highway and Hill Street that are looking to access retail shops or public transport. Alternative routes for pedestrians would be available via Boundary Street to the south or Clanville Street to the north, however both alternatives would result in increased journey times.

Outside of the rail shutdown periods, access on and to the stations would be maintained. During construction, pedestrian diversions may be required to maintain access to the station, however any works undertaken within the Proposal area would be managed and controlled at all times to ensure that there is no impact to public safety.

Cyclist

Impacts to cyclist movement would be minimal due the wide nature of all streets in this area and the maintenance of two-way traffic flow along all roads during the entire construction period. Cyclists cannot currently access the platform directly (i.e. without carrying their bicycle up or down the stairs), so this would not change during construction. During construction, while the new concrete walkway/footpaths, retail and associated works are completed, both the Hill Street and the Pacific Highway cycle racks would be temporarily relocated to convenient locations close by.

b) Operation phase

Traffic

Given that the proposed upgrade provides a higher level of station accessibility and usability at Roseville Station, the improved commuter experience is likely to attract greater commuter use. However, the proposed scope of works is not anticipated to have a direct increase in traffic generation during operation. Therefore, negligible traffic impacts are expected with the proposed upgrades.

Parking

Following completion of construction, the existing commuter car park would reopen and maintain all 31 car parking spaces. Improvements from the Proposal would include two DDA car parking spaces and a kiss and ride bay for two car spaces on Hill Street. There would be no impacts to overall parking supply.

Minimal impacts would occur for taxis on Hill Road. The existing taxi area would be moved about two metres along Hill Road and operate similarly to existing conditions.

Public transport

The Proposal would have no impact on bus or rail operations.

Active transport

The proposed pedestrian facilities, including the new lifts, ramps and upgraded stairs, would provide pedestrian benefits, particularly the user experience through improved facilities. Improved DSAPT and DDA-compliant ramps would create better access between the Pacific Highway and Hill Street. Overall station accessibility would also be improved, particularly for customers with disabilities, customers with less mobility, parents/carers with prams, and customers with luggage.

Additionally, cyclist benefits would improve access with better ramps and a sheltered parking area. The existing cycle racks are moveable so these can be relocated to convenient areas for cyclists.

6.1.3. Mitigation measures

The mitigation measures for potential traffic and transport impacts are described in Table 7.1 in Section 7.2. The following are a summary of site specific mitigation measures recommended for this Proposal:

- a drive-through assessment or swept path analysis would be conducted to demonstrate that sufficient manoeuvring space is provided for the largest design vehicle along the proposed haulage route
- a Traffic Control Plan (TCP) would be developed for any construction works that requires lane closure of the Pacific Highway and/or Hill Street. The TCP would be implemented to ensure adequate warning and guidance is provided to road users, thus minimising road related traffic impacts. The TCP would be submitted to the Transport Management Centre (TMC), Transport for NSW, where required. This would include provision for traffic controllers to monitor and manage traffic around lane closures including that on Hill Street and the Pacific Highway
- a Road Occupancy license and crane permits would be required for operating within the road reserve of Hill Street. Consultation with Council would be required to minimise the impact of crane operation on Hill Street
- a temporary access permit for overweight vehicles on Hill Street would be required to enable movements of heavy vehicles exceeding a three tonne Gross Vehicle Mass
- the existing stair access to Roseville Station platform level would be maintained during lift installation. If any closure of the existing stair access would be required for the lift installation, the construction works should be undertaken during a scheduled track shutdown periods to minimise the impacts to pedestrians. Pedestrians needing to traverse the rail corridor would be diverted to the bridge crossings further along Clanville Road.
- staging the installation of new DDA compliant ramps, lifts and stairs (including the demolition of existing non-complaint paths) would be necessary to minimise the impacts to pedestrians and cyclists accessing the station

- safe vehicular movements through and past the construction areas would be maintained throughout construction. Suitable access would also be maintained between Roseville Station and the surrounding road network
- alternative route information (i.e. detour route between the Pacific Highway and Hill Street) would be provided when the overbridge at Roseville Station is temporarily closed during the rail shutdown periods
- priority would be given to building or relocation of new or existing cycle racks to limit impacts to cyclists by minimising time without parking facilities.

6.2. Landscape and visual amenity

This section provides a summary of the *Landscape and Visual Impact Assessment* prepared by Iris Visual Planning and Design (2020) (refer to Technical Paper 2). The assessment included the following tasks:

- planning review context of regional, state and local planning documents
- guidelines using the following:
  - *Guidance note EIA-N04 Guidelines for Landscape Character and Visual Impact Assessment*, NSW State Government, Roads and Maritime Services (2018)
  - *The Guidance Note for Landscape and Visual Assessment* (GNLVA), Australian Institute of Landscape Architects Queensland (2018)
  - Review of the Public Domain Plan, *Roseville Station Concourse Concept Plan* (2010)
- landscape and visual amenity assessment identifying existing conditions, visual sensitivity, magnitude of change, level of visual impact and mitigation opportunities
- assessment of urban design and landscape character impacts.

6.2.1. Existing environment

Landscape character

Roseville is a well-established, predominantly residential, suburb surrounding a small mixed-use commercial centre and the Roseville Station. The built form of the local centre has a uniform character with a continuous row of two storey pre-war terrace buildings. Residential areas to the south west of the station have a leafy character with mature gardens and street trees.

The visual catchment of the Proposal is visually enclosed by the landform and existing mature vegetation along the rail corridor and within adjacent streets and properties. The station is slightly elevated above the adjacent Hill Street streetscape and the south western side of the station is located in a cutting, as the landform rises to the Pacific Highway. The station platform building is federation style, constructed of red brick, with decorative curved awnings supported with cast iron brackets. The footbridge and platform building have been modified, including loss of the original roof and chimneys, however the station is still considered to have '*aesthetic significance at a local level*' (NSW OEH, 2009). Vegetation along the rail corridor provide screens views to and from the surrounding area.

The area contains numerous heritage-listed items, including nearby houses, the station platform and federation-style platform building, the former Station Master's residence, adjacent former Commonwealth Bank building which forms part of the Lord Street, Bancroft Avenue and The Grove conservation areas.

Figure 6.2 details the landscape and visual features of the Proposal.

Figure 6.2 Key landscape and visual features of the Proposal

Key viewpoints

Six viewpoints for the Proposal were identified (shown in Figure 6.3) and include:

- **Viewpoint 1**: View north-west from Hill Street
- **Viewpoint 2**: View south-east from Roseville Station commuter car park
- **Viewpoint 3**: View north-west along the platform
- **Viewpoint 4**: View south-east along the platform
- **Viewpoint 5**: View north-east from the Pacific Highway
- **Viewpoint 6**: View north-west along the Pacific Highway.

The following viewpoints were selected as representative of the range of views to the Proposal and are described in Table 6.1 and depicted in Figure 6.3.

Table 6.1 Viewpoints surrounding the Proposal

Viewpoint	Existing View	Sensitivity[1]
Viewpoint 1 View north-west from Hill Street	From this view, much of the station, including the platform, platform building, and trains is concealed by the existing trees and shrubs along the rail corridor. The eastern end of the footbridge can be seen above the vegetation and the Hill Street station entry can be seen amongst the trees. The primary view includes the following: • two storey commercial terrace buildings • small gabled awning over the station entrance • seating, bike racks and a sheltered bus stop • vegetation along the rail corridor • pedestrian crossing • street signage • overhead power lines. Refer to Figure 6.4.	Local
Viewpoint 2 View south-east from Roseville Station commuter car park	From this view, the rail corridor and Roseville Station commuter car park are visible, as well as scattered vegetation along the rail corridor, locally significant trees in the Grove conservation area on the north eastern side of Hill Street, and single storey federation to Inter-war period residences. The primary view includes the following: • vehicles parked in the commuter car park and along the street • scattered trees and shrubs • overhead power lines • residences to the east • the railway corridor. Refer to Figure 6.5.	Local
Viewpoint 3 View north-west along the platform	This view from the station platform shows the footbridge in the middle ground, including the steel braced supports and balustrades, concrete stairs and decking. The platform building is mostly concealed behind the platform awnings and stairs. The railway gardens enclose the view to the southwest, and vegetation along the north western side of the rail corridor further encloses the view and screens the commercial centre on Hill Street. The primary view includes the following: • the asphalt platform surface • seating • station signage • light poles and overhead line masts • commuter trains. Refer to Figure 6.6.	Local

Viewpoint	Existing View	Sensitivity[1]
Viewpoint 4 View south-east along the platform	From this view the heritage listed platform building is visible, with only a small glimpse to the western entry ramp and balustrade visible and the footbridge completely concealed. The platform building comprises a brick façade, low-pitched gable and timber framed awning extending over the platforms. The landform gently rises to the southwest, and along the railway line ornamental gardens and the bend of the rail corridor are visible. The primary view includes the following: • the asphalt platform surface • the heritage-listed platform building • vegetation along the railway corridor • seating and platform amenities • overhead lighting and powerlines. Refer to Figure 6.7.	Local
Viewpoint 5 View north-east from the Pacific Highway	From this view, the western entrance to Roseville Station can be seen, flanked by the former Station Master's residence and former Commonwealth Bank building. The ornamental tree plantings at the station entrance gardens, including palms and deciduous trees, can be seen. The station platform is below street level and largely screened. The primary view includes the following: • the ramp leading into Roseville Station • adjacent buildings including the former Station Master's residence and former Commonwealth Bank building • vegetation, including ornamental tree plantings behind the Station Master's residence • Pacific Highway and footpath • overhead power lines, street lighting and traffic lights • fencing surrounding the station and former Station Master's residence. Refer to Figure 6.8.	Local
Viewpoint 6 View north-west along the Pacific Highway.	From this view, the six lanes of traffic along the Pacific Highway and narrow footpaths are visible. Two-storey pre-war terrace buildings and an awning covered footpath are to the left of view, and the former Station Master's residence is to the right of view. Ornamental gardens to the right block the view of the station, which is in a cutting below street-level. The primary view includes the following: • two-storey commercial buildings • the road corridor and associated traffic • the former Station Master's residence • overhead street lighting and power lines • mature vegetation along the rail corridor, including the ornamental gardens behind the former Station Master's residence • mature trees along the footpath. Refer to Figure 6.9.	Local

[1]Local = High quality view experienced by concentrations of residents and/or local recreational users, local commercial areas, and/or large numbers of road or rail users, e.g. view from the Pacific Highway or Hill Street, from a conservation area, or local park such as the Roseville Memorial Park.

Figure 6.3 Viewpoints of the Proposal

Figure 6.4 Viewpoint 1: View north-west from Hill Street

Figure 6.5 Viewpoint 2: View south-east from Roseville Station commuter car park

Figure 6.6 Viewpoint 3: View north-west along the platform

Figure 6.7 Viewpoint 4: View south-east along the platform

Figure 6.8 Viewpoint 5: View north-east from the Pacific Highway

Figure 6.9 Viewpoint 6: View north-west along the Pacific Highway

6.2.2. Potential impacts

a) Construction phase

Views during daytime

Table 6.2 summarises construction impacts assessed at each of the representative viewpoint locations.

Table 6.2 Assessment of visual impacts during construction of the Proposal

Viewpoint	Assessment of visual impact	Sensitivity[1]	Magnitude[2]	Impact rating
Viewpoint 1 View north-west from Hill Street	The Proposal would have the following visual impacts in this viewpoint: • opening of views to the existing footbridge from the removal of trees and vegetation • demolition works to accommodate the widen station entrance • removal of existing bus shelter, seats, bicycle racks and planter pots • removal of extents of overhead wiring • installation of lifts rising above the tree line and existing footbridge.	Local	Minor reduction	Minor adverse
Viewpoint 2 View south-east from Roseville Station commuter car park	The Proposal would have the following visual impacts in this viewpoint: • view of construction activities and equipment including site offices, staff amenities, machinery, equipment and materials storage areas • increased presence of construction vehicles along Hill Street • removal of extents of overhead wiring • high contrast to leafy, residential character of the properties to the northeast of Hill Street.	Local	Considerable reduction	Moderate adverse
Viewpoint 3 View north-west along the platform	The Proposal would have the following visual impacts in this viewpoint: • construction works related to the platform lift including installation, demolition, fit-out of the lift shaft and new platform canopy • regrading and surfacing of the platform and removal and replacement of existing TGSIs • installation of Hill Street lift and entrance canopy adjacent to existing stairs • excavation and vegetation removal within the rail corridor • view of construction equipment and structures rising above the existing footbridge.	Local	Considerable reduction	Moderate adverse

Viewpoint	Assessment of visual impact	Sensitivity[1]	Magnitude[2]	Impact rating
Viewpoint 4 View south-east along the platform	The Proposal would have the following visual impacts in this viewpoint: • installation of new canopy over the existing boarding assistance zone • regrading and surfacing of the platform and removal and replacement of existing TGSIs • construction fencing to accommodate canopy installation and platform regrading and surfacing • view of construction equipment and structures rising above the existing footbridge.	Local	Minor reduction	Minor adverse
Viewpoint 5 View north-east from the Pacific Highway	The Proposal would have the following visual impacts in this viewpoint: • view of construction equipment at designated laydown area along the Pacific Highway • removal of fencing and garden beds near station entrance to accommodate widened entry plaza • pavement work including removal, regrading and resurfacing • installation of the lifts.	Local	Minor reduction	Minor adverse
Viewpoint 6 View north-west along the Pacific Highway	The Proposal would have the following visual impacts in this viewpoint: • view of construction equipment at designated laydown area along the Pacific Highway including loss of the lawn verge • minor vegetation removal near station entrance.	Local	Minor reduction	Minor adverse

[1]Local = High quality view experienced by concentrations of residents and/or local recreational users, local commercial areas, and/or large numbers of road or rail users, e.g. view from the Pacific Highway or Hill Street, from a conservation area, or local park such as the Roseville Memorial Park.
[2] Magnitude describes the extent of change resulting from the Proposal and the compatibility of these new elements with the surrounding landscape.

In summary, the following would be temporary visual impacts as a result of the construction of the Proposal:

- views from the southern area of the station platform would have moderate adverse visual impacts due to close proximity, scale and extent of the works seen across the station
- views from the residential properties on Hill Street near the commuter car park would have moderate visual impacts due to views of the construction compound site
- views from the northern end of the station platform would have minor adverse visual impacts due to minor work on the heritage listed platform building
- views looking toward the existing ornamental gardens surrounding the station would have minor adverse visual impacts to Hill Street and the Pacific Highway station entries.

Views at night

The Proposal is result in a moderate district brightness from the combination of relatively high light levels within the station and adjacent commercial centre on the Pacific Highway and Hill Street. The brightly lit environment of the station would be somewhat contained by the surrounding landform and vegetation along the rail corridor. However, parallel to the station, there currently exists bright streetlights and the moving vehicle headlights. This brightly lit centre is surrounded by residential areas which have moderate to low light levels.

Lighting impacts at night from the Proposal may include the following:

- emitted lighting at the construction compound in the existing commuter car park for security (unlikely on an ongoing basis and for specific activities or works during rail shutdown periods)
- works for lifts, platform and station entrances would be absorbed into the surrounding brightly lit environment and enclosed by the existing vegetation
- some lighting visible from nearby residential properties overlooking the compound areas but would be partly screened by existing vegetation.

The construction of the Proposal would result in a minor reduction in the amenity of views at night and a minor adverse visual impact during construction. In summary, visual impacts during construction as identified and described would be temporary and short-term. Identified impacts would be managed through mitigation measures described in Chapter 7.

Urban design and landscape character

There would be a temporary, minor reduction in the landscape and urban design functionality of the station precinct resulting in a minor adverse landscape impact during construction due to the following:

- reduced streetscape vegetation due to location of the main construction compound at the existing commuter car park along Hill Street and the laydown area along the Pacific Highway
- minor land modification to the landform and tree removal/trimming due to the station entrance works along Hill Street
- reduced amenity and comfort for pedestrians coming from the east and west due to earthworks and installation of the lifts.

b) Operation phase

Views during daytime

Table 6.3 summarises operation impacts assessed at each of the representative viewpoint locations.

Table 6.3 Assessment of visual impacts during operation of the Proposal

Viewpoint	Assessment of visual impact	Sensitivity[1]	Magnitude[2]	Impact rating
Viewpoint 1 View north-west from Hill Street	The Proposal would have a noticeable improvement to the amenity of this view due to the following: • upgraded station entrance including a widened entry plaza, new curved retaining walls, garden beds, footpath pavements, bus shelter, seats and bike racks • Removal of extents of overhead wiring and replacement as underground cables • new Hill Street lift and platform lift rising above the existing vegetation and footbridge • maintained existing vegetation along the rail corridor and new planting at station entry. Refer to Figure 6.10 and Figure 6.11 for photomontages from the Hill Street entrance.	Local	Minor improvement	Minor beneficial
Viewpoint 2 View south-east from Roseville Station commuter car park	There would be no change in the amenity of this view as the compound area would be reinstated to its former use as the commuter car park.	Local	No change in amenity	Negligible
Viewpoint 3 View north-west along the platform	The Proposal would have a noticeable improvement to the amenity of this view due to the following: • new platform lift rising above the existing vegetation and footbridge • platform improvements including new surface, TGSIs, lighting and furniture.	Local	Minor improvement	Minor beneficial

Viewpoint	Assessment of visual impact	Sensitivity[1]	Magnitude[2]	Impact rating
Viewpoint 4 View south-east along the platform	The Proposal would have a minor reduction in the amenity of this view due to the following: • new low-pitched roof canopy structure extending over the existing boarding assistance zone and partially obstructing view to the heritage listed station platform building • platform improvements including new surface, TGSIs, lighting and furniture. Refer to Figure 6.12 for a photomontage from the station platform	Local	Minor reduction	Minor adverse
Viewpoint 5 View north-east from the Pacific Highway	The Proposal would have a minor improvement in the amenity of this view due to the following: • upgraded station entrance including a widened entry plaza with new paving, trees and garden areas, seating, lighting, signage and fencing • new platform lift rising above the existing vegetation and footbridge.	Local	Minor improvement	Minor beneficial
Viewpoint 6 View north-west along the Pacific Highway	There would be no change in the amenity of this view as the laydown area would be reinstated as a grassed verge.	Local	No change in amenity	Negligible

[1]Local = High quality view experienced by concentrations of residents and/or local recreational users, local commercial areas, and/or large numbers of road or rail users, e.g. view from the Pacific Highway or Hill Street, from a conservation area, or local park such as the Roseville Memorial Park.
[2] Magnitude describes the extent of change resulting from the Proposal and the compatibility of these new elements with the surrounding landscape.

In summary, the following visual impacts would occur as a result of the operation of the Proposal:

- views from the Pacific Highway would have a minor beneficial visual impact due to the upgraded widened station entrance featuring new pavements, planting, signage and lighting
- views from Hill Street would have a minor beneficial visual impact due to improved footbridge and station entry
- views at the southern end of the station platform would have a minor beneficial visual impact from the platform improvements and new lift
- views from the northern end of the platform would have a minor adverse visual impact due to the canopy partly obstructing the northern façade of the heritage listed station building
- views from the commuter car park along Hill street and grass area along the Pacific Highway would have negligible visual impacts as they would be reinstated to existing conditions.

Views at night

The station upgrade is unlikely to create substantive additional sky glow above the site due to the additional built form and existing adjacent commercial centre. The new station elements of the Hill Street lift and platform lift would be in the context of the existing brightly lit station entry, footbridge and platform. Additional lighting may be provided for the bus shelter, bicycle racks, kiss and ride bay, accessible parking on Hill Street, and station entry along the Pacific Highway.

This additional lighting would have the potential to be seen in the context of the Roseville local centre and not in close proximity to residential properties. There is not expected to be any additional direct light spill onto private residential properties to the east or west of the station. These residences are separated from the station by existing vegetation along the corridor, Hill Street or the Pacific Highway streetscapes and adjacent built form.

Urban design and landscape character

During operations, there would be substantial improvements to accessibility of the station precinct due to the following:

- introduction of lifts at the station, upgrades to the footbridge and station entrances, provision of accessible car parking spaces, kiss and ride bay, bicycle racks, improvements to the platform surface and facilities within the platform buildings
- improved legibility within the station precinct from visual prominence of the station entry on Hill Street and the Pacific Highway.

Impacts to the urban design and landscape character would have a moderate beneficial landscape impact during operation.

Figure 6.10 Photomontage of Roseville Station from the Hill Street entrance looking south-west across Hill Street

Figure 6.11 Photomontage of Roseville Station from the Hill Street entrance looking north-east along Hill Street

Figure 6.12 Photomontage of the station platform with the proposed new lift

6.2.3. Mitigation measures

The mitigation measures for potential landscape and visual amenity impacts are described in Table 7.1 in Section 7.2. The following are a summary of site specific mitigation measures recommended for this Proposal:

- temporary access arrangements would be well signed and provide a visually legible route for pedestrians
- consideration of a green wall at the Hill Street lift shaft would be further investigated during detailed design
- site equipment and facilities would be consolidated and limited to the nominated construction compound and laydown areas to maximise the area of useable public realm and maintain pedestrian access across the footbridge where possible.

6.3. Noise and vibration

This section provides a summary of the *Noise and Vibration Impact Assessment* prepared by WSP (2020b) and which is attached as Technical Paper 3. The assessment included the following tasks:

- assessing existing noise levels with unattended and operator attended noise surveys at identified noise monitoring locations
- identification of assessment methods per the Transport for NSW *Construction Noise and Vibration Strategy* (CNVS) (TfNSW 2019b) for construction noise impacts at sensitive receivers
- definition of construction and operation noise management levels during identified periods.

6.3.1. Existing environment

The existing noise environment in the vicinity of Roseville Station is primarily characterised by rail traffic, light vehicles along Hill Street and the Pacific Highway around the neighbourhood and commercial retail shops.

Sensitive receivers

Receivers potentially sensitive to both noise and vibration in the following categories as defined in *Noise Policy for Industry* (NPfI) (NSW EPA, 2017) and *Interim Construction Noise Guideline* (ICNG) (DECC, 2009) have been identified in the surrounding area:

- residential receivers east and west of the station
- non-residential receivers, including educational receivers, places of worship, passive recreational areas and commercial receivers
- potential vibration sensitive receivers, including heritage buildings/structures:
  - Roseville Station (within the Proposal)
  - the former Station Master's Residence (within the Proposal)
  - the former Commonwealth Bank building (20 metres from the Proposal)
  - the former Westpac Bank building (60 metres from the Proposal)
  - Roseville Cinemas (50 metres from the Proposal)
  - St Andrews Church (125 metres from the Proposal).

Representative sensitive receivers are outlined in Table 6.4 with the accompanying survey method and related noise catchment areas shown in Figure 6.13.

Table 6.4 Noise catchment areas and classification of representative receivers

NCA	Receiver Type (ID)	Address	Distance to Proposal (M)[1]
1	Residential (R1)	67 Pacific Highway	60
1	Residential (R2)	136 Pacific Highway	70
1	Commercial (C1)	Roseville Station Espresso Bar	20
1	Commercial (C1a)	Roseville Station Expresso Bar – Courtyard	5[2]
1	Cinema (C2)	Roseville Cinemas	45
2	Residential (R3)	71 Hill Street	40
2	Commercial (C3)	Rosewood Café	25
2	Commercial (C4)	83 Pacific Highway	20
2	Place of worship (PW1)	St Andrew's Anglican Church	145

[1]Minimum distance of the sensitive receiver to the limits of the construction footprint.
[2]The courtyard is an outdoor area associated with the C1 commercial area, and is likely to be unoccupied during construction works, however has been assessed for conservativeness.

Figure 6.13 Site overview and NCA locations

Background noise levels

Background and ambient noise levels were determined through a combination of unattended and attended noise surveys. Two noise monitoring locations (NM01 and NM02) were used to characterise the existing noise environment at representative residential receivers on either side of the station, and allocated Noise Catchment Areas (NCAs).

Unattended noise survey results at NM01 and NM02 were 34 dBA and 40 dBA respectively during the day. Dominant noise sources were associated with car passbys and urban hum. This monitoring location was slightly offset to the Proposal area, however represents the nearest residential areas and is therefore considered conservative. The results of the unattended noise surveys are detailed in Table 6.5.

Table 6.5 Summary of unattended noise monitoring results

Location	Rating background level (RBL) dBA[1]			Ambient noise levels L_{eq} dBA[2]		
	Day[3]	Evening[3]	Night[3]	Day[3]	Evening[3]	Night[3]
NM01	34	31	30(29)[4]	50	46	41
NM02	40	38	31	54	53	47

[1]Rating Background Level (RBL), the 10th percentile min L_{A90} noise level recorded over all day, evening and night time monitoring periods.
[2]Ambient noise levels: the overall noise level over each assessment period (daytime/evening/night-time) as defined in the NPfI and ICNG.
[3]Time periods defined as – Day: 7 am to 6 pm Monday to Saturday, 8 am to 6 pm Sunday; Evening: 6 pm to 10pm; Night: 10 pm to 7 am Monday to Saturday, 10 pm to 8 am Sunday.
[4]Minimum RBL of 30 dBA adopted in accordance with the NPfI.

The attended noise surveys and observations are characterised by urban noise sources with ambient noise levels from car passbys, birds, truck movements and nearby construction. The results of the attended noise surveys are detailed in Table 6.6.

Table 6.6 Summary of attended noise monitoring results

Location	Time	dBA $L_{eq(15min)}$	dBA $L_{90(15min)}$	Observations[1]
NM01	12:00 PM – 12:15PM	46	37	Car passbys: 53 dBA Birds chirping: 50 dBA Truck passby: 54 dBA
NM02	12:57 PM – 1:12PM	54	46	Car passbys: 63 dBA Birds chirping: 50 dBA Construction noise: 46 dBA

[1]maximum sound measured

The results of the attended noise survey are consistent with the results of the unattended noise monitoring with RBLs during the daytime period of 37 dBA and 46 dBA at NM01 and NM02 consistent with the results of the unattended monitoring campaign.

6.3.2. Noise assessment criteria

Refer to Chapter 3 of *Technical Paper 3 – Noise and Vibration Impact Assessment* (WSP, 2020b) for detailed noise assessment criteria.

6.3.3. Potential impacts

a) Construction phase

Predicted noise levels

A number of activities were considered as part of the construction noise and vibration assessment. Section 3.4.1 provides a list of the activities and details the works that would be completed during each activity and timing of each activity.

Scenarios assessed for this Proposal include the following:

- **Scenario 1** – Site establishment, enabling works and site compounds
- **Scenario 2** – Lift work
- **Scenario 3** – Ramp upgrade
- **Scenario 4** – Kiss and Ride and accessible car parking space
- **Scenario 5** – Station building works
- **Scenario 6** – Demobilisation
- **Scenario 7** – Existing bridge refurbishment
- **Scenario 8** – HV realignment.

Table 6.7 presents the predicted noise levels for the representative receivers for the key construction work activities. Table 6.8 presents the predicted sleep disturbance noise impacts for residences only.

The calculations are conservative as they include all equipment operating simultaneously at their closest point to the receiver in a worst case 15-minute period. Actual noise levels from the construction site would be expected to be lower. Where a predicted noise level exceeds a less stringent management level (‘Standard (working) Hours’ – SH), it follows that the more stringent (‘Out of standard Hours of Work’ – OOHW) management levels are also exceeded.

It is noted that a number of the scenarios incorporate plant with annoying acoustic characteristics, which have resulted in the application of a noise penalty. This includes plant such as chainsaws, concrete saws. It is highly unlikely that these items of equipment will be fully utilised during works, and where not used, noise levels will be notably decreased in their impact to receivers.

Table 6.7 Maximum predicted construction noise levels and indicative exceedances per scenario

NCA	Receiver Type (ID)	NML, dBA $L_{eq(15min)}$[1,2]				Modelled Maximum Noise level per scenario, dBA $L_{eq(15min)}$[2,3,4]							
		SH	OOHW 1	OOHW 2	HNA[5]	S01	S02	S03	S04	S05	S06	S07	S08
1	Residential (R1)	44	39	35	75	65 (70)	72 (75)	69 (75)	72 (75)	69 (75)	68 (68)	76 (78)	61 (61)
	Residential (R2)	50	45	36	75	61 (66)	61 (64)	60 (66)	63 (67)	65 (70)	64 (64)	65 (67)	57 (57)
	Commercial (C1)	70	N/A	N/A	N/A	75 (80)	76 (79)	78 (83)	77 (80)	79 (85)	78 (78)	81 (83)	72 (72)
	Commercial (C1)	70	N/A	N/A	N/A	75 (80)	76 (79)	78 (83)	77 (80)	79 (85)	78 (78)	81 (83)	72 (72)
	Commercial (C1a)	70	N/A	N/A	N/A	87 (>90)	65 (68)	>90 (>90)	69 (72)	68 (73)	90 (90)	70 (72)	60 (60)
	Commercial (C1a)	70	N/A	N/A	N/A	87 (>90)	71 (74)	>90 (>90)	73 (77)	71 (77)	90 (90)	76 (78)	64 (64)
	Cinema (C2)	80	N/A	N/A	N/A	66 (71)	66 (69)	66 (72)	69 (73)	71 (76)	69 (69)	70 (71)	63 (63)
	Commercial (C4)	70	N/A	N/A	N/A	>90 (>90)	79 (83)	>90 (>90)	76 (79)	76 (82)	>90 (>90)	85 (87)	69 (69)
2	Residential (R3)	44	39	36	75	68 (72)	63 (66)	65 (71)	68 (72)	72 (77)	71 (71)	67 (69)	65 (65)
	Commercial (C3)	70	N/A	N/A	N/A	79 (84)	83 (86)	84 (90)	87 (>90)	77 (82)	82 (82)	84 (86)	69 (69)
	Place of worship (PW1)	55	55	N/A	N/A	55 (59)	62 (65)	61 (67)	63 (66)	58 (64)	58 (58)	66 (68)	50 (50)

orange shaded cells = exceedances of the standard-hours day period **Red text** = exceedances of highly noise affected Noise Management Levels (NMLs)

[1] Time periods as defined in Table 6-5, HNA – Highly noise affected
[2] Predicted noise levels are represented by a single point for each receiver type and noise catchment area for this preliminary assessment
[3] Where a predicted noise level exceeds a less stringent management level ('Standard (working) Hours' - SH), it follows that the more stringent ('Out of standard Hours of Work' - OOHW) management levels are also exceeded. OOH activities are S02, S04 and S05 only
[4] Values in brackets indicate predicted noise levels including plant items with special audible characteristics (concrete saw, chainsaw)

Assessment of predicted noise levels

Standard hours

The assessment of construction noise impacts at the nearest sensitive receivers indicates that noise levels are predicted to exceed relevant NMLs at the nearest sensitive receivers in NCA01 and NCA02 during all activities, with Scenarios 2 and 4 through 7 presenting the greatest impact to sensitive receivers as shown in Table 6.7.

Noise levels are predicted to result in noise level exceedances for residences in NCA01 during Scenarios 2, 4, 5 and 7. There are exceedances predicted at residences in NCA02 during Scenarios 5, 6 and 7. The closest residences in NCA01 to the construction works are predicted to be highly noise affected when works are at their closest during Scenario 7.

For the nearest commercial receivers, noise levels are predicted to exceed relevant criteria in NCA01 and NCA02 for most scenarios. Exceedances are predicted in Scenario 7 at the Roseville Station Espresso Bar and adjoining courtyard and during Scenario 3 at the Rosewood Cafe. However, the Roseville Station Espresso Bar and adjoining courtyard are vacant and non-operational. Exceedances are predicted during Scenarios 1, 3 and 6 at these locations. Levels are predicted to remain below relevant noise levels for the Roseville Cinemas for all scenarios with a minor exceedance during Scenario 5. No impacts to these receivers are expected during construction.

Exceedances of relevant criteria are predicted at St Andrew's Anglican Church near the Proposal in NCA02 during all scenarios with the exception of Scenario 8 with no exceedances.

Noise impacts will be noticeable during standard hours at the nearest receivers to the works areas as follows:

- for Scenario 1 and 6, there would be a relatively short duration of 2 months due to use of construction compounds occurring for intermittent periods for the morning and afternoon
- noticeable noise impacts at the nearby receivers are likely for Scenario 2 and 5 as they would occur intermittently over 12 and 18-month periods respectively
- likely noise impacts at the nearest sensitive receivers from Scenario 4 and 7 occurring intermittently over four and 12 months respectively

As a result of the predicted exceedances, noise mitigation and management measures have been outlined in Chapter 7 to reduce the potential noise impacts.

Outside standard hours

Out of hours works (OOHW) are proposed during Scenarios 2, 4 and 5, generally limited to four 48-hour rail shutdowns. The assessment of OOHW construction noise impacts at residential receivers indicates that noise levels are predicted to exceed relevant NMLs at the nearest sensitive receivers in NCA01 and NCA02 during all OOHW activities.

During OOHW period 1, noise levels are predicted to result in exceedances of the OOHW criteria by up to 33 dBA at receivers in NCA01 (north of the Proposal) and NCA02, and 20 dBA in NCA01 (south of the Proposal). During OOHW period 2, noise level exceedances of up to 37 dBA are predicted at receivers in NCA01 (north of the Proposal), 36 dBA in NCA02, and 29 dBA in NCA01 (south of the Proposal).

Noise impacts would be noticeable outside standard hours at the nearest receivers to the works areas. It is noted that activities associated with Scenario 4 would occur intermittently over about a 4-month period.

As a result of the predicted exceedances during OOHW, further noise mitigation and management measures would be required in the event of OOHW works being undertaken, and an overview has been outlined in Chapter 7 to reduce the potential noise impacts for consideration.

Sleep disturbance

In addition to OOHW, night works the predicted maximum noise levels calculated in Table 6.8 indicate that sleep disturbance for residential receivers would be likely to occur at receivers adjacent to the construction. Noise levels are predicted to result in exceedances of both the *Road Noise Policy* (RNP) screening criteria and the awakening goals.

The potential for work to generate maximum noise level events should be considered as part of the construction noise management plan for the works. Mitigation measures are discussed further in Chapter 7.

Table 6.8 Predicted sleep disturbance noise impacts (residences only)

NCA	Receiver Type (ID)	NML, dBA $L_{eq(15min)}$[1,2]		Modelled Maximum Noise level per scenario, dBA $L_{eq(15min)}$[2]						
		RNP screening criterion	RNP Awakening goal	S01	S02	S03	S04	S05	S06	S07
1	Residential (R1)	45	65	65 (75)	75 (80)	71 (79)	73 (79)	69 (79)	68 (68)	76 (81)
	Residential (R2)	45	65	61 (71)	64 (68)	62 (71)	64 (70)	65 (75)	64 (64)	65 (69)
2	Residential (R3)	46	65	68 (77)	66 (71)	67 (75)	69 (75)	72 (81)	71 (71)	67 (71)
blue shaded cells show exceedances L_{max} and $L_{eq(15min)}$ criteria										

[1]Sleep disturbance criteria applicable to residential receivers only
[2]Predicted noise levels are represented by a single point for each receiver type and noise catchment area for this preliminary assessment
[3]Values in brackets indicate predicted noise levels with including plant items with special audible characteristics (concrete saw, chainsaw)

Construction traffic noise

There is the potential for noise impacts to occur due to light and heavy vehicle movements on public roads generated by the construction work as a result of additional vehicle movements during typical construction and rail shutdown periods.

Noise levels generated by construction vehicles are anticipated to comply with relevant road noise criteria during the day period, with notable exceedances anticipated during the night time period and during shutdowns along the Pacific Highway and Hill Road. There would be construction traffic noise impacts and as a result, mitigation and management measures are recommended, which should be outlined in a Traffic Management Plan for the Proposal.

Vibration

The major potential sources of vibration from the proposed construction activities are during Scenarios 2, 5, 6 and 7.

Minimum working distances for vibration intensive plant have been outlined in Table 4.6 in *Technical Paper 3 – Noise and Vibration Impact Assessment* (WSP, 2020b) to comply with human comfort and cosmetic damage vibration limits.

Given the distances and potential work areas of vibratory intensive plant, sensitive receivers in NCA01 and NCA02 that are not associated with the station itself are generally anticipated to be located outside the safe working distance limits for cosmetic damage and human response, therefore no further action is required. However, where compaction or vibratory rolling works would be located within the safe working distances further management and mitigation measures would be required, as discussed in Chapter 7, particularly with regard to the commercial receivers adjacent the works site.

During construction, there may be potential cosmetic vibration impacts to heritage sites including Roseville Station (as part of the 'Roseville Railway Station Group'), the Former Station Master's Residence and the Former Commonwealth Bank Building. Vibration management and mitigation measures are required where vibration generating works are within the nominated safe working distances of the station structure itself. Where piling is to occur within five metres of a vibration-sensitive heritage receiver, more detailed investigations would be undertaken to confirm the potential for vibration impact. No other heritage items or buildings with the potential for structural damage were identified within the safe working distances.

Vibration impacts would be confirmed as part of a Construction Noise and Vibration Management Plan (CNVMP). This plan would include vibration management at these locations of sensitive receivers before the commencement of construction activities and after construction is completed. Structures that are potentially at risk of threshold or cosmetic damage would be identified by the Construction Contractor prior to the commencement of construction works.

b) Operation phase

The operation of Roseville Station would remain unchanged as a result of the Proposal. There would be no expected changes to the operation of the rail and, as such, this has not been assessed. New plant and equipment associated with the upgrade to Roseville Station would include a new lift and equipment for the communications/equipment room..

6.3.4. Mitigation measures

The mitigation measures are described in Table 7.1 in Section 7.2. The following are a summary of site specific mitigation measures recommended for this Proposal to reduce the extent of the exceedances:

- during Scenario 1, temporary barriers would be erected to ensure that work would be conducted behind temporary hoardings/screens wherever practicable. The installation of construction hoarding would take into consideration the location of sensitive receivers to ensure that 'line of sight' is broken, where feasible. This has the potential to reduce noise levels between 5 and 10 dB
- the use of concrete saw and chainsaws would be limited where possible, and works are undertaken during standard hours and avoid sensitive time periods. Where work is required outside of standard hours, the use of this equipment is to avoid sensitive periods such as after midnight and before 7:00 am where possible
- due to the high exceedances of NMLs during Scenarios 2 to 6, when a concrete saw is to be used near sensitive receivers a temporary screen or enclosure (10-15 dB reduction) would be placed around the works in conjunction with temporary barriers
- consultation would be undertaken with operators of nearby commercial properties to determine feasible construction staging to minimise potential impacts. This would include, effectively communicating likely impacts, potential periods of high intensity works, and development of a schedule of consultation for program intensive works. Respite periods would be observed, where practicable, and in accordance with the Transport for NSW CNVS.

6.4. Aboriginal heritage

A search for known Aboriginal heritage items in the vicinity of Roseville Station (plus a 200 metre buffer) was undertaken on 24 February 2020 using the AHIMS database (NSW Department of Environment and Heritage, 2020).

6.4.1. Existing environment

The AHIMS search did not identify any known Aboriginal heritage items within or close to Roseville Station.

Given the extensive landscape modification and development, and low archaeological potential of the surrounding area, intact evidence of Aboriginal land use would be unlikely to occur within the Proposal.

6.4.2. Potential impacts

a) Construction phase

Construction of the Proposal would involve some minor excavation and other ground disturbing activities, particularly for the foundation and pits for the two new lifts. Ground disturbing activities have the potential to impact Aboriginal sites, if present. However, as no known Aboriginal heritage items are located in the vicinity of the Proposal, no high risk landscape features are located at or near the Proposal area, and no significant excavations are proposed, it is unlikely that the Proposal would affect Aboriginal heritage during construction.

b) Operation phase

There would be no risk to Aboriginal heritage from the operation of the Proposal.

6.4.3. Mitigation measures

Refer to Table 7.1 in Section 7.2 for the proposed mitigation measures with respect to potential Aboriginal heritage impacts.

6.5. Non-Aboriginal heritage

This section provides a summary of the *Statement of Heritage Impact* (SOHI) prepared by GML Consultants (GML Consultants, 2020). The methodology used to undertake this assessment is provided in Technical Paper 4. The assessment included the following tasks:

- review of statutory NSW and Commonwealth legislation
- assessment performed according to guidelines following the *NSW Heritage Manual* guidelines including ‘Assessing Heritage Significance’ and the ‘Burra Charter’
- site inspection to assess aspects of the identified heritage items
- desktop research using secondary sources from the National Library of Australia, State Library of NSW and Transport for NSW.

6.5.1. Existing environment

Historical background

North Shore Rail Line and Roseville Station

The T1 North Shore Rail Line was opened on 1 January in 1890. The line originally extended as a single track from Hornsby to St Leonards and was the first purely suburban railway in NSW. Since its opening, the North Shore Line has had various upgrades through the 1900s including duplication, track realignment, station platform upgrades and track wiring.

Roseville Station was also opened as part of the first single line section of the North Shore Line, called 'Rossville' at the time of opening. The Station Master's residence was constructed in 1900 in a location next to the Pacific Highway and is no longer in RailCorp ownership. Historical features of the station in the 1900s include the following:

- the station's gardens for its display of colourful flowers and rocks
- the addition of a small new building operating as a ticket booth
- station upgrades including balustrades, concrete stairs, decking and a small central kiosk
- the addition of the platform awnings joining the station building to the footbridge.

Listed heritage items

The desktop search of relevant non-Aboriginal heritage registers did not identify any heritage items listed on the World, Commonwealth or National Heritage Lists, the Register of the National Estate or State Heritage Register within proximity of the Proposal.

There are seven listed heritage items in the vicinity of the Proposal, listed in Table 6.9.

Table 6.9 Listed heritage items in the vicinity of the Proposal

Item Name (ID)	Location	Significance	Distance from site
Roseville Railway Station Group (SHI#4801933)	Roseville Station	State	0 m (i.e. within the Proposal site)
Former Station Master's residence (I110)	89 Pacific Highway	Local	10 m west
Former Commonwealth Bank Building (I109)	83 Pacific Highway	Local	10 m west
Former Westpac Bank Building (I104)	65 Hill Street	Local	30 m north-east
Roseville Cinema (I111)	112-116 Pacific Highway	Local	70 m west
Clanville Heritage Conservation Area (C32)	Not applicable	Local	70 m north-east
Lorde Street/ Bancroft Avenue Heritage Conservation Area (C36)	Not applicable	Local	125 m east

Roseville Station Group

Roseville Station is significant as one of a small number of stations that demonstrate the significant impact the North Shore Railway Line had in facilitating settlement in the northern suburbs of Sydney. The civic pride associated with the new railway is evident in the ornamental gardens on either side of the railway station, which have remained largely intact despite similar gardens along the network being disturbed. The early twentieth century railway architecture of the Station is also of heritage value and contributes to the character of the North Shore Line (refer to Figure 6.17, Figure 6.18, Figure 6.19, and Figure 6.20).

Former Station Masters Residence

The former Station Masters Residence is historically significant because it reflects the expansion of railway facilities and development of infrastructure to support new settlements in the North Shore of Sydney. The cottage is the only surviving example of a class of residential railway buildings called a “J-3 Plan” that were only constructed in NSW between 1890 and 1920. Additionally, it is one of only three remaining railway residences in the Sydney Metropolitan region, so is considered rare (refer to Figure 6.14).

Former Commonwealth Bank Building

The former Commonwealth Bank building has heritage significance due to its landmark status and excellent reflection of the Inter-war Art Deco Style. The building was constructed during the 1930s and demonstrates key Art Deco characteristics including a strong vertical emphasis and symmetry. The construction of the Commonwealth Bank branch in Roseville is significant as it indicated that the growth of Roseville during the Interwar period warranted a dedicated branch. The high level of intactness and aesthetic, historical and representative values contribute to the local heritage significance of this building (refer to Figure 6.15).

Clanville Heritage Conservation Area

The Clanville Heritage Conservation Area has historical significance as a cohesive early twentieth century and interwar development. The area was a 400 acre grant to David Dering Mathew called “Clanville”, and although it has been successively subdivided, the original grant boundaries are still evident. The subdivisions within the Conservation Area took place in the late 19th and early 20th centuries and reflect the improved transport connections due to the construction of the North Shore line.

Lord Street/ Bancroft Avenue Heritage Conservation Area

The Ku-ring-gai Town Centres Heritage Conservation Area Inventory Sheet describes the Lord Street/Bancroft Avenue Heritage Conservation Area as an area of historical and aesthetic significance due to the Federation Queen Anne style housing which represents an intact portion of the 1903 Clanville Estate subdivision.

Statements of heritage significance are not available for the Former Westpac Bank Building (Item I104) (refer to Figure 6.16) or Roseville Cinema (Item I111) (refer to Figure 6.21).

Figure 6.14 View across the Pacific Highway towards the Former Station Master’s residence (Source: GML)

Figure 6.15 View across the Pacific Highway towards the Former Commonwealth Bank Building (Source: GML)

Figure 6.16 View of the Former Westpac Bank Building on Hill Street (Source: GML)

Figure 6.17 View along the western elevation of the station building showing the awning brackets and the rendered detail of the 1901 station building (Source: GML)

Figure 6.18 View from footbridge towards the station platform and building (Source: GML)

Figure 6.19 View to the gardens on the western side of the platform which includes mature trees and large palms (Source: GML)

Figure 6.20 View to the gardens on the western side of the platform which includes mature trees and large palms (Source: GML)

Figure 6.21 View across the Pacific Highway to Roseville Cinema (Source: GML)

Archaeological potential

No non-Aboriginal archaeological potential was identified as part of the SOHI.

6.5.2. Potential impacts

a) Construction phase

Assessment of construction impacts is outlined in Table 6.10. Full details of the assessment can be found in *Technical Paper 4 – Statement of Heritage Impact*.

Table 6.10 Summary of non-Aboriginal heritage impacts during construction

Component	Assessment
Construction of two lifts connecting the Hill Street entry to footbridge and the footbridge to the platforms	A minor adverse impact on the setting of the station is expected due to the following: • installation of lift shafts and equipment increasing the height of the station above the existing footbridge and view of construction materials.
Regraded accessible pathway along Hill Street footpath	A minor adverse heritage impact to the landscape setting of the station due to the following: • removal of vegetation, planter beds retaining walls, seating and a mature tree to accommodate footpath works connecting to the new Hill Street station entry.
Modification to the stair access from Hill Street	A minor adverse heritage impact is expected from the replacement of the lowest flight of the existing stair for the proposed lifts.
Modified Hill Street station entry	A minor adverse heritage impact to the station fabric is expected due to the following: • replacement and installation of new retaining walls (material selection would be determined in detailed design) • installation of a canopy at the new station entrance • removal of tree vegetation and planter beds.
Regraded accessible pathway along the Pacific Highway footpath	A minor adverse heritage impact to the station fabric is expected to the former Commonwealth Bank Building from the station entry regrading altering the ground level access and drainage.
Platform upgrades	There are minor adverse heritage impacts expected due to the following: • installation of the canopy connecting the lift to the platform • installation of the freestanding boarding assistance zone shelter on the north end of the platform • regrade and resurfacing of the platforms and removal and replacement of the existing TGSIs.
Modification of the existing footbridge	A minor to moderate adverse heritage impact to the station fabric is expected due to the installation of anti-throw screens and modifications to the ramp connecting the footbridge to the new lift. However, there would be a positive heritage impact for maintaining the location of the existing footbridge.
Interchange upgrades along Hill Street	There are minor adverse heritage impacts to the station fabric is expected due to the following: • installation of undercover bicycle hoop spaces • upgrade work on two new accessible parking spaces, kiss and ride bay with waiting shelter, relocation of bus shelter and upgrade of DSAPT compliant bus stop.
Interchange upgrade along the Pacific Highway	There are minor adverse heritage impacts expected due to the following: • regraded footpath entrance as DSAPT compliant.

In summary, construction heritage impacts to the station heritage are expected to be moderate on the following heritage items:

- the Roseville Station Group – removal of vegetation, tree and planter beds to accommodate the upgraded and expanded Hill Street entrance as well as footbridge modifications including installation of anti-throw screens and lift/canopy connection
- former Commonwealth Bank – footpath regrading along the Pacific Highway entrance.

b) Operation phase

During the operation of the Proposal, the retained footbridge would provide a positive heritage benefit. Other heritage impacts are expected to be minor to moderate as it impacts the heritage fabric and values of the station due to the following:

- the lifts would extend above the footbridge canopy in height
- the expanded Hill Street entrance introducing increased station elements of canopies, reduced vegetation, retaining wall and altered access to connect to the new lift
- the regraded station access from the Pacific Highway would alter the ground level to the adjacent former Commonwealth Bank Building
- provision and placement of the boarding assistance zone canopy and platform canopies
- regrading and resurfacing of the platform
- modifications to the existing footbridge and new anti-throw screens and lift connection
- modification of the station building to include upgraded toilets provision of new and upgraded interchange facilities along Hill Street including undercover bicycle rack spaces, accessible parking spaces, kiss and ride bay, waiting shelter and upgraded bus shelter
- provision of upgraded bus shelter and seating along the Pacific Highway.

Overall, the operational heritage impacts are expected to be minor to moderate with minor impacts to the noted heritage items (Roseville Station Group and former Commonwealth Bank). The mitigation measures outlined in Section 7.2 would ensure that any noted impacts would be minimised.

6.5.3. Mitigation measures

The mitigation measures for potential non-Aboriginal heritage impacts are described in Table 7.1 in Section 7.2. The following are a summary of site-specific mitigation measures recommended for this Proposal:

- detailed design would consider a selection of compatible materials and colours suitable to minimise heritage impacts including:
  - the colour and texture of the concrete base of the lift so as to complement the existing surrounding heritage elements
  - materials for the retaining walls and footpath to match existing sandstone or brick walling
  - provisions for lightweight or transparent materials (e.g. lifts, anti-throw screens)

- management of trees and vegetation:
  - new landscaping to offset the lost vegetation and trees including small trees and shrubs in consideration of Sydney Trains requirements of EMS-06-TP-0095 Station Garden Bed Technical Specification or equivalent
  - remaining trees protected during construction
  - new landscaping compatible with existing station design (e.g. early twentieth-century rockery garden)
- the canopy design would consist of a lightweight and freestanding design which is not physically attached to existing station elements and would not obscure the footbridge trestle
- heritage interpretation opportunities would be investigated and implemented during detailed design
- the form, materials and finishes of the anti-throw screens would be further developed during detailed design as follows:
  - the line of the existing footbridge balustrade should continue through to define the original form of the bridge and the screens should be placed above and below the existing balustrade and in line with a small gap between
  - the upper section of the screens should be lighter colour or more transparent than the lower section to provide increased transparency and views to the station
- footpath regrading along the Pacific Highway would minimise impacts to the former Commonwealth Bank including:
  - avoiding covering any subfloor air vents, damp proof courses or terrazzo stair and horizontal banding
  - providing a gap maintained between the footpath and the former bank building
  - installation of a solid damp proof membrane installed against the wall of the bank to avoid future damp issues in the wall.

6.6. Biodiversity

This section provides a summary of the *Biodiversity Impact Assessment* prepared by WSP (2020c) and *Arboricultural Impact Assessment Report* prepared by Earthscape Horticultural Services (2020) (refer to Technical Paper 5). The assessment included the following tasks:

- review of legislative context including NSW and Commonwealth legislation
- desktop assessment to identify threatened species
- assessment using data sources including site survey for verification, aerial photographs, priority weeds search from Department of Primary Industries, background documents from the Preliminary Environmental Assessment and various database searches
- tree assessment following the Visual Tree Assessment procedure
- impact assessment of the Proposal on ecology and potential tree removal impacts and pruning with associated mitigation measures as required.

6.6.1. Existing environment

Vegetation communities

One vegetation community was recorded within or adjacent to the Proposal during the field survey.

Highly disturbed areas with no or limited native vegetation

This non-native vegetation community occurs over all vegetated areas within the Proposal area with all associated works being located within this vegetation type. This community includes the 'Urban exotic/native' miscellaneous ecosystem which was comprised of ornamental landscape plantings, exotic lawn and environmental weeds. Section 4.2 of the *Biodiversity Impact Assessment* (WSP, 2020c) summarises the identified vegetation community into two categories of dominant canopy species and dominant ground strata species. Figure 6.22 to Figure 6.25 show some of the identified vegetated community for the station. The vegetation accounts for 0.38 hectares of the Proposal.

Figure 6.22 Located north-west of Roseville Station with exotic grasslands dominated by *Ehrharta erecta (Panic Veldtgrass) in the foreground and exotic planted canopy species in the background**

Figure 6.23 Located south-west of Roseville station showing an exotic understorey dominated by *Hedera helix (Ivy) and planted *Melaleuca quinquenervia* (Broad-leaved Paperbark)**

Figure 6.24 Planted exotic canopy species within the rail corridor

Figure 6.25 Planted and non-planted exotic canopy species within the rail corridor

Trees

The original vegetation of the surrounding area of the station is tall open forest (Blue Gum High Forest) which was progressively logged for timber-getting from early in the nineteenth century then cleared for agricultural use (mainly orchards and market gardens) and later for residential development.

The dominant locally-indigenous tree species is the Sydney Blue Gum (*Eucalyptus saligna*) and Blackbutt (*Eucalyptus pilularis*). There are 18 existing trees in the Proposal area, which are listed in detail in the *Aboricultural Impact Assessment Report* (Earthscape Horticultural Services, 2020). Only one tree is classified as 'high retention value', which is a London Plane tree (*Platanus x hybrida*). There are also nine trees with 'moderate' retention value.

Figure 6.26 show the location of trees near the Proposal.

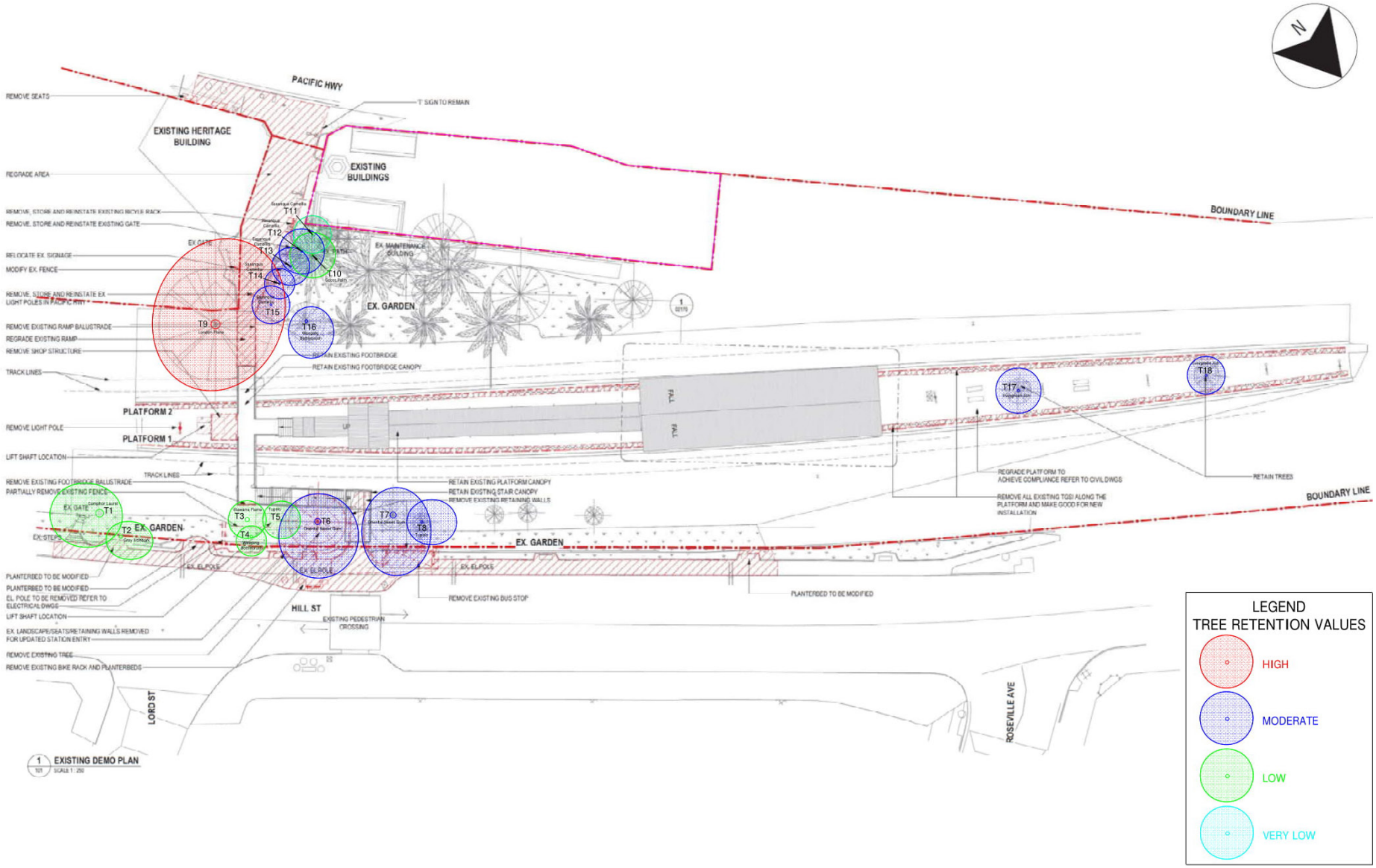

Figure 6.26 Existing trees in the Proposal

Fauna habitats

The fauna habitat within the Proposal is limited, with majority of vegetation consisting of planted ornamental native and exotic/native trees and shrubs.

Much of the vegetation within the Proposal has been previously cleared for rail infrastructure and urban development and what remains provides highly modified habitat. The habitat and vegetation within the Proposal provides limited resources and generally lacks important features such as hollow bearing trees, rocky outcrops or fallen woody debris.

There are no dominant habitat for fauna and species as well as habitat connectivity. Fauna in the area are those that are well adapted to urban environments or those species that are highly mobile (i.e. birds and bats). The surrounding trees (both native and introduced) provide some foraging habitat (i.e. fruits and blossom) for mobile species (i.e. birds and bats) including foraging habitat for the Powerful Owl and Grey-headed Flying-fox. It is unlikely that these resources are heavily utilised or relied upon by the majority of fauna but instead are intermittently used whilst foraging within a wider area.

Weeds

There are four Priority Weeds listed under the Biosecurity Act 2015 for the Greater Sydney Region were identified in the Proposal area including the following:

- Asparagus Fern (Asparagus aethiopicus)
- Cape Broom (Genista monspessulana)
- Lantana (Lantana camara)
- African Olive (*Olea europea* var. *cuspidata*)

The Asparagus Fern, Cape Broom and Lantana are listed as Weeds of National Significance (WONs).

Trees identified as Environmental Weed Species within the LGA is the Cocos Palm (*Syagrus romanzoffianum*) noted as T10.

Threatened biodiversity

Threatened Ecological Community

There are no threatened ecological communities identified within the Proposal.

Threatened Flora

No threatened flora species were identified during site inspections. Background investigations identified 37 threatened flora species listed under the BC Act and/or EPBC Act that were considered to have the potential to occur within the area of the Proposal. The Proposal is considered unlikely to provide habitat for any threatened flora species based on the availability of habitats present and results of the site inspection. Threatened flora likelihood of occurrence assessments are provided in Technical Paper 5.

No assessments of significance for any threatened flora species listed under either the BC Act or EPBC Act are considered necessary to assess the impacts of the Proposal.

Threatened Fauna

No threatened fauna species were identified during site inspections. Background investigations identified 71 threatened fauna species listed under the BC Act and/or EPBC Act that have been previously recorded or have the potential to occur within the area of the Proposal. The likelihood of these species occurring within the Proposal was determined based on field investigations and fauna habitat available.

The likelihood of these species occurring within the Proposal was determined as moderate to high including the Grey-headed Flying-fox (*Pteropus poliocephalus*) and Powerful owl (*Ninox strenua*). Both species are identified as Vulnerable under the BC Act and the Grey-headed Flying-fox is also identified as Vulnerable under the EPBC Act.

The habitat within the Proposal is foraging habitat only and represents a small proportion of available habitat within locality. Other habitats within the locality are of higher quality. It is considered unlikely that this species relies on habitat within the Proposal.

Migratory species

Migratory species are protected under international agreements, to which Australia is a signatory, including Japan Australian Migratory Bird Agreement (JAMBA), China Australia Migratory Bird Agreement (CAMBA), Republic of Korea Australia Migratory Bird Agreement (RoKAMBA) and the Bonn Convention on the Conservation of Migratory Species of Wild Animals. Migratory species are considered NES and are protected under the EPBC Act.

A total of 37 species listed as migratory under the EPBC Act were identified during background investigations (excluding marine species) that have been previously recorded or have the potential to occur within the Proposal area. Of these, two species are considered likely to utilise the habitat including the Fort-tailed Swift (*Apus pacificus*) and White-throated Needletail (*Hirundapus caudacutus)*; however, they have the potential to use a wide variety of habitats and only likely to be in the air space of the Proposal intermittently.

The habitat present is unlikely to support these migratory species nor are the habitats critical to any of their life stages. Due to their mobile nature, the mentioned species are likely to utilise higher quality habitat within the greater locality and where more extensive tracts of native vegetation occur. Because of this, the mentioned species would not be considered to be significantly impacted by the action proposed for the construction and operation of the Proposal and are not considered further in this assessment.

6.6.2. Potential impacts

a) Construction phase

Direct and indirect impacts

Removal of vegetation

Vegetation clearing would be minimal and limited to about 0.05 hectares of Highly Disturbed Areas with No or Limited Native Vegetation including native/exotic ornamental plantings, environmental weeds and exotic lawn. Direct impacts to biodiversity from the Proposal are negligible due to the existing disturbed nature of the available habitat and the nature of the construction works undertaken.

No impacts to patches of remnant vegetation or high-quality fauna habitat are predicted to result from the Proposal. Direct mortality or trauma to fauna is also expected to be minimal as habitat removed is of low quality (i.e. planted native trees and landscape gardens).

The visual impact of vegetation removal during construction is discussed in Section 6.2.2.

Removal of trees

A total of 12 trees have been identified for as requiring removal for the Proposal (T2, T3, T4, T5, T6, T7, T10, T11, T12, T13, T14 and T15) to allow for the construction of the Proposal. Five of these trees are required to be removed to accommodate the Hill Street entrance upgrade. The removal of these trees would result in visual and heritage impacts.

Identified trees for removal within the Proposal area have generally been classified as having low and moderate ecological value and do not form part of any threatened ecological community or important habitat for threatened species.

Most of the trees identified within the Proposal area do not contain important habitat features (i.e. hollows for breeding) for any potential threatened species known or predicted to occur except for T2 Grey Ironbark. This tree contains a cavity that may be suitable as a nesting hollow for arboreal mammals or birds; however, there were no other visible signs of wildlife habitation. There is unlikely to be an impact to threatened species or ecological communities, or their habitats.

Impacts to threatened fauna

Two threatened fauna (Grey-headed Flying-fox (*Pteropus poliocephalus*) and Powerful Owl (*Ninox strenua*)) are considered to have a moderate to high likelihood to occur within the Proposal and as a result be potentially impacted by the Proposal. As stated, no Assessments of Significance for both species have been undertaken and concluded that these species are not considered likely to be significantly impacted by the Proposal.

The mitigation measures outlined below in Section 7.2 would ensure that any possible indirect impacts would be minimised.

Potential environmental impact of noise, light and vibrations on wildlife

Noise from the existing rail corridor and arterial roads are part of the background noise levels; however, there may be additional noise during construction causing additional disturbance to animals. The impacts from noise emissions would be localised close to the Proposal and are not likely to have a significant long-term impact on wildlife populations, given that populations are already exposed to noise associated with the existing rail corridor.

For light pollution, the area has moderate light pollution due to the existing train station and carpark. The increase of lighting during construction of the Proposal is likely to be inconsequential and ecological light pollution impact would be unlikely.

Weeds

The Proposal is unlikely to impact any Priority Weeds listed under the *Biosecurity Act 2015* for the Greater Sydney Region such that they would pose a risk to any areas of native vegetation. No construction works of the Proposal are within or near the identified Priority Weeds.

b) Operation phase

The operation of the Proposal is not anticipated to result in any impacts to biodiversity.

6.6.3. Mitigation measures

Construction and operation of the Proposal would be undertaken in accordance with Transport for NSW's *Vegetation Management (Protection and Removal) Guideline* (TfNSW, 2015a), Transport for NSW's *Fauna Management Guideline* (TfNSW, 2019d) and Transport for NSW's *Biodiversity Offsets Calculator* (TfNSW, 2019e).

There are 12 trees identified requiring offsets, as shown on Figure 6.26. It is expected that 40 trees would be required to meet this offset requirement. Details of tree species and number offsets are in Appendix 3 of *Aboricultural Impact Assessment Report* (Earthscape Horticultural Services, 2020).

Refer to Table 7.1 in Section 7.2 for the proposed mitigation measures.

6.7. Socio-economic impacts

6.7.1. Existing environment

Overview

The Proposal is located in the suburb of Roseville in the Ku-ring-gai LGA. The immediate surrounding land uses are local centre and high-density residential, mostly comprising retail and small business. The larger area is characterised generally by low and medium density residential lots. Figure 6.27 shows the land zoning surrounding the Proposal. The main station car parking is located on the northern side of the station of Hill Street with 31 spaces.

The closest residences are about 15 metres from the proposed construction compound, and 35 metres from the Proposal. The closest residences are about 100 metres from the Station footbridge. Residential sensitive receivers nearby the Proposal are mainly located on Lord Street, Roseville Avenue and the Pacific Highway. There are 63 businesses within 100 metres of the Proposal, with the closest being approximately five metres from the Proposal.

Demographics

Roseville has a population of about 10,000 people with a median age of 38. About 92 per cent of the residents are working full- or part-time identifying as working age people. For those working, about 20 per cent travel to work by train, second only to driving a car at about 40 per cent (ABS, 2016). Roseville Station's patronage is about 5,800 people per day (TfNSW, 2018b).

Access to Roseville Station is limited for mobility-impaired people, and customers with luggage or prams. Roseville's population has a marginally higher percentage of senior and elderly at about 10 per cent compared to the Greater Sydney Region of 9 per cent (ABS, 2016). The community also has about 900 residents who provide assistance to a person with a disability.

Community Plan

The *Ku-ring-gai Community Strategic Plan 2038* (the Plan) establishes social justice principles equity, access, participation and rights as guiding principles. The Plan identifies the need to plan for an ageing population, protect the local heritage, and increase the access to and patronage on public transport. Ku-ring-gai Council plans to improve the accessibility of the pedestrian network with public transport infrastructure and highlights the need to collaborate with public agencies to deliver this outcome (Ku-ring-gai Council, 2018).

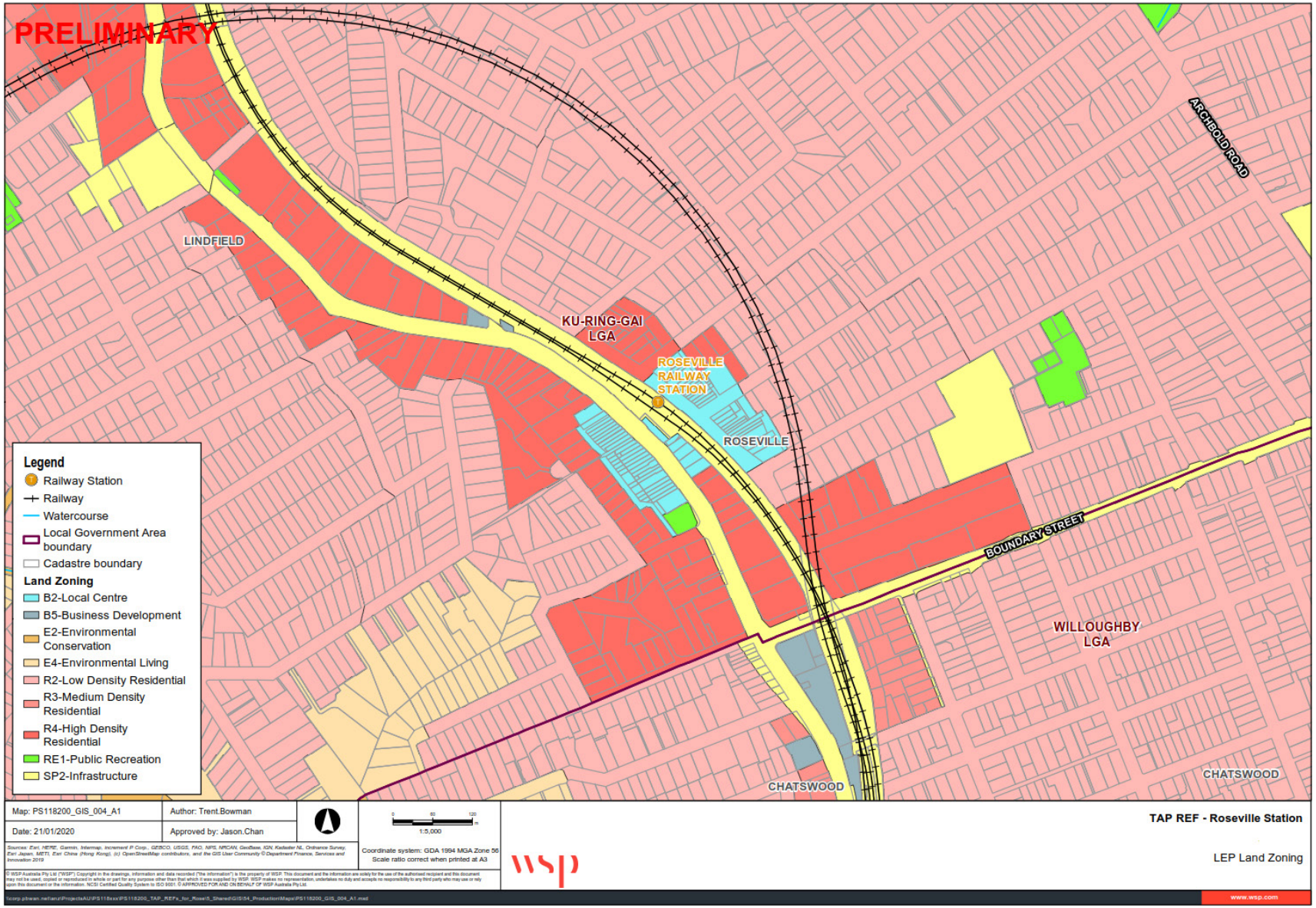

Figure 6.27 Land zoning of the area surrounding the Proposal

6.7.2. Potential impacts

a) Construction phase

The construction of the Proposal has the potential to temporarily impact customers pedestrians, residents, motorists and other sensitive receivers as a result of:

- temporary changes to vehicular, bicycle and pedestrian access to, through and around the station
- temporary closures of Roseville Station to accommodate construction work
- temporary one-lane closures of Hill Street
- potential closure of about 50 metres of the parking lane on the Pacific Highway during rail shutdown periods
- out of hours works prior to shutdown periods for the delivery of materials, and set up
- temporary loss of all 31 parking spaces in the commuter car park and station staff car park
- closure of the retail kiosk at station
- temporary disruptions to station facilities and amenities (e.g. seating, toilets, telephone booth, bicycle storage)
- temporary impacts to local traffic movements due to an increase in truck movements in the area, delivering site materials, plant and equipment
- construction noise, dust and visual impacts.

These impacts as a result of the Proposal would decrease the local amenity and may impact the activities at local community and religious facilities, such as the Roseville Uniting Church, Roseville Memorial Park and St Andrew's Anglican Church due to construction noise.

Other socio-economic impacts related to the construction of the Proposal include potential impacts to local businesses. Surrounding businesses near the Proposal may experience increased traffic impacts during construction, particularly during intermittent one-lane closures of Hill Road from rail shutdown periods. Businesses located along the Pacific Highway are not expected to have significant impacts as construction work is limited north of the Pacific Highway.

The Proposal may also result in some minor benefits for the local businesses due to the increased personnel on site (as high as 40 during shutdown periods); however, this increase in customers is minimal as the neighbourhood is known to have high pedestrian traffic from the local community.

Access for emergency services would be maintained at all times. During rail shutdown periods, a section of Hill Street adjacent to the Station may be closed temporarily to facilitate construction activities. If road closures are required, traffic mitigation measures and a detour would be implemented. Pedestrian access to businesses along Hill Street would not be impeded, however there would be disruption to pedestrians crossing the rail corridor.

Refer to Sections 6.1, 6.2 and 6.3 for discussion of the potential traffic, visual and noise impacts respectively arising from construction of the Proposal, and proposed mitigation strategies.

b) Operation phase

Overall, the Proposal would provide socio-economic benefits to Roseville and the Ku-ring-gai LGA through:

- improved accessibility for customers at Roseville Station with improved connectivity from Hill Street of accessible paths and new lift connection from the Pacific Highway to the platform
- improved customer amenity and facilities at the station including a new family accessible toilet and two new unisex ambulant toilets, wayfinding signage, and platform-level weather protection
- improved transport interchange facilities, including a formal kiss and ride, bicycle storage facility, and improved bus stops and seating on both the Pacific Highway and Hill Street
- potential increased use of public transport to and from Roseville
- additional lighting and CCTV would improve Crime Prevention Through Environmental Design outcomes in the area.

The Proposal would involve permanent closure of the retail kiosk currently situated on the existing footbridge. The operator of the kiosk has been consulted during early planning stages by Sydney Trains, and the existing retail lease would expire before construction of the Proposal is scheduled to begin. While the closure of the kiosk would be an adverse socio-economic impact, a general store (Roseville Newsagency), located nearby on Hill Street would continue to provide similar goods and services. As a result, there would only be minor impact to the broader community.

6.7.3. Mitigation measures

Impacts on the community would be managed by ensuring that access to, from and around the station would be maintained at all times, although there may be temporary changes to access routes. The community would be provided with information of any changes in advance and would also be provided with contact details to make any complaints regarding the construction of the Proposal.

Refer to Table 7.1 in Section 7.2 for a full list of proposed mitigation measures.

6.8. Contamination, geology and soils

6.8.1. Existing environment

Landform, geology and soils

The natural topography in the vicinity of the station is a gentle peak at about 100 metres above Australian Height Datum (mAHD), and slopes gently towards the east. The *1:100,000 Geological Series Sheet Sydney 9130* (NSW Department of Mineral Resources, 1983) indicates that the Proposal is underlain by Ashfield Shale, which is comprised of black to dark-grey shale and laminite.

The 1:100,000 Soil Landscape Series Sheet (Chapman et al, 2009) indicates that the soil profile surrounding Roseville Station is underlain by the Glenorie Soil Landscape. This is described as an erosional soil landscape, occupying rolling low hills on Wianamatta Group Shales. The landscape comprises predominantly shallow to moderately deep soils, around 100 centimetres thick. Limitations associated with the soil landscape include high soil erosion hazard, localised impermeable highly plastic subsoil and moderate reactivity.

Acid Sulfate Soils

A review of the eSPADE mapping tool sourced from the NSW Soil and Land Information System was performed on 1 June 2020. The search for acid sulfate soil risk indicated that the Proposal has no risk or no known occurrence (DPIE, 2020a).

Contamination

Given the historical use of the Proposal as a rail corridor, there is potential for contaminants to be present within the soils underlying the area. Historic activities associated with rail corridors that have the potential to result in contamination include the introduction of fill materials including ash, fuel or oil spills and accidental leaks or spills from maintenance and operational activities. Given the age of the station building, there is also potential for asbestos materials and lead paint to be encountered.

A search of the public register of notices issued by the NSW EPA under *Contaminated Land Management Act 1997* was conducted on 30 January 2020 (NSW EPA, 2020) and found that there are no sites with notices within 500 metres of the proposal. The nearest notified site is a former Caltex service station at 607 Pacific Highway, Chatswood, about 2.2 kilometres south of the Proposal.

6.8.2. Potential impacts

a) Construction phase

The Proposal would require minor excavation work for the installation of the lift foundation and pit. Other minor trenching or excavation may be required for footpath grading and road work related to accessible car parking spaces and kiss and ride.

Soil disturbance

Excavation and other earthworks such as trenching and stockpiling activities, if not adequately managed, could result in the following impacts:

- erosion of exposed soil and stockpiled materials
- dust generation from excavation and vehicle movements over exposed soil
- increase in sediment loads entering the stormwater system and/or local runoff.

Such impacts can be a nuisance to community members and/or lead to an adverse environmental impact on biodiversity, for example through the introduction of sediment into waterways. These impacts are expected to be minor due to the limited level of ground disturbance required for the Proposal and the relatively flat topography and stability of the Proposal.

Erosion risks can be adequately managed through the implementation of standard measures as outlined in *Managing Urban Stormwater: Soils and Construction Guidelines* (Landcom, 2004) (the Blue Book).

Contamination

Excavation also has the potential to expose contaminants, which if not appropriately managed, can present a health risk to construction workers and the community. The exposure of contaminants is likely to be minor as no identified contaminants have been identified.
If contaminants are discovered however, this could also pose an environmental risk should they enter nearby waterways through the stormwater infrastructure.

Although there is currently no known asbestos within the Proposal, there is the potential risk to disturb asbestos containing material and other hazardous substances. There is also potential for construction activities to result in the contamination of soil through accidental fuel or chemical spills from construction plant and equipment.

Appropriate mitigation measures would be implemented to manage any hazardous substances encountered during demolition work. This would include the removal of hazardous materials by appropriately licensed asbestos/hazardous waste removalists (refer to Section 6.8.3 below).

b) Operation phase

There would be no ongoing operational risks to the geology and soils as a result of the Proposal.

6.8.3. Mitigation measures

Refer to Table 7.1 in Section 7.2 for a full list of proposed mitigation measures with respect to potential soil and contamination impacts.

6.9. Hydrology and water quality

6.9.1. Existing environment

Surface water

A review of NSW Department of Planning, Industry and Environment maps of the area indicate that the nearest surface water body is an unnamed tributary to Blue Gum Creek about 375 metres south-west of Roseville Station (DPIE, 2019). Stormwater from the residential and commercial properties in Roseville travels into this watercourse, then further into Blue Gum Creek and the Lane Cover River. Other surface water bodies nearby include Moore's Creek about 880 metres north-east, and Sugarbag Creek about one kilometre west of the Proposal. The Proposal is located on the western boundary of the Middle Harbour catchment.

Roseville Station is located on a local geological peak, and therefore is unlikely to experience localised flooding during high rainfall events.

Groundwater

The depth to groundwater within the Proposal area is unknown. A search of the WaterNSW groundwater database however indicates that there are 13 registered groundwater bores within 500 metres of the Proposal (WaterNSW, 2020). According to Ku-ring-gai Council, groundwater use near the Proposal is limited due to the elevation of development areas, and the depth to groundwater (Ku-ring-gai Council, 2008).

The closest bore is about 370 metres north of the Proposal, is for domestic purposes, and registers a standing water level of 65 metres below ground. Two other bores with recorded data on standing water levels are over 400 metres south and register standing water at 3.9 and 8.8 metres below ground, respectively.

Water quality

The nearest surface water quality monitoring station is two kilometres west of the Proposal and measures Little Blue Gum Creek. The water here measures 'fair' overall, with degraded physical and chemical conditions, excellent microbial health, and a very poor water bug ecosystem (Ku-ring-gai Council, 2019b). The water quality is poor or very poor with respect to electrical conductivity, dissolved oxygen and nitrogen (ammonium). The SIGNAL 2 score for Little Blue Gum Creek is 'very poor', indicating the macroinvertebrate communities surrounding the Creek have been badly impacted by pollution and physical or chemical influences (Ku-ring-gai Council, 2016b).

6.9.2. Potential impacts

a) Construction phase

Excavation to install the two new lifts and footpath works have the potential to impact on local waterways due to increased erosion and sedimentation from exposed soil and stockpiles. However, due to the minor extent of excavation proposed, and the distance from the Proposal to the nearest watercourse, these impacts are expected to be negligible.

Additionally, fuels, chemicals or wastewater from accidental spills during construction could potentially enter stormwater drains and flow into nearby waterways. However, standard mitigation measures would be implemented during construction to minimise this risk.

The installation of platform piles would be to a maximum depth of about 12 metres below existing ground level. As there is no consistency between the depth to groundwater of the identified bores closest to the Proposal, the depth to groundwater within the Proposal area remains uncertain. As groundwater flow generally follows topography, the bores south of the Proposal are most relevant to potential groundwater impacts. Due to the distance of these bores from the proposal, over 400 metres, it is unlikely that the installation of platform piles would have an impact on the groundwater quality or quantity of these bores. Should groundwater be encountered during excavation works, groundwater would be managed in accordance with the requirements of the *Waste Classification Guidelines* and Transport for NSW's *Water Discharge and Reuse Guideline*.

WaterNSW requires that any impacts from the Proposal must result in neutral or beneficial effect (NoRBE) on water quality for proposal's located within a drinking water catchment. This includes an assessment of the adequacy of the mitigation methods and safeguards to be implemented. The Proposal is not located within a drinking water catchment. As such, a NoRBE assessment was not required to be undertaken for the Proposal.

b) Operation phase

The Proposal is unlikely to have an impact on the hydrology or water quality. Alterations to the access path from the Pacific Highway and Hill Street would result in minor alterations to the existing surface water flow regime within the station precinct. No platform regrading is proposed so surface water flow is expected to be similar to existing conditions. There would no major increase in impervious surface area within the precinct and any alterations would be within the capacity of the local stormwater network. Therefore, operational hydrology impacts are expected to be minor.

6.9.3. Mitigation measures

Refer to Table 7.1 in Section 7.2 for a full list of proposed mitigation measures with respect to water quality and hydrology.

6.10. Air quality

6.10.1. Existing environment

Regional air quality

The air quality monitoring results for the Macquarie Park station are the most representative of air quality at Roseville. A search of the daily site air quality index for Macquarie Park for last year (January 2019 to December 2019) showed 'very good' to 'fair' air quality on 330 days. Macquarie Park station recorded 18 days across 2019 where $PM_{2.5}$, and 16 days where PM_{10} levels exceeded EPA guidelines (DPIE, 2019).

Air pollutant sources

Based on the existing land uses surrounding the Proposal, the existing air quality is considered characteristic of an urban environment. A search of the National Pollutant Inventory undertaken on 31 January 2020 for the 2017 to 2018 reporting period identified no air polluting sources in Ku-ring-gai LGA (Department of Environment and Energy, 2018). Other contributors to air quality within the Proposal would include emissions from motor vehicles on the surrounding road network, and the diesel trains on the adjoining rail corridor.

Sensitive receivers

Sensitive receivers in the vicinity of the Proposal include the following:

- local residents along Lorde Street, Hill Street and Roseville Avenue
- businesses along Hill Street and the Pacific Highway
- customers including train passengers using Roseville Station.

6.10.2. Potential impacts

a) Construction phase

The main air quality impacts that have the potential to occur during construction would be temporary impacts associated with dust particles and emissions of carbon monoxide, sulfur dioxide, particulate matter (PM_{10}), nitrous oxides, volatile organic compounds, and polycyclic aromatic hydrocarbons associated with the combustion of diesel fuel and petrol from construction plant and equipment.

Anticipated sources of dust and dust-generating activities include:

- excavation for the foundation and pit of the lift
- stockpiling activities
- loading and transfer of material from trucks
- other general construction activities.

The Proposal is likely to have a minimal impact on air quality as it would not involve extensive excavation or other land disturbance with the potential to generate significant quantities of dust. The operation of plant, machinery and trucks may also lead to increases in exhaust emissions in the local area however these impacts would be minor and short-term.

b) Operation phase

Overall impacts of air quality during the operation of the Proposal are considered minimal as the Proposal would not result in a significant change in land use. Additionally, as the Proposal would increase access to public transport, the use of public transport is anticipated to benefit air quality in the long term due to potential reduction of the private vehicle.

6.10.3. Mitigation measures

Refer to Table 7.1 in Section 7.2 for a full list of proposed mitigation measures with respect to potential air quality impacts.

6.11. Waste and resources

6.11.1. Potential Impacts

Construction

The construction of the Proposal would generate a range of waste streams including the following:

- asphalt and concrete
- earthworks spoil
- building material wastes (including metals, timbers, plastics, concrete and carpeting)
- electrical wiring and conduit waste (from electrical connections)
- fuels, liquids and chemicals
- green waste (including weeds)
- demolition waste from the existing footpaths, and from the internal walls of the toilets, including potential asbestos and hazardous materials
- general waste, including food and other wastes generated by construction workers.

Waste management would be undertaken in accordance with the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act). A Waste Management Plan would be prepared that would identify all potential waste streams associated with the work and outline methods of disposal of waste that cannot be reused or recycled at appropriately licensed facilities along with other onsite management practices such as keeping areas free of rubbish.

The handling, storage, transport and disposal of asbestos and hazardous waste (including any lead waste) would be in accordance with the requirements of relevant EPA and Safe Work NSW guidelines. Waste management targets in consideration of the Infrastructure Sustainability Rating Scheme – Version 1.2 (ISCA, 2018) would be developed for the Proposal and would include reuse and recycling.

Operation

The Proposal would not result in changes to operational waste management arrangements.

6.11.2. Mitigation measures

Refer to Table 7.1 in Section 7.2 for a full list of the proposed mitigation measures with respect to potential waste and resource impacts.

6.12. Hazard and risk

6.12.1. Existing environment

The existing environment of the Proposal consists of predominantly rail infrastructure. Land use surrounding Roseville Station is mainly commercial properties with low-medium density residential properties surrounding those commercial lots.

There are potential risks in the existing environment including:

- working within the railway vicinity with potential risk of injury
- bushfire
- live services (e.g. electricity) which have the potential to cause injury.

6.12.2. Potential impacts

a) Construction phase

Risks associated with the construction of the Proposal would include:

- occupational work health and safety issues associated with the workforce undertaking the construction and the construction methods used including:
  - conflict with overheard services resulting from crane operating closer to overhead service
  - conflict with unknown buried services
  - collision between vehicles.
- environmental impacts from the transport, storage and use of fuels, chemicals and other dangerous goods required for the construction work
- environmental impacts from the generation, storage, treatment and/or disposal of Proposal-related wastes, including hazardous wastes (e.g. asbestos and PCBs) and sanitary waste from temporary construction facilities
- bushfire risk resulting from:
  - construction activities that are not conducted in accordance with standard work procedures including inappropriate storage of flammable chemicals from potential ignition source
  - electrical fault from equipment used during construction if powered device are not maintained.
- limiting local access due to temporary and partial closure of Hill Street and the Pacific Highway which leads to:
  - potential delayed responses to incidents due to limited access for emergency services
  - disturbance to businesses and residents.

b) Operation phase

Risks and hazards associated with the operation of the Proposal are minimal and not expected to be significant.

6.12.3. Mitigation measures

Refer to Table 7.1 in Section 7.2 for a full list of the proposed mitigation measures with respect to potential hazards and risk.

6.13. Sustainability

The design of the Proposal would be based on the principles of sustainability, including targeting for an 'Excellent' rating under the Infrastructure Sustainability Council of Australia's (ISCA) Infrastructure Sustainability (IS) Rating Tool Version 1.2.

Further positive impacts in relation to climate change and sustainability associated with the Proposal include encouraging a reduction in private vehicle use and increase the accessibility of public transport services.

Through the Transport for NSW *Social Procurement Workforce (SPW) Policy* (TfNSW, 2017b), Transport for NSW would also encourage industry to develop a socially sustainable inclusive workforce that addresses issues such as employment inclusiveness, diversity, capability development and safety when delivering Transport for NSW projects including this Proposal.

The SPW Policy outlines processes and activities required to conduct a workforce social impact assessment that would develop a plan containing:

- an assessment of the potential workforce within the region
- an analysis of the project workforce needs
- a workforce social impact management plan
- a range of employment outcomes for identified communities
- processes to manage, monitor, and review the progress of key performance indicators.

6.14. Climate change

The dynamic nature of our climate system indicates a need to focus attention on how to adapt to the changes in climate and understand the limitation of adaptation. The climate risk assessment as part of the *Roseville Preliminary Environmental Assessment* identified the Proposal to have a low value environment and social risk (Roseville Station Accessibility Upgrade Preliminary Environmental Assessment, 2019).

The assessment identified the following key findings:

- opportunities to investigate for stormwater infrastructure to accommodate greater volumes of stormwater under projected increases in rainfall
- compulsory sustainability requirements of ISCA
- exploration for the Proposal to incorporate sustainable renewable energy.

Climate risks were posed by variables across extreme heat and heatwaves, bushfires, precipitation and flooding, and storms and strong winds. Consideration of the potential climate change impacts on the Proposal identified the following impacts that would require further design considerations:

- increased frequency of hot days and daily mean temperature which can lead to heat stress and solar exposure for rail customers
- increased severe fire weather which needs to be considered in design to mitigate hazards during an emergency
- increased bushfire risk which could impact Information and Communication Technologies (ICT) networks affecting communication and emergency response management
- power outages as a result of weather may increase the risk of lighting loss and other technological issues.

The following adaption actions would be considered in the next design stage:

- must consider the increase of bushfire risk due to a predicted increase in severe bushfire weather days and a predicted increase in temperature. This could be achieved through the choice of building materials and through the consideration of exit points
- must consider increased drainage capacity to accommodate for an increase of storms and flood events due to a predicted increase in precipitation and severe weather events
- should consider the use of photo luminescent strips and products on ramps/stairs to direct passengers towards exits in the event of an emergency or power outage
- ensure there are sufficient measures for Information and Communication Technologies and lift equipment from extreme weather events.

Climate change adaptation measures would be further considered during detailed design and constructed where appropriate. Climate Change Adaptation benchmark requirements will be targeted as part of the IS Rating Submission.

6.15. Greenhouse gas emissions

An increase in greenhouse gas emissions, primarily carbon dioxide, would be expected during construction of the Proposal due to exhaust emissions from construction machinery and vehicles transporting materials and personnel to and from the site.

The detailed design process would undertake a compliant carbon footprinting exercise in accordance with Transport for NSW's Carbon Estimate and Reporting Tool Manual (TfNSW, 2017c). The carbon footprint would to be used to inform decision making in design and construction. Greenhouse gas emissions will also be assessed in accordance with the ISCA IS Rating Tool V1.2.

Due to the small scale of the Proposal and the short-term temporary nature of the individual construction work, it is considered that greenhouse gas emissions resulting from the construction of the Proposal would be minimal. Furthermore, greenhouse gas emissions generated during construction would be kept to a minimum through the implementation of the standard mitigation measures detailed in Table 7.1 in Section 7.2.

It is anticipated that, once operational, the Proposal may result in an increase in use of public transport and a relative decrease in use of private motor vehicles by commuters to travel to and from Roseville. A modal shift in transport usage may reduce the amount of fuel consumed by private motor vehicles with a corresponding relative reduction in associated greenhouse gas emissions in the local area.

6.16. Cumulative impacts

6.16.1. Existing or potential projects

Cumulative impacts occur when two or more projects are carried out concurrently and in close proximity to one another. The impacts may be caused by both construction and operational activities and can result in a greater impact to the surrounding area than would be expected if each project was undertaken in isolation. Multiple projects undertaken at a similar time/similar location may also lead to construction fatigue, particularly around noise, traffic and air quality impacts, if not appropriately managed.

A search of the NSW Government Major Projects Register (DPIE, 2020b), the Willoughby Council Planning Register (Willoughby Council, 2020), and the Ku-ring-gai Development Application Register (Ku-ring-gai Council, 2020) was performed in June 2020.

The following current and proposed projects have been identified as the most likely to contribute to cumulative impacts from the Proposal, due to their timing, scale and/or proximity to the Proposal as noted below.

Roseville College, New Sport and Wellbeing Centre

The Roseville College proposal involves construction of a new purpose-built indoor swimming pool. The development also features a nutrition and food technology space, flexible general learning areas, outdoor multi-purpose sports courts and underground car parking spaces for staff and students. At the time of writing, Roseville College was responding to submissions on their EIS. The site is located about 300 metres east of Roseville station.

Roseville Memorial Club

The Roseville Memorial Club proposal involves the demolition of existing structures at no. 64-66 and part of no. 62 Pacific Highway, including the Roseville Memorial Club and retail tenancy which is located about 140 metres away from the Proposal. The subsequent

development would include a mixed-use business, comprising a new ground floor Memorial Club, shop-top housing of 33 residential dwellings, basement parking and associated works. The site is located about 135 metres south of Roseville Station.

The construction traffic for this proposal will peak at 20 vehicle movements a day. This traffic will utilise the Pacific Highway adjacent to Roseville Station.

KOPWA Archbold House Redevelopment Project

This project involves demolition of the existing structures at no. 12-16 Trafalgar Avenue, Roseville which is located about 400 metres from the Proposal. Subsequent development comprises the construction of a residential aged care facility, housing 101 residents, basement car parking, and associated landscaping works. At the time of writing, this project has received DA approval, and was awaiting Construction Certificate approval.

St Andrews Anglican Church

Works have been approved at St Andrews Anglican Church on Hill Street, Roseville which is located about 230 metres away from the Proposal. These works include demolition of the existing church hall and rectory, construction of a new church hall and rectory, alterations to the church building and construction of a basement car park. A modification to the original development application was approved on 26 June 2019.

6.16.2. Potential impacts

Construction phase

There would be minor cumulative impacts related to the Proposal due to increased construction noise and vibration, air quality and traffic impacts during standard construction hours for those living and working around the Proposal.

Substantial impacts may occur during rail shutdown periods due to the temporary lane closure of Hill Street and increased construction activity along the Pacific Highway. During this construction period and adjoining projects, increased noise and vibration, traffic and air quality impacts are expected.

The potential cumulative impacts associated with the Proposal would be further considered as the design develops and as further information regarding the location and timing of potential developments is released.

Operation phase

Operational cumulative impacts are not expected and the Proposal would provide an environmental benefit. Traffic and transport impacts are likely to be positive, as traffic congestion may be slightly improved due to increased public transport use.

6.16.3. Mitigation measures

Consultation and liaison would occur with Ku-ring-gai Council and nearby businesses and community groups and other developers identified, to minimise cumulative construction impacts such as traffic and noise.

The potential cumulative impacts associated with the Proposal would be further considered as the design develops and as further information regarding the location and timing of potential developments is released. Environmental management measures would be developed and implemented as appropriate.

Based on this assessment, the cumulative impacts would be minor.

Refer to Table 7.1 in Section 7.2 for a full list of the proposed mitigation measures with respect to potential cumulative impacts.

7. Environmental management

This chapter of the REF identifies how the environmental impacts of the Proposal would be managed through environmental management plans and mitigation measures.

7.1. Environmental management plans

A CEMP for the construction phase of the Proposal would be prepared in accordance with the requirements of the Transport for NSW EMS. The CEMP would provide a centralised mechanism through which all potential environmental impacts relevant to the Proposal would be managed and outline a framework of procedures and controls for managing environmental impacts during construction.

The CEMP would also include at a minimum all environmental mitigation measures identified below in Section 7.2 any conditions from licences or approvals required by legislation, and a process for demonstrating compliance with such mitigation measures and conditions.

7.2. Mitigation measures

Mitigation measures for the Proposal are listed in Table 7.1. These proposed measures would minimise the potential adverse impacts of the Proposal identified in Chapter 6, should the Proposal proceed.

Table 7.1 Proposed mitigation measures

No.	Mitigation measure
	General
1.	A Construction Environmental Management Plan (CEMP) would be prepared by the Construction Contractor in accordance with the relevant requirements of *Guideline for Preparation of Environmental Management Plans* (NSW Department of Infrastructure, Planning and Natural Resources, 2004) for approval by Transport for NSW, prior to the commencement of construction and following any revisions made throughout construction.
2.	A project risk assessment including environmental aspects and impacts would be undertaken by the Construction Contractor prior to the commencement of construction and documented as part of the CEMP.
3.	An Environmental Controls Map (ECM) would be developed by the Construction Contractor in accordance with Transport for NSW's *Guide to Environmental Controls Map* (TfNSW, 2018c) (ECM) for approval by Transport for NSW, prior to the commencement of construction and following any revisions made throughout construction.
4.	Prior to the commencement of construction, all contractors would be inducted on the key project environmental risks, procedures, mitigation measures and conditions of approval.
5.	Site inspections to monitor environmental compliance and performance would be undertaken during construction at appropriate intervals.
6.	Service relocation would be undertaken in consultation with the relevant authority. Contractors would mark existing services on the ECM to avoid direct impacts during construction.
7.	Any modifications to the Proposal, if approved, would be subject to further assessment and approval by Transport for NSW.

No.	Mitigation measure
	Traffic and transport
8.	Prior to the commencement of construction, a Construction Traffic Management Plan (CTMP) would be prepared as part of the Construction Environmental Management Plan and would include at a minimum: • ensuring adequate regulatory road signage, line marking and all other traffic control devices necessary to inform motorists and pedestrians of the work site ahead to ensure that the risk of road accidents and disruption to surrounding land uses is minimised • maintaining a reasonable level of public access across the rail corridor and to public transport services • ensuring access to the railway station is always maintained outside of the scheduled track shutdown periods • ensuring access to stations, businesses, and residential properties (unless affected property owners have been consulted and appropriate alternative arrangements made) • managing impacts and changes to on and off-street parking and requirements for any temporary replacement provision • parking locations for construction workers to be limited within the site compound and details of how this will be monitored for compliance • routes to be used by heavy construction-related vehicles to minimise impacts on sensitive land uses and businesses • delivery schedules, speed limits and circulation recommendations for construction vehicles. Consultation with the relevant road's authorities would be undertaken during preparation of the CTMP and obtaining necessary Road Occupancy Licences for temporary road closures. The performance of all project traffic arrangements must be monitored during construction.
9.	Communication would be provided to the community and residents to inform them of changes to parking, pedestrian or cyclist access and/or traffic conditions including vehicle movements and anticipated effects on the local road network relating to site works.
10.	Suitable vehicle, pedestrian and cyclist paths would be maintained throughout the construction of the proposed upgrade to ensure safe and easy access throughout the interchange outside of the scheduled track shutdown periods.
11.	Suitable pedestrian provisions would be made to ensure that pedestrian connectivity between bus stops is not impacted as a part of the works and that suitable and safe paths are provided.
12.	Qualified traffic controllers would be used during construction works to ensure safe and efficient movement of vehicle and pedestrian traffic on the external road as well as in and out of the construction site.
13.	Fencing and barriers would be installed between construction site and outside construction zone to ensure safe and easy navigation of pedestrians and cyclists.
14.	A drive-through assessment or swept path analysis would be conducted to demonstrate that sufficient manoeuvring space is provided for the largest design vehicle along the proposed haulage route.
15.	A Traffic Control Plan (TCP) would be developed for any construction works that requires lane closure along the Pacific Highway and/or Hill Street. The TCP would be implemented to ensure adequate warning and guidance is provided to road users, thus minimising road related traffic impacts. The TCP would be required to be submitted to the Transport Management Centre (TMC), Transport for NSW, where required. This would include provision for traffic controllers to monitor and manage traffic around lane closures including that on Hill Street and the Pacific Highway.
16.	A Road Occupancy license and crane permits would be required for operating within the road reserve of Hill Street. Consultation with Council would be required to minimise the impact of crane operations on Hill Street.

No.	Mitigation measure
17.	A temporary access permit for overweight vehicles on Hill Street would be required to enable movements of heavy vehicles exceeding a three tonne Gross Vehicle Mass.
18.	The existing stair access to Roseville Station platform would be maintained during lift installation. If any closure of the existing stair access is required for the lift installation, the construction works would be undertaken during a scheduled rail shutdown periods to minimise the impacts to pedestrians.
19.	Installation of new DDA compliant ramps, lifts and stairs (including the demolition of existing non-complaint paths) would be staged to minimise the impacts to pedestrians and cyclists accessing the station.
20.	Safe vehicular movements through and past the construction areas would be maintained throughout construction. Suitable access would also be maintained between Roseville Station and the surrounding road network.
21.	Alternative route information (i.e. detour route between the Pacific Highway and Hill Street) would be provided when the overbridge at Roseville Station is temporarily closed during rail shutdown periods.
22.	New or relocated bicycle racks would be provided as soon as practicable to limit impacts to cyclists requiring these facilities.
	Landscape and visual amenity
23.	An Urban Design Plan and Landscaping Plan would be submitted to Transport for NSW by the Construction Contractor and endorsed by the Precincts and Urban Design team. The Urban Design Plan is to address the fundamental design principles as outlined in '*Around the Tracks' – urban design for heavy and light rail*, TfNSW, Interim 2016. The Urban Design Plan and Landscaping Plan would: • demonstrate a robust understanding of the site through a comprehensive site analysis to inform the design direction, demonstrate connectivity with street networks, transport modes, active transport options, and pedestrian distances • identify opportunities and challenges • establish site specific principles to guide and test design options • demonstrate how the preferred design option responds to the design principles established in 'Around the Tracks', including consideration of Crime Prevention through Environmental Design Principles.
24.	The Urban Design Plan and Landscaping Plan would include the Public Domain Plan for the chosen option and would provide analysis of the: • landscape design approach including design of pedestrian and bicycle pathways, street furniture, interchange facilities, new planting and opportunities for public art • materials schedule including materials and finishes for proposed built works, colour schemes, paving and lighting types for public domain, fencing and landscaping • an artist's impression or photomontage to communicate the proposed changes to the precinct.
25.	The following design guidelines are available to assist and inform the Urban Design Plan and Landscaping Plan for the Proposal: • *TAP Urban Design Plan, Guidelines*, TfNSW, Draft 2018 • *Commuter Car Parks, urban design guidelines*, TfNSW, Interim 2017 • *Managing Heritage Issues in Rail Projects Guidelines*, TfNSW, Interim 2016 • *Creativity Guidelines for Transport Systems*, TfNSW, Interim 2016 • *Water Sensitive Urban Design Guidelines*, TfNSW Projects, 2016.

No.	Mitigation measure
26.	Endorsement of the Urban Design Plan and Landscaping Plan would demonstrate compliance with the Conditions of Approval in the Review of Environmental Factors (REF) Determination Report. The Urban Design Plan and Landscaping Plan shall be: • prepared prior to concept design and finalised • prepared in consultation with Local Council and relevant stakeholders • prepared by a registered Architect and/or Landscape Architect.
27.	Temporary access arrangements would be communicated through appropriate signage and provide a visually legible route for pedestrians.
28.	The potential installation of a green wall at the Hill Street lift shaft would be further investigated during detailed design.
29.	Site equipment and facilities would be consolidated and limited to the nominated construction compound and laydown areas to maximise the area of useable public realm and maintain pedestrian access across the footbridge where possible.
	Noise and vibration
30.	Prior to commencement of works, a Construction Noise and Vibration Management Plan (CNVMP) would be prepared and implemented in accordance with the requirements of the ICNG and CNVS. The CNVMP would include the following: • a detailed noise assessment updated to consider potential noise impacts at all affected properties • avoiding any unnecessary noise when carrying out manual operations and when operating plant • ensuring spoil is placed and not dropped into awaiting trucks • avoiding/limiting simultaneous operation of noisy plant in discernible range of a sensitive receiver where practicable • switching off any equipment not in use for extended periods (e.g. heavy vehicles engines would be switched off whilst being unloaded) • restriction of heavy vehicle movements to and from the site to standard (daytime) hours where feasible and avoiding deliveries at night/evenings wherever practicable • no idling of delivery trucks • keeping truck drivers informed of designated routes, parking locations and acceptable delivery hours for the site • compounds, refuelling areas and work areas designed to promote one-way traffic so that vehicle reversing movements are minimised. • minimising talking loudly; no swearing or unnecessary shouting, or loud stereos/radios onsite; no dropping of materials from height where practicable, no throwing of metal items and slamming of doors. • maximising offset distances between noisy plant and adjacent sensitive receivers and determining safe working distances • using the most suitable equipment necessary for the construction works at any one time • directing noise-emitting plant away from sensitive receivers • regularly inspecting and maintaining plant to avoid increased noise levels from rattling hatches, loose fittings etc • using non-tonal reversing/movement alarms such as broadband (non-tonal) alarms or ambient noise-sensing alarms for all plant used regularly onsite (greater than one day), and for any out of hours works • use of quieter and less vibration emitting construction methods where feasible and reasonable.

No.	Mitigation measure
31.	Construction hours and scheduling would be as follows: • works would generally be carried out during standard construction hours (i.e. 7.00 am to 6.00 pm Monday to Friday; 8.00 am to 1.00 pm Saturdays). Any works outside these hours may be undertaken if approved by Transport for NSW and the community is notified prior to these works commencing. An Out of Hours Work application form would be prepared by the Construction Contractor and submitted to the Transport for NSW Environment and Planning Manager for approval prior to any works outside normal hours.
32.	Respite periods would be as follows: • where the $L_{Aeq\ (15minute)}$ construction noise levels are predicted to exceed 75 dBA and/or 30 dB above the Rating Background Level at nearby affected sensitive receivers, respite periods would be observed, where practicable, and in accordance with the CNVS. This would include restricting the hours that very noisy activities can occur.
33.	Vibration monitoring requirements would be as follows: • to avoid structural impacts as a result of vibration or direct contact with structures, the Proposal would be undertaken in accordance with safe work distances and attended vibration monitoring. If required, vibration trials would be undertaken where these distances are required to be challenged • vibration resulting from construction and received at any structure outside of the Proposal would be managed in accordance with: – for structural damage vibration – British Standard BS 7385 Part 2-1993 *Evaluation and measurement for vibration in buildings* – for human exposure to vibration the acceptable vibration - values set out in the *Environmental Noise Management Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006) which includes British Standard *BS 6472:1992 Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz)* • property condition surveys would be completed prior to any vibration intensive work being carried out at or within the minimum distances set out in the CNVS. Minimum working distances would be confirmed prior to carrying out any vibration intensive work on site • vibration-sensitive heritage structures that are potentially at risk of threshold or cosmetic damage would be identified by the Construction Contractor prior to the commencement of construction works and confirmed as part of a CNVMP.
34.	Vibration-sensitive heritage structures that are potentially at risk of threshold or cosmetic damage would be identified by the Construction Contractor prior to the commencement of construction works and confirmed as part of a CNVMP. Vibration resulting from construction and received at any structure outside of the Proposal would be managed in accordance with: • for structural damage vibration – British Standard BS 7385 Part 2-1993 *Evaluation and measurement for vibration in buildings* (BSI, 1993). • for human exposure to vibration the acceptable vibration – values set out in the *Environmental Noise Management Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006) which includes British Standard BS *6472:1992 Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz)* (BSI, 1992).
35.	Temporary barriers would be erected to ensure that work would be conducted behind hoardings/screens wherever practicable to reduce potential noise impacts. The installation of construction hoarding would take into consideration the location of sensitive receivers to ensure that 'line of sight' is broken, where feasible.
36.	The use of concrete saw(s) and chainsaw(s) would be limited where possible and works using this equipment would be undertaken during standard hours and avoid sensitive time periods. Where work is required outside of standard hours, the use of this equipment is to avoid sensitive periods such as after midnight and before 7:00 am where practicable.

No.	Mitigation measure
37.	Due to the high exceedances of NMLs during Scenarios 2 to 6, where concrete saws are to be used near sensitive receivers, a temporary screen or enclosure (10-15 dB reduction) would be placed around the works in conjunction with other temporary barriers.
38.	Consultation would be undertaken with operators of nearby commercial properties to determine feasible construction staging to minimise potential impacts. This would include, effectively communicating likely impacts, potential periods of high intensity works, and development of a schedule of consultation for program intensive works. Respite periods would be observed, where practicable, and in accordance with the Transport for NSW CNVS.
	Aboriginal heritage
39.	All construction staff would undergo an induction in the recognition of Aboriginal cultural heritage material. This training would include information such as the importance of Aboriginal cultural heritage material and places to the Aboriginal community, as well as the legal implications of removal, disturbance and damage to any Aboriginal cultural heritage material and sites.
40.	If unforeseen Aboriginal objects are uncovered during construction, the procedures contained in Transport for NSW's *Unexpected Heritage Finds Guideline* (TfNSW, 2016a) would be followed, and works within the vicinity of the find would cease immediately. The Construction Contractor would be required to immediately notify the Transport for NSW Project Manager and Transport for NSW Environment and Planning Manager so they can assist in co-ordinating next steps which are likely to involve consultation with an Aboriginal heritage consultant, the EES and the Local Aboriginal Land Council.
41.	If human remains are found, work would cease, the site secured and the NSW Police and the EES notified. Where required, further archaeological investigations and an Aboriginal Heritage Impact Permit would be obtained prior to works recommencing at the location.
	Non-Aboriginal heritage
42.	In the event that any unanticipated archaeological deposits are identified within the project site during construction, the procedures contained in Transport for NSW's *Unexpected Heritage Finds Guideline* (TfNSW, 2016a) would be followed, and works within the vicinity of the find would cease immediately. The Construction Contractor would be required to immediately notify the Transport for NSW Project Manager and the Transport for NSW Environment and Planning Manager so they can assist in co-ordinating the next steps which are likely to involve consultation with an archaeologist and Heritage NSW. Where required, further archaeological work and/or consents would be obtained for any unanticipated archaeological deposits prior to works recommencing at the location.
43.	During detailed design, appropriate materials and colours would be selected to minimise potential heritage impacts including: • the colour and texture of the concrete base of the lift so as to complement the existing surrounding heritage elements • materials for the retaining walls and footpath to match existing sandstone or brick walling • provisions for lightweight or transparent materials (e.g. lifts, anti-throw screens).
44.	Management of trees and vegetation would include: • new landscaping to offset the lost vegetation and trees including small trees and shrubs in consideration of Sydney Trains requirements of EMS-06-TP-095 Station Garden Bed Technical Specification or equivalent • protection of remaining trees during construction • new landscaping compatible with existing station design (e.g. early twentieth-century rockery garden).
45.	The canopy design would consist of a lightweight and freestanding design which is not physically attached to existing station elements and would not obscure the footbridge trestle.

No.	Mitigation measure
46.	Heritage interpretation opportunities would be investigated and implemented during detailed design.
47.	The form, materials and finishes of the anti-throw screens would be further developed in detailed design as follows: • the line of the existing footbridge balustrade should continue through to define the original form of the bridge and the screens should be placed above and below the existing balustrade and in line with a small gap between • the upper section of the screens should be lighter colour or more transparent than the lower section to provide increased transparency and views to the station.
48.	To minimise impacts to the former Commonwealth Bank Building during footpath regrading along the Pacific Highway, the detailed design would ensure that covering any subfloor air vents, damp proof courses or terrazzo stair and horizontal banding would be avoided. A gap would be maintained between the footpath and the former bank building. A solid damp proof membrane would be installed against the wall of the bank to avoid future damp issues in the wall.
	Biodiversity
49.	Construction of the Proposal must be undertaken in accordance with TfNSW's *Vegetation Management (Protection and Removal) Guideline SD-111* (TfNSW, 2015a) and TfNSW's *Fauna Management Guideline SD-113* (TfNSW, 2019d).
50.	All workers would be provided with an environmental induction prior to commencing work onsite. This induction would include information on the protection measures to be implemented to protect vegetation, penalties for breaches and locations of areas of sensitivity.
51.	Trees/vegetation nominated to be removed in the Proposal plans would be clearly demarcated onsite prior to construction, to avoid unnecessary vegetation removal. Trees to be retained would be protected through temporary protection measures discussed below.
52.	Site environmental representative would conduct a pre-clearance inspection to identify the presence of any active bird nests which may be erected prior to tree clearing. If identified, clearing of these trees would be postponed until the nestlings have fledged. Alternatively, a suitably qualified and licensed ecologist or spotter catcher would be engaged to relocate the nest to an appropriate location.
53.	Stockpiles, plant, equipment and materials storage would be located in existing cleared areas away from areas of native vegetation.
54.	Where the loss of trees is unable to be mitigated, Transport for NSW would replace trees removed in accordance with the Transport for NSW's *Vegetation Offset Guide* (TfNSW, 2019f). It is expected that 40 trees would be required to meet this offset requirement.
55.	In the event that any tree identified for retention is damaged during construction, the Construction Contractor would be required to immediately notify the Transport for NSW Project Manager and Transport for NSW Environment and Planning Manager to coordinate a response. This may include actions such as contacting an arborist to inspect and provide advice on remedial action, where possible.
56.	If a threatened and/or protected flora or fauna species is identified during works associated with the Proposal, works near the species would stop immediately. An ecologist would be engaged to survey the area, in conjunction with Transport for NSW's Environmental Representative, to advise on management of the species on site.
57.	Should the detailed design or onsite works determine the need to remove or trim any additional trees, which have not been identified in the REF, the Construction Contractor would be required to complete Transport for NSW's Tree Removal Application Form and submit it to Transport for NSW for approval.

No.	Mitigation measure
58.	For new landscaping works, mulching and watering would be undertaken until plants are established.
59.	Weed control measures, consistent with Transport for NSW's *Weed Management and Disposal Guideline* (TfNSW, 2015b), would be developed and implemented as part of the CEMP to manage the potential dispersal and establishment of weeds during the construction and operational phase of the Proposal. This would include the management and disposal of weeds in accordance with the *Biosecurity Act 2015.*
	Socio-economic
60.	Sustainability criteria for the Proposal would be established to encourage the Construction Contractor to purchase goods and services locally, helping to ensure the local community benefits from the construction of the Proposal.
61.	Feedback through the submissions process would be encouraged to facilitate opportunities for the community and stakeholders to have input into the project, where practicable.
62.	A Community Liaison Plan would be prepared prior to construction to identify all potential stakeholders and best practice methods for consultation with these groups during construction. The plan would also encourage feedback and facilitate opportunities for the community and stakeholders to have input into the project, where practicable.
63.	Contact details for a 24-hour construction response line, Project Infoline and email address would be provided for ongoing stakeholder contact throughout the construction phase.
64.	The community would be kept informed of construction progress, activities and impacts in accordance with the Community Liaison Plan to be developed prior to construction.
	Soils and water
65.	Prior to commencement of work, a site-specific Erosion and Sediment Control Plan would be prepared in accordance with the *'Blue Book' Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) and updated throughout construction so it remains relevant to the activities. The Erosion and Sediment Control Plan measures would be implemented prior to commencement of works and maintained throughout construction.
66.	Erosion and sediment control measures would be established prior to any clearing, grubbing and site establishment activities and would be maintained and regularly inspected (particularly following rainfall events) to ensure their ongoing functionality. Erosion and sediment control measures would be maintained and left in place until the works are complete and areas are stabilised.
67.	All fuels, chemicals and hazardous liquids would be stored away from drainage lines, within an impervious bunded area in accordance with Australian Standards, EPA Guidelines and Transport for NSW's *Chemical Storage and Spill Response Guidelines* (TfNSW, 2018d).
68.	Adequate water quality and hazardous materials procedures (including spill management procedures, use of spill kits and procedures for refuelling and maintaining construction vehicles/equipment) would be implemented in accordance with relevant EPA guidelines and the Transport for NSW *Chemical Storage and Spill Response Guidelines* (TfNSW, 2018d) during the construction phase. All staff would be made aware of the location of the spill kits and be trained in how to use the kits in the case of a spill.
69.	In the event of a pollution incident, works would cease in the immediate vicinity and the Construction Contractor would immediately notify the Transport for NSW Project Manager and Transport for NSW Environment and Planning Manager. The EPA would be notified by Transport for NSW if required, in accordance with Part 5.7 of the POEO Act.
70.	The existing drainage systems would remain operational throughout the construction phase.
71.	Should groundwater be encountered during excavation works, groundwater would be managed in accordance with the requirements of the *Waste Classification Guidelines* (EPA, 2014) and Transport for NSW's *Water Discharge and Reuse Guideline* (TfNSW, 2017d).

No.	Mitigation measure
72.	Opportunities to improve stormwater runoff quality in the study area would be investigated during detailed design.
	Air quality
73.	Air quality management and monitoring for the Proposal would be undertaken in accordance with TfNSW's *Air Quality Management Guideline* (TfNSW, 2018e).
74.	Methods for management of emissions would be incorporated into project inductions, training and pre-start/toolbox talks.
75.	Plant and machinery would be regularly checked and maintained in a proper and efficient condition. Plant and machinery would be switched off when not in use, and not left idling.
76.	Vehicle and machinery movements during construction would be restricted to designated areas and sealed/compacted surfaces, where practicable.
77.	To minimise the generation of dust from construction activities, the following measures would be implemented: • apply water (or alternate measures) to exposed surfaces (e.g. unpaved roads, stockpiles, hardstand areas and other exposed surfaces) • cover stockpiles when not in use • appropriately cover loads on trucks transporting material to and from the construction site and securely fix tailgates of road transport trucks prior to loading and immediately after unloading • prevent mud and dirt being tracked onto sealed road surfaces.
	Waste and contamination
78.	The CEMP (or separate Waste Management Plan, if necessary) must address waste management and would at a minimum: • identify all potential waste streams associated with the works and outline methods of disposal of waste that cannot be reused or recycled at appropriately licensed facilities • detail other onsite management practices such as keeping areas free of rubbish • specify controls and containment procedures for hazardous waste and asbestos waste • outline the reporting regime for collating construction waste data.
79.	An appropriate Unexpected Finds Protocol, considering asbestos containing materials and other potential contaminants, would be included in the CEMP. Procedures for handling asbestos containing materials, including licensed contractor involvement as required, record keeping, site personnel awareness and waste disposal to be undertaken in accordance with WorkCover requirements.
80.	All spoil to be removed from site would be tested to confirm the presence of any contamination. Any contaminated spoil would be disposed of at an appropriately licensed facility.
81.	All spoil and waste must be classified in accordance with the *Waste Classification Guidelines Part 1: Classifying waste* (NSW EPA, 2014) prior to disposal.
82.	Any concrete washout would be established and maintained in accordance with Transport for NSW's *Concrete Washout Guideline* – (TfNSW, 2019g) with details included in the CEMP and location marked on the ECM.
	Sustainability, climate change and greenhouse gases
83.	Detailed design of the Proposal would target a rating of 'Excellent' using the ISCA Infrastructure Sustainability Rating Scheme v1.2.

No.	Mitigation measure
	Cumulative
84.	Consultation and liaison would be undertaken with Ku-ring-gai Council, Roseville College, St Andrews Anglican Church, Roseville Memorial Club and other relevant stakeholders, to minimise cumulative construction impacts such as traffic and noise.
85.	The potential cumulative impacts associated with the Proposal would be further considered as the design develops and as further information regarding the location and timing of potential developments is released. Environmental management measures would be developed in the CEMP and implemented as appropriate.

8. Conclusion

This REF has been prepared in accordance with the provisions of Section 5.5 of the EP&A Act, taking into account to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the Proposal.

The Proposal would provide the following benefits:

- a station that provides improved accessibility to people with a disability, limited mobility, parents/carers with prams and customers with luggage
- modernisation of the existing station building and facilities that meet the needs of a growing population
- improved access facilities for all customers using Roseville Station.

The following key impacts have been identified should the Proposal proceed:

- increased traffic due to lane closure along Hill Street and the Pacific Highway during rail shut down periods
- closure of the commuter car park for the duration of construction for use as a site compound and worker facilities
- temporary and minor disruptions to the community and commuters for access to the station during construction and rail shut down periods
- noise exceedances during most construction scenarios during standard construction hours
- noise exceedances during most construction scenarios for predicted sleep disturbance
- a minor to moderate adverse heritage impact to the station due to the installation of anti-throw screens on the footbridge, ramp modifications, new lifts and vegetation removal
- moderate adverse visual impacts due to the installation of lifts, expanded Hill Street station entrance and removal of vegetation to accommodate these works
- loss of vegetation and the removal of 12 trees
- permanent closure of the retail kiosk near the entrance of the Pacific Highway.

This REF has considered and assessed these impacts in accordance with clause 228 of the EP&A Regulation and the requirements of the EPBC Act (refer to Chapter 6, Appendix A and Appendix B). Based on the assessment contained in this REF, it is considered that the Proposal is not likely to significantly affect the environment. Accordingly, an EIS is not required, nor is the approval of the Minister for Planning and Public Spaces.

The Proposal has also taken into account the principles of ESD and sustainability (refer to Section 4.3 and Section 6.13). These would be considered further during the detailed design, construction and operational phases of the Proposal. This would ensure the Proposal is delivered to maximum benefit to the community, is cost effective and minimises any adverse impacts on the environment.

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Appendix A Consideration of matters of National Environmental Significance

The table below demonstrates Transport for NSW's consideration of the matters of NES under the EPBC Act to be considered in order to determine whether the Proposal should be referred to Commonwealth Department of the Environment and Energy.

Matters of NES	Impacts
Any impact on a World Heritage property? No World Heritage properties occur within a one-kilometre radius of the site.	Nil
Any impact on a National Heritage place? No National Heritage places occur within a one-kilometre radius of the site.	Nil
Any impact on a wetland of international importance? No wetlands of international importance are located within a one-kilometre radius of the site.	Nil
Any impact on a listed threatened species or communities? Based on available habitat and the potential impacts of the Proposal, it is unlikely that any threatened species or community will be impacted.	Nil
Any impacts on listed migratory species? No listed migratory species are likely to utilise the habitat.	Nil
Does the Proposal involve a nuclear action (including uranium mining)? The Proposal does not involve a nuclear action.	Nil
Any impact on a Commonwealth marine area? The Proposal would not impact on a Commonwealth marine area.	Nil
Does the Proposal involve development of coal seam gas and/or large coal mine that has the potential to impact on water resources? The Proposal is for a transport facility and does not relate to coal seam gas or mining.	Nil
Additionally, any impact (direct or indirect) on Commonwealth land? The Proposal would not impact on Commonwealth land.	Nil

Appendix B Consideration of clause 228

The table below demonstrates Transport for NSW's consideration of the specific factors of clause 228 of the EP&A Regulation in determining whether the Proposal would have a significant impact on the environment.

Factor	Impacts
(a) Any environmental impact on a community? There would be some temporary impacts to the community during construction, particularly in relation to noise, traffic and access and visual amenity. Mitigation measures outlined in Table 7.1 would be implemented to manage and minimise adverse impacts.	Minor
(b) Any transformation of a locality? The Proposal would involve the introduction of new visible elements in the landscape (two new lifts, canopy and minor adjustments/relocation of existing infrastructures). The appearance of the new station elements would be consistent with the existing station elements. The Proposal would have a positive contribution to the locality by creating accessible entrances to the station and station platforms.	Minor
(c) Any environmental impact on the ecosystem of the locality? The Proposal would require minor vegetation removal. However, given the Proposal's location within an urbanised environment and the low habitat value of the trees to be removed, impacts to biodiversity and ecosystems are expected to be minor.	Minor
(d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? There would be some temporary impacts during construction particularly in relation to noise, traffic and access and visual amenity. The Proposal would not result in any substantial reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality.	Minor
(e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations? No substantial heritage impacts are expected from the Proposal. A moderate impact is expected to the Roseville Station Group due to removal of trees, vegetation and planter bed to accommodate the new Hill Street station entrance. A minor heritage impact is expected for the adjacent former Commonwealth Bank from the new placement of sheltered bus stop and footpath regrading from the Pacific Highway entrance.	Minor
(f) Any impact on the habitat of protected fauna (within the meaning of the *National Parks and Wildlife Act 1974*)? The Proposal is unlikely to have any impact on the habitat of protected fauna.	Nil
(g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? The Proposal is unlikely to endanger any species of animal, plant or other form of life, whether living on land, in water or in the air.	Nil
(h) Any long-term effects on the environment? The Proposal is unlikely to have any long-term effects on the environment.	Nil
(i) Any degradation of the quality of the environment? The Proposal is unlikely to have any degradation on the quality of the environment.	Nil

Factor	Impacts
(j) Any risk to the safety of the environment? The Proposal is unlikely to cause any pollution or safety risks to the environment provided the recommended mitigation measures are implemented.	Nil
(k) Any reduction in the range of beneficial uses of the environment? The Proposal is unlikely to have any reduction in the range of beneficial uses of the environment.	Nil
(l) Any pollution of the environment? The Proposal is unlikely to cause any pollution or to the environment provided the recommended mitigation measures are implemented.	Nil
(m) Any environmental problems associated with the disposal of waste? All waste would be managed and disposed of with a site-specific Waste Management Plan. Mitigation measures would be implemented to ensure waste is reduced, reused or recycled where practicable.	Nil
(n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply? The Proposal is to unlikely increase demands on resources that are, or are likely to become, in short supply.	Nil
(o) Any cumulative environmental effect with other existing or likely future activities? The Proposal is unlikely to have cumulative impacts. However, and where feasible, environmental management measures would be co-ordinated to reduce any cumulative construction impacts.	Nil
(p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? The Proposal would not affect or be affected by any coastal processes or hazards.	Nil