Safe Accessible Transport program – Macquarie Fields

Traffic, Transport and Access Impact Assessment

Transport for NSW

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Document prepared by:

Aurecon Australasia Pty Ltd
ABN 54 005 139 873
Level 11, 73 Miller Street
North Sydney 2060 Australia
PO Box 1319
North Sydney NSW 2059
Australia

T +61 2 9465 5599
F +61 2 9465 5598
E sydney@aurecongroup.com
W aurecongroup.com

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Name	Dominic Lin	Name	Katie Mackenzie
Title	Engineer, Integrated Transport and Mobility	Title	Project Manager, Associate Environment and Planning

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Abbreviations

Term	Definition
ABS	Australian Bureau of Statistics
BAZ	Boarding Assistance Zone
CBD	Central Business District
CCP	Commuter Car Park Program
CCTV	Closed-circuit television
CDRL	Contract Deliverables Requirements List
CEMP	Construction Environmental Management Plan
CML	Concessional Mass Limit
CTMP	Construction Traffic Management Plans
DA	Development Application
DDA	*Disability Discrimination Act 1992*
DPHI	Department of Planning, Housing and Infrastructure
DSAPT	*Disability Standards for Accessible Public Transport 2002*
EP&A Act	*Environmental Planning and Assessment Act 1979 (NSW)*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2021 (NSW)*
EPA	Environment Protection Authority
GAV	General access vehicle
GML	General mass limit
HML	Higher mass limit
HV	Heavy vehicle
kmph	Kilometre per hour
LGA	Local government area
LoS	Level of service
LV	Light vehicle
NSW	New South Wales
NHVR	National heavy vehicle regulator
OSOM	Oversize overmass
PBS	Performance-based standards
RAV	Restricted access vehicle
REF	Review of environmental factors
RUM	Road user movement
SPECTS	Safety, Productivity and Environment Construction Transport Scheme
SPV	Special purpose vehicle

Term	Definition
SSD	State Significant Development
SSFL	Southern Sydney Freight Line
TAHE	Transport Asset Holding Entity of NSW
TAP	Transport Access Program
Transport	Transport for NSW
TGSI	Tactile ground surface indicators
TTIA	Traffic, transport and access impact assessment

1 Introduction

1.1 Purpose of this report

This report documents the traffic, transport and access impact assessment (TTIA) conducted to support the Macquarie Fields Station upgrade (the Proposal) for the Safe Accessible Transport program. The assessment was completed to support the Review of Environmental Factors (REF) prepared by Aurecon Australasia Pty Ltd on behalf of Transport for NSW (Transport). For the purposes of these works, Transport is the proponent and determining authority under Part 5, Division 5.1 of the *Environmental Planning and Assessment Act 1979 (NSW)* (EP&A Act).

This report has been prepared having regard to sections 5.5 and 5.7 of the EP&A Act, and section 171 of the *Environmental Planning and Assessment Regulation 2021 (NSW)* (EP&A Regulation), to ensure that Transport takes into account to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the Proposal.

The objective of this TTIA is to:

- provide an overview of the nearby existing transport network which may be impacted by the Proposal, considering all modes of transport such as vehicles, freight, public transport (including rail) and active transport
- provide detail on the construction and operation, including expected trip generation
- describe and assess the potential impacts of construction and operation of the Proposal on the surrounding transport network
- assess the cumulative impacts of planned infrastructure programs and significant developments which are anticipated in the area surrounding the Proposal
- propose mitigation measures to manage traffic and transport impacts of the Proposal.

1.2 The Proposal

The key features of the Proposal to provide accessibility upgrades to Macquarie Fields Station would include:

- construction of a new pedestrian footbridge with stairs and weather protection to provide access to the station platforms and subsequent removal of the existing footbridge (following completion of the new footbridge)
- installation of a three-stop lift connecting Railway Parade, Platform 2 and the new pedestrian footbridge, and installation of a two-stop lift connecting Platform 1 and the new pedestrian footbridge
- upgrade of the station access from Railway Parade, including a new compliant accessible ramp and stairs, and a new second set of stairs near the new footbridge to Platform 2
- upgrade to the station forecourt to include:
  - six accessible parking spaces (including one longer accessible parking space to accommodate accessible community transport vehicles)
  - two accessible kiss and ride spaces
  - a new pedestrian crossing across Railway Parade to the station entrance
  - bus stop relocation on Railway Parade
  - additional bicycle parking
  - associated footpath and kerb ramp upgrades and new lighting.

- modifications to the existing station building on Platform 2 to provide a new unisex ambulant toilet, a family accessible toilet, an electrical services enclosure and station storage facilities
- upgrade of the existing platform surfaces (through platform regrading and localised platform widening), new boarding assistance zone on Platform 1 and relocation of the boarding assistance zone on Platform 2, installation of tactile ground surface indicators (TGSIs) and provision of new canopies over the platforms near the new footbridge and boarding assistance zones
- provision of an accessible water refill station adjacent to the new family accessible toilet
- relocation of the memorial plaque adjacent to the main entrance stairs, subject to further stakeholder consultation during detailed design.
- upgrades of other facilities and station services to make them accessible including wayfinding signage, hearing augmentation, Opal card readers, help points and public phone as well as improvements to landscaping, lighting and CCTV.

An overview of the key features and location of the Proposal are provided in Figure 1-1 and Figure 1-2.

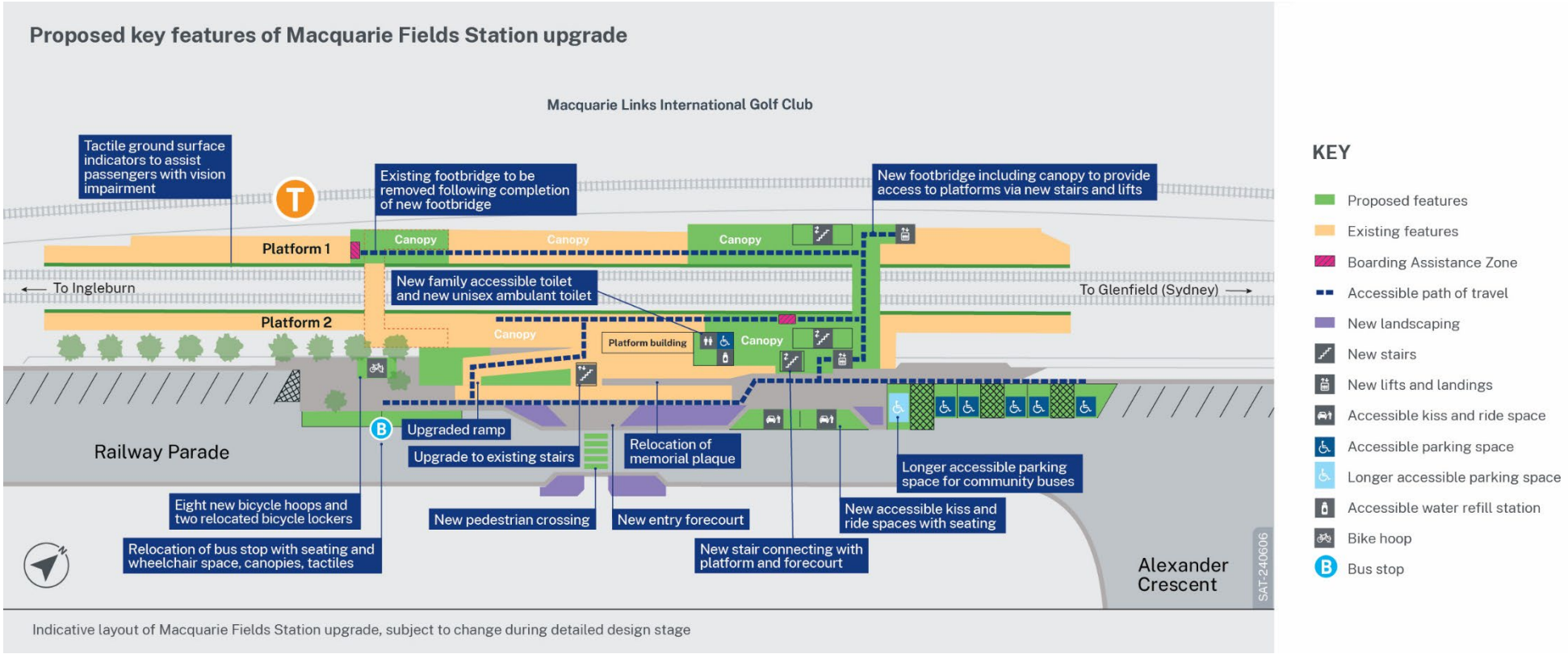
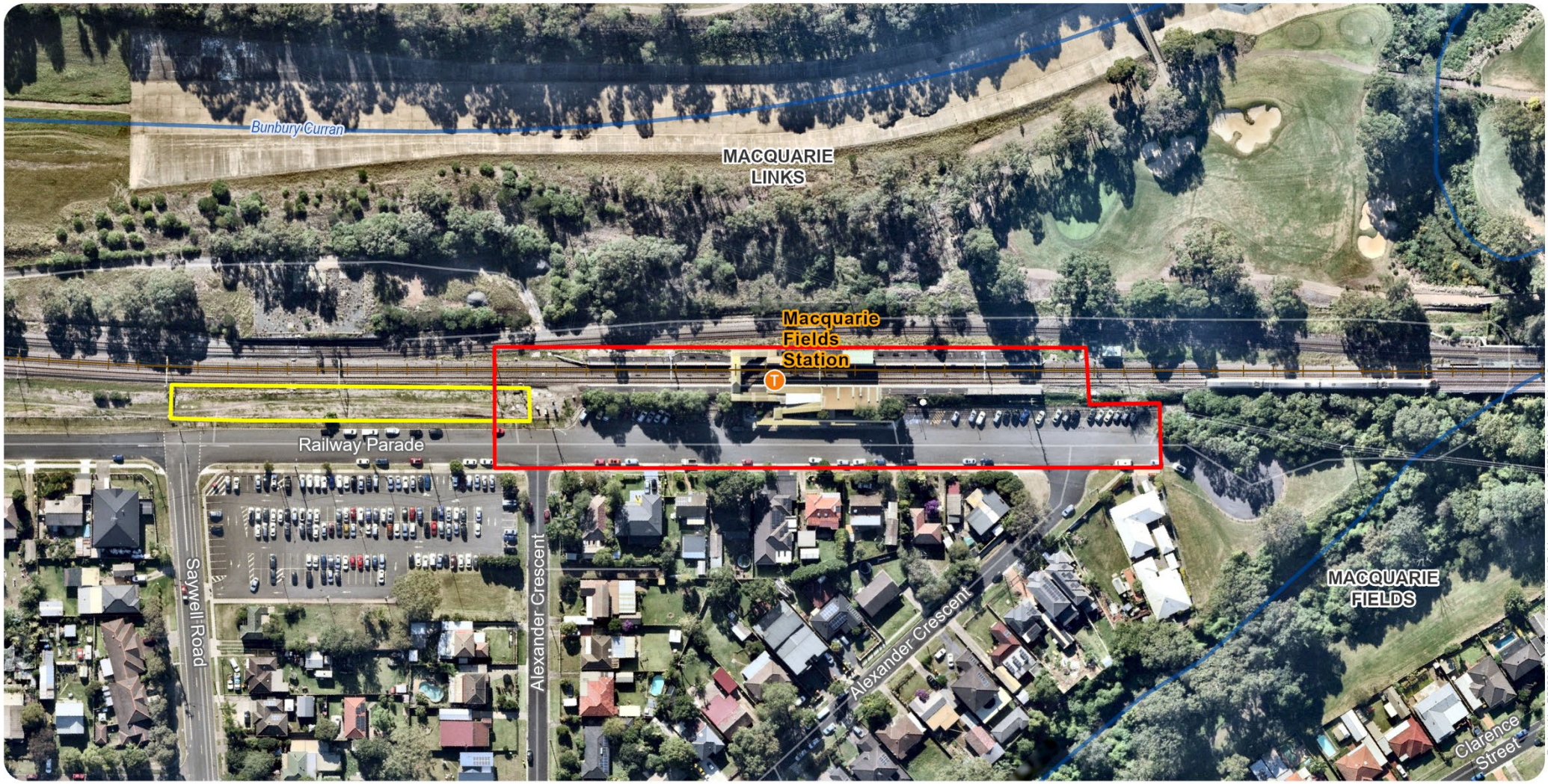


Figure 1-1 Proposed key features of Macquarie Fields Station upgrade



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Project No: P522314 Map Author: Virgil.Robinson Date: 9/07/2024 Revision: 0

Figure 1-2 Proposal footprint

2 Policy and planning context

The State legislation and policies applicable to this traffic and transport assessment are outlined in the following sections.

2.1 State legislation

2.1.1 Roads Act 1993

The objectives of the *Roads Act 1993* include the following:

- set out the rights of members of the public to pass along the road
- set out the rights of person who own land adjoining a public road to have access to the public road
- establish the procedures for opening and closing of a public road
- provide for the classification of roads, declare road authorities for both classified and unclassified roads and to confer certain functions of road authorities
- provide for distribution of functions conferred by the act between road authorities
- regulate carrying out of various activities on public roads.

Section 138(1)(a) of the *Roads Act 1993* describes activities not permitted without consent of the appropriate road authority including:

- a person must not:
  - erect a structure or carry out a work in, on or over a public road
  - dig up or disturb the surface of a public road
  - remove or interfere with a structure, work or tree on a public road
  - connect a road (whether public or private) to a classified road (being roads declared as a highway, main road, secondary road or tourist road).

2.2 Policy and strategic plans

2.2.1 NSW Heavy Vehicle Access Policy Framework 2018

NSW *Heavy Vehicle Access Policy Framework 2018* developed by Transport outlines a strategic approach to heavy vehicle access in NSW for both State and council roads aimed at achieving safe and efficient movement of road freight.

With staged implementation, the framework aims to create a performance-based standards (PBS) network with connectivity across the whole NSW road network to unlock freight productivity. This policy provides a strategic planning approach to heavy vehicle access and streamlined policy promoting access on a network basis rather than ad hoc decisions for access via permits.

2.2.2 2026 Road Safety Action Plan

The *2026 Road Safety Action Plan* developed by the NSW Government sets out a road safety delivery framework that focuses on enhancing education and local engagement, transforming the safety of the road network and accelerating safety features in vehicles. The plan adopts the principles of the Safe System approach, which aims to eliminate fatal and serious road injuries to all road users. The key priority areas highlighted in 2026 *Road Safety Action Plan* are:

- creating safer country roads and urban places
- enhancing road safety in local communities
- increasing the safety of light vehicles (LVs), heavy vehicles (HVs) and protective equipment
- making safer choices on our roads
- ensuring the safety of vulnerable and other at-risk road users.

The mitigation measures identified in Section 8 consider the approach to road safety and the key principles identified by the *2026 Road Safety Action Plan*, that aim to provide a safe temporary road environment.

2.2.3 Traffic Control at Work Sites – Technical Manual

The *Traffic Control at Work Sites* technical manual Version 6.1 (Transport, 2022) was developed by Transport to be applied to work sites requiring temporary traffic management. The purpose of this manual is to ensure best practices for traffic control at work sites. The manual also guides personnel involved in design, operation, and inspection of temporary traffic management plan to understand their obligation under *Work Health and Safety Act 2011* and the *Work Health and Safety Regulation 2017*. The technical manual contains instruction for the following:

- managing risks associated with temporary traffic management
- developing a traffic management plan
- design, select, obtain approval, record and storing traffic guidance schemes
- undertaking traffic management in several specific situations.

The technical manual refers to *Australian Standards AS1742 Manual of Uniform Traffic Control Devices (Standards Australia, AS1742))*, *Australian Standards AS1743 Road Signs – Specifications (Standards Australia, AS1743*) and *Australian Standards AS*2700 *Colour standards for general purposes (Standards Australia, AS2700)*. The mitigation measures identified in Section 8 include the implementation of this manual at all traffic control sites during the construction and operation of the Proposal.

2.2.4 Active Transport Strategy

The Active Transport Strategy is developed by the NSW Government and draws on the Future Transport Strategy and its vision for walking, bike riding and personal mobility across NSW. The strategy sets out some key actions to connect communities and encourage more people to choose active transport.

The Proposal contributes to the key action of supporting multimodal journeys by integrating active and public transport by providing additional bicycle parking south of the station forecourt along Railway Parade to enhance the customer experience and promote active travel.

2.2.5 Movement and place

The objective of the Movement and Place Framework, developed by Transport, is the movement of people and creating equitable, accessible, safe, and enjoyable places. It encourages the design of well-connected, safe and efficient transport networks that support economic growth, reduce congestion and minimise environmental impacts.

The scope of work in the Proposal does not change the surrounding street network, provision of footpaths and public transport services. Further to this point, the changes proposed do not significantly change the level of demand placed on these streets and footpaths. On this basis, the Proposal is not specifically a Movement and Place project and adherence to the objectives is not required. However, the Proposal does generally align with the objectives, as it would significantly contribute to creating a more equitable, accessible, safe, and enjoyable place for users of Macquarie Fields Station and the surrounding community. This would occur through the following Proposal elements:

- Improving permeability through the station, including access between the different levels of the station.

- Additional bicycle parking at the station access on Railway Parade to enhance the customer experience and promote active travel. The bicycle parking has been located to connect with the existing cycle network surrounding the station.

2.2.6 NSW Disability Inclusion Action Plan 2021-2025

The *NSW Disability Inclusion Action Plan 2021-2025* was developed by the NSW Government and seeks to provide actions to support making mainstream services and community facilities more accessible for people with a disability. The plan sets out four focus areas for all of Government. Focus Area Two aims to create liveable communities. This Focus Area actions an increase in the availability and accessibility of public and private transport options for people with a disability.

The Proposal has been developed with consideration of the objectives of this plan and seeks to provide equitable access to Macquarie Fields Station. Improved access to Macquarie Fields Station, through Proposal features such as the new lift, pedestrian footbridge and accessible footpaths, as well as improvements to the customer experience at the station, through the implementation of new hearing loops, upgraded signage and wayfinding and improved accessibility to station toilets, would contribute to Focus Area Two in this plan.

3 Assessment

3.1 Assessment criteria

The assessment method for the TTIA considers the four key elements:

- pedestrian and cyclists (active transport)
- public transport (trains and buses)
- local roads and parking
- road traffic

The assessment criteria for the assessment of road traffic are outlined in the Guide to Traffic Management – Part 3 Transport Studies and Analysis Methods (Austroads, 2020).

A qualitative assessment was carried out to identify potential impacts on the road, public transport and active transport during construction and operation of the Proposal. The method for the assessment involved:

- Review of the existing environment including available traffic data, existing and future land uses, crash data, and public transport information.
- Review of equipment and site compound areas.
- Trip generation forecasts for construction vehicles, and a qualitative assessment of the likely impacts during construction.
- Identification of construction impacts, including construction traffic and impacts on pedestrians, cyclists and local access.
- Identification of potential vehicle generating activities associated with building and material waste during demolition and construction.
- Recommendations for mitigation measures to alleviate the identified transport, traffic and access impacts associated with construction and operation of the Proposal.

Given the minor nature of station upgrade works when considered from a traffic impact perspective, operational modelling was not carried out. There is relatively little traffic generated and negligible ongoing impacts.

3.2 Limitations

During the development of this TTIA, the following limitations were presented:

- The origin of the components required for the construction of the Proposal is unknown and can be expected to have multiple points of origin. This assessment is based on the most likely routes at the time of writing the assessment.
- The source and quantity of materials would be determined during the detailed design phase of the Proposal and would consider the requirements of the *Transport for NSW Sustainable Design Guidelines – Version 4.0* (Transport, 2019). Materials would be sourced from local suppliers where practicable. Reuse of existing and recycled materials would be undertaken where practicable.
- This assessment is limited to a desktop assessment with publicly available information.

3.3 Key assumptions

The following key assumptions informed this assessment:

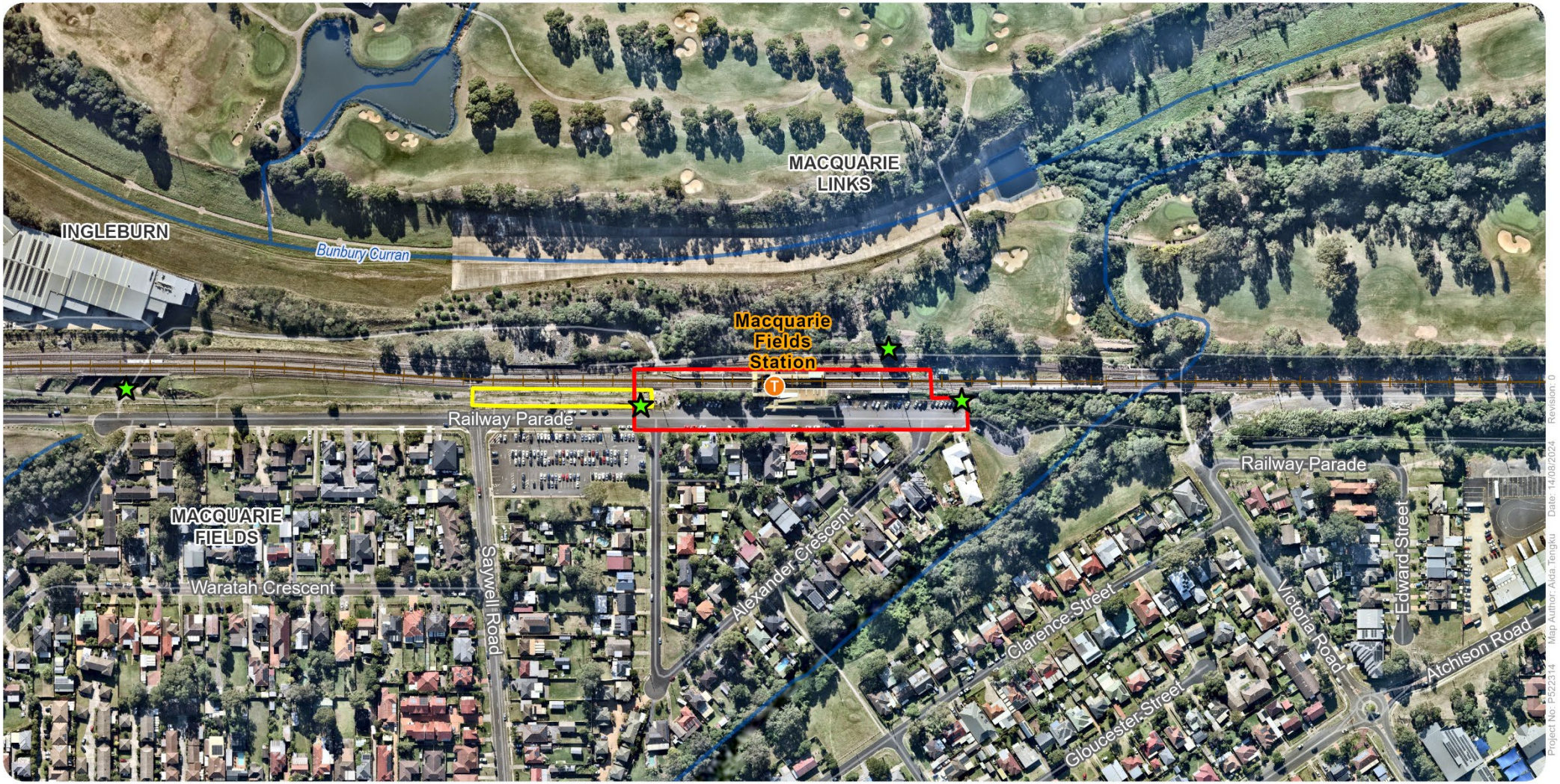
- The proposed scope of work is unlikely to generate new or impact on vehicular traffic considering no new parking, roads or retail is proposed, therefore no traffic counts or modelling was conducted as part of this study.

- The construction methodology is still being developed and the exact number of vehicle trips assumed for this TTIA are estimated based on the anticipated workforce. The anticipated number of vehicle trips may vary depending on the Proposal and Contractor requirements.
- Conservative assumptions have been made utilising the construction data from similar projects and are anticipated to offer a realistic, yet conservative assessment. The conservative assessment includes assuming that the entirety of the construction workforce would travel to the Proposal site using private vehicles.
- The anticipated construction vehicle types and numbers have been derived based on assumptions made relating to the site accessibility, volume of material to be transported from the construction site, materials required to be delivered to the construction site and construction activities.
- It is assumed that all construction workers, material delivery, site management staff and inspection works would travel to the site during the AM and depart during the PM. As such, a 50% split was applied to the total daily trips during non-possession and possession periods to determine the trips travelling to and away from the Proposal site.
- Construction material delivery and staff trips can have various points of origin. To distribute the anticipated daily trips during non-possession and possession periods, it is assumed that 70% of trips would arrive from the westbound off-ramp on Hume Motorway, 20% of trips would arrive northbound via Williamson Road, 5% of trips would arrive southbound via Canterbury Road and 5% of trips would arrive northbound via Harold Street to the Proposal site. This is further discussed in Section 5.4.4.
- Vehicle trips departing the site are assumed to travel on the same roads used to arrive at the Proposal site.
- The source and quantity of materials, construction plant and equipment would be determined during the detailed design phase of the Proposal. To allow for a high-level assessment of any route requirements, the origin for materials, construction plant and equipment is assumed to be from the most direct routes from the National Heavy Vehicle Regulator (NHVR) approved road network, to the Proposal site.
- Special purpose vehicles are assumed to travel on the most direct route via its approved network to the Proposal site. If any local or unapproved roads are required to access the Proposal site, the shortest and most direct route off the respective approved networks was adopted for the purpose of this assessment.

4 Existing environment

4.1 Proposal site

Macquarie Fields Station is located within the Campbelltown local government area (LGA) and is accessed from Railway Parade. Macquarie Fields is mostly a residential suburb with general industrial land, and public and private recreational land. Macquarie Fields Station is located on the T8 Airport & South Line, approximately 38 kilometres south-west of the Sydney central business district (CBD). Given the nature of this Proposal, and focus on the Macquarie Fields Station upgrade works, it is unlikely to impact on the existing traffic conditions during construction and in operation, as referenced per the assumptions in Section 3.3. The operational footprint is outlined Figure 4-1.



Source: Aurecon, TfNSW, NSW Spatial Services (DCS), ESRI

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Projection: GDA2020 MGA Zone 56

Figure 4-1: Location of the Proposal

4.2 Road network

It is important to understand the existing road network which facilitates access to the Proposal site and its connectivity to the broader network. To ensure that links were captured between local and higher order roads, the study area for the assessment of the existing road network was identified with an 800-metre radius around the Proposal site. The key roads within the study area are Railway Parade, Alexander Crescent, Atchison Road, Fields Road, and Saywell Road which facilitate access to Macquarie Fields Station.

The road categories align with the established administrative framework of State, Regional and Local Road categories by Transport which are displayed in Figure 4-2 and outlined in Table 4-1.There are no State roads within the study area.

Table 4-1 Road category descriptions (Source: Transport 2024)

Category	Description
State	State roads form the primary arterial road[1] network throughout NSW and within major urban areas. State roads are all classified roads and are the principal traffic carrying and linking routes for the movement of people and goods within the Sydney, Newcastle, Wollongong and Central Coast urban area and which connect between these urban centres, the major regional towns, the major region of the State and the major connections interstate. Transport is responsible for managing the primary traffic function of State roads. This includes funding and determining priorities, as well as regulating the activities of third parties on the road and access to adjoining land to promote road safety, traffic efficiency and protect the road asset.
Regional	Regional roads are the lesser trafficked classified roads (which are not State roads) and some of the more important unclassified roads. State roads provide the main connections to and between smaller towns and districts and perform the function of sub-arterial roads[2] in major urban area. Councils manage and maintain Regional roads with funding assistance from Transport.
Local	Local roads are all public roads that are not State or Regional roads. These roads are unclassified and provide access for local circulation and access. They are managed and maintained by local councils.

[1] **Arterial road** – a road that predominantly carries through traffic from one region to another, forming principal avenues of travel for traffic movements.
[2] **Sub-arterial road** – a road connecting arterial roads to areas of development and carrying traffic directly from one part of a region to another.

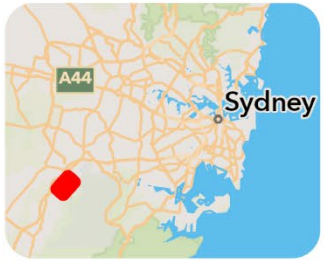
Proposal area
Site compound
Study area (800m buffer)

Railway station entry
Train Station
Railway

Watercourse

TfNSW Road Network Classification

Regional roads
Local roads



Source: Aurecon, TfNSW, NSW Spatial Services (DCS), ESRI

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Projection: GDA2020 MGA Zone 56

Safe Accessible Transport program - Macquarie Fields Transport Impact Assessment

Figure 4-2: Road classification map

4.2.1 Atchison Road

Atchison Road is a regional road which runs in a north-south alignment. At its northern extent, it terminates before the bridge crossing Bunbury Curran Creek, and at the southern extent, it terminates at the signalised intersection with Parliament Road and Saywell Road. It is a two-way road with one lane in each direction and has a posted speed limit of 60 kilometres per hour (kmph). There are bus zones provided on both sides of the road. Unrestricted parking is permitted on both sides of the road.

4.2.2 Fields Road

Fields Road is a regional road which runs in a north-south alignment. At its northern extent, it terminates at the intersection with Saywell Road, and at the southern extent, it terminates at the intersection with Kings Road. It is a two-way road with one lane in each direction and has a posted speed limit of 60 kmph. There are bus zones provided on both sides of the road. There is unrestricted parking on the eastern side of the road. There are also on-road cycling paths on both sides of the road which connect to cycling routes that extend south-west towards Ingleburn and north-east towards Glenfield.

4.2.3 Saywell Road

Saywell Road is a regional road which runs in an east-west alignment. At its eastern extent, it terminates at the intersection with Harold Street and Astelia Street, and at its western extent, it terminates at the intersection with Atchison Road and Parliament Road. Outside of this section, it is a local road. At its eastern extent, it terminates at the intersection with Atchison Road and Parliament Road, and at the western extent, it terminates at the intersection with Railway Parade. It is a two-way road with one lane in each direction and has a posted speed limit of 50 kmph within the local road section and 60 kmph within the regional road section. There is a Council commuter carpark with 140 car spaces around 100 metres south of the station on Railway Parade between Alexander Crescent and Saywell Road. Unrestricted parking is also provided on both sides of the road. At the eastern extent of Saywell Road, there is unrestricted off-street parking accessed via Church Street and 1P off-street parking provided for Macquarie Fields' local centre between Dale Lane and the intersection with Atchison Road and Parliament Road. Bus stops are provided on both sides of the road. Within the local centre, a pedestrian crossing connecting with Fields Road is provided. There are on-road cycling paths which lead to Parliament Road, Fields Road and Victoria Road that connect to cycling routes extending south-west towards Ingleburn and north-east towards Glenfield.

4.2.4 Railway Parade

Railway Parade is a local road that runs in a north-south direction. At its northern extent, it terminates at a cul-de-sac and at the southern extent, it also terminates at a cul-de-sac beside Milton Park. It is a two-way road with one lane in each direction and has a posted speed limit of 50 kmph. There is a kiss and ride zone and a bus zone immediately outside of the station entry. There is an on-street commuter car park dedicated to passengers catching the train located along the west of Railway Parade.

Within the Proposal study area, Railway Parade intersects with the following roads:

- Alexander Crescent, a priority-controlled (give-way) intersection with Railway Parade having priority over Alexander Crescent. All vehicular turning movements are permitted.
- Saywell Road, a priority-controlled intersection (give-way) with Saywell Road having priority over Railway Parade. All vehicular turning movements are permitted.

4.2.5 Alexander Crescent

Alexander Crescent is a local road which loops around the north-eastern end of Railway Parade. It is a two-way road with one lane in each direction with a posted speed limit of 50 kmph. There is generally unrestricted on-street parking on both sides of the road. There is also a through-site link that runs from

Clarence Reserve to the intersection with Clarence Street and Windsor Street which provides pedestrian access to the roads directly north-east of the station.

4.3 Road network crash history

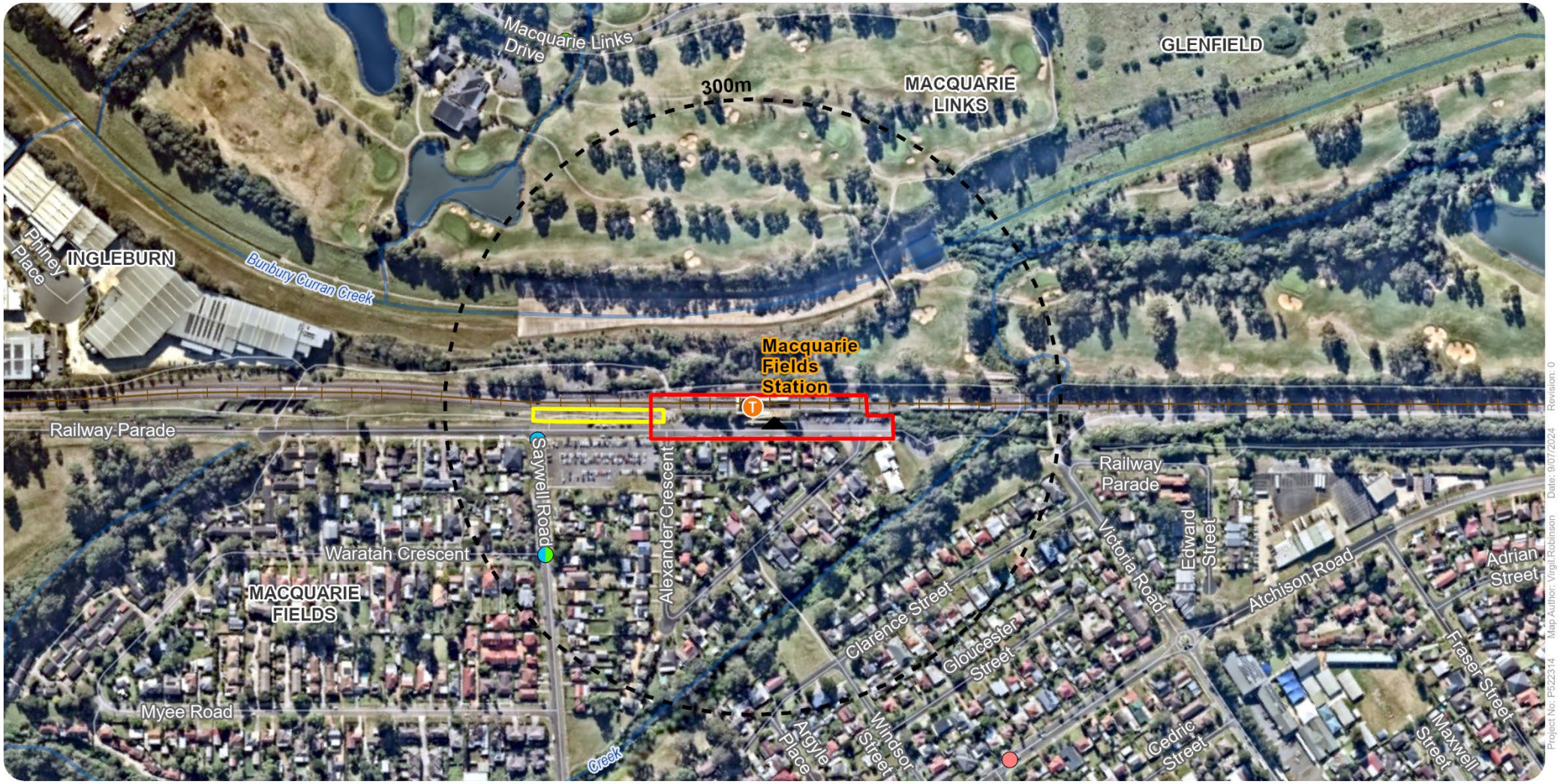
Understanding the crash history around the Proposal site provides important insights into existing safety issues and can identify high-risk areas, the types and causes of accidents and patterns in driver behaviour. To understand these insights for the roads facilitating access to and surrounding the Proposal site, the study area for the road network crash history was delineated using a 300-metre radius. Historical crash data between 2018 and 2022 was sourced for the Campbelltown LGA to identify crash trends and issues within the Proposal area. A map of the historic crash locations and severities are shown within Figure 4-3 and a summary of the historical crash data is provided in Table 4-2.

Table 4-2 Historical crash data summary within the Proposal site in 2018 to 2022

Road	Degree of Crashes	Number of Crashes
Saywell Road	Serious injury	1
	Moderate injury	2
Total		**3**

The historical crash data shows crash clusters in the vicinity of the key intersections to the Proposal site. The nature of the accidents and the NSW road user movement (RUM) codes are detailed below. From the historical crash data, there were three accidents within the study area. It is also noted that no accidents resulting in fatalities within the study area occurred between 2018 and 2022.

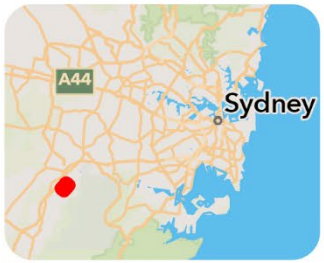
- The Waratah Crescent / Saywell Road intersection is a priority-controlled intersection with Saywell Road as the major road, having priority over the minor road of Waratah Crescent. This intersection experienced two accidents during the period of 2018 to 2022, with all accidents occurring during daylight.
  - An accident resulting in a serious injury occurred in 2018 during daylight and was classified as a ‘left off carriageway into object/parked vehicle’ collision (RUM code – 71).
  - An accident resulting in a moderate injury occurred in 2018 during daylight and was classified as a ‘right rear’ collision (RUM code – 13).
- The Railway Parade / Saywell Road intersection is a priority-controlled intersection with Railway Parade as the major road, having priority over the minor road of Saywell Road. This intersection experienced one accident during the period of 2018 to 2022, with the accident occurring during dark lighting.
  - An accident resulting in a moderate crash occurred in 2021 during dark lighting conditions and was classified as an ‘off road left into object/parked vehicle’ collision (RUM code – 71).



Proposal area
Site compound
Study area (300m buffer)
Train Station
Railway station entry
Railway
Watercourse

Crash locality severity*
Serious Injury
Moderate Injury
Non-casualty (towaway)

*Note: Locations are approximate and sourced from TfNSW - NSW Road Crash data 2018 - 2022



Source: Aurecon, TfNSW, NSW Spatial Services (DCS), ESRI

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Projection: GDA2020 MGA Zone 56

Figure 4-3: Crash location severity

4.4 Access and movement

This section details the existing access and movement network around the Proposal site, focusing on rail and bus connectivity, as well as pedestrian and cycling infrastructure. Understanding the public transport network and point-to-point connectivity services is important for assessing access to the Proposal site and its integration with the broader network. To capture all relevant public transport options and routes, the study area was defined using a 500-metre buffer as shown in Figure 4-4. Similarly, the pedestrian and cycling network was examined within a 500-metre buffer to cover routes within a 10-to-15-minute walk of the Proposal site that would aid last-mile connectivity planning, as shown in Figure 4-5.

4.4.1 Rail connectivity

Macquarie Fields Station is serviced by the T8 Airport & South Line which operates between Campbelltown or Macarthur and Central Station (Sydney) via Airport or Sydenham. The station has two platforms with Platform 1 services running to Central & the City Circle via Revesby and Platform 2 services running to Macarthur. Trains run typically every 15-minutes in both directions. At Glenfield Station, passengers may transfer services onto the T2 Inner West & Leppington Line or the T5 Cumberland Line. A summary of the rail services arriving at and departing from Macquarie Fields Station is provided in Table 4-3.

Table 4-3 Rail service summary from Macquarie Fields Station

Direction of travel	Number of Services per Day		
	Typical AM Peak 7:00 – 9:00 AM	**Typical PM Peak 4:00 – 6:00 PM**	**Typical Off Peak 9:00AM – 4:00 PM**
Towards Central Station	9	8	28
From Central Station	8	10	28

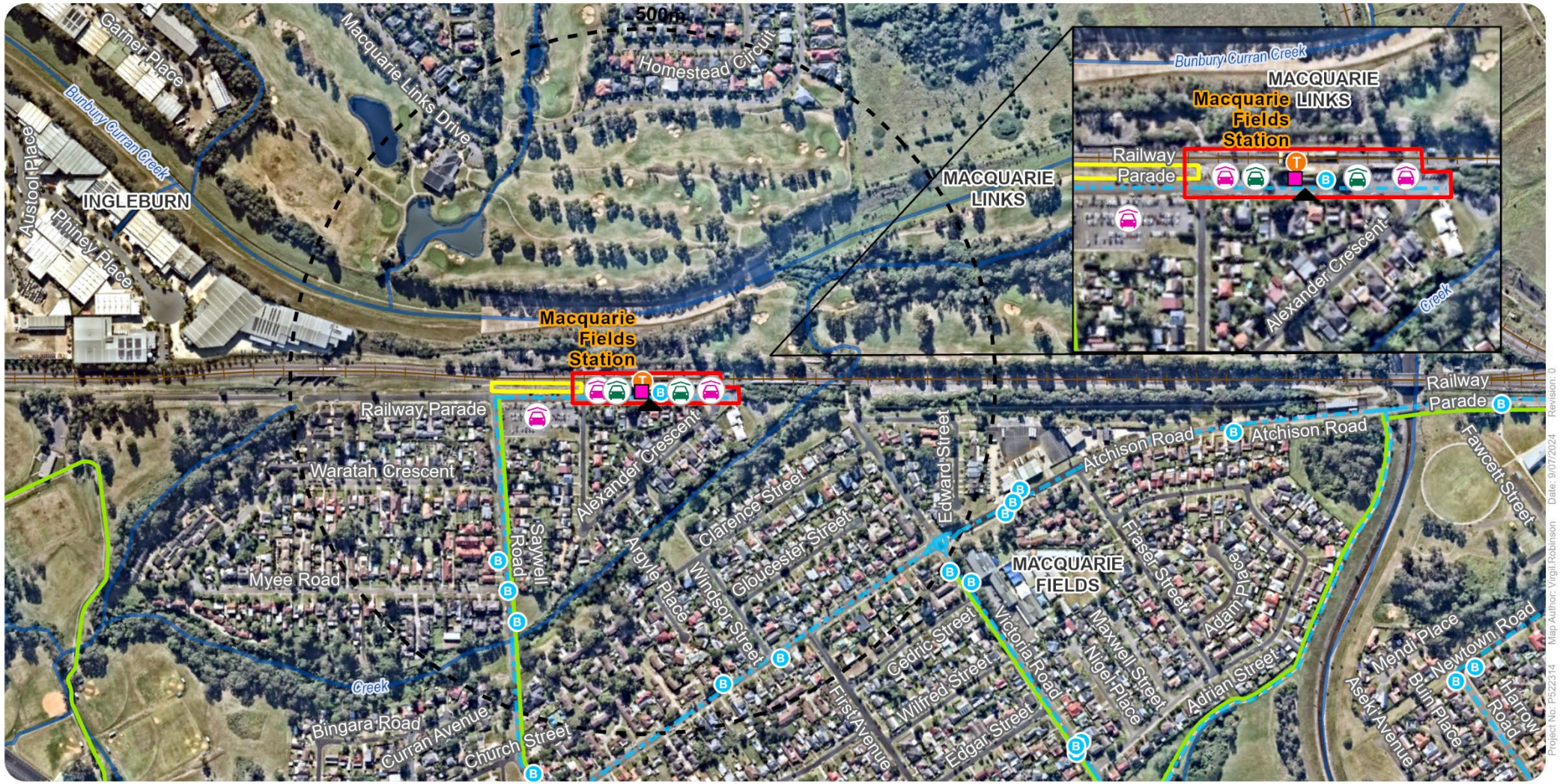
The Southern Sydney Freight Line (SSFL) also operates past Macquarie Fields Station. The SSFL connects to the freight passing loop from the south, at Ingleburn Station before passing Macquarie Fields Station and Glenfield Station. It operates separately from the main passenger rail line, on the western side of the rail line.

4.4.2 Bus connectivity

Bus services are limited surrounding Macquarie Fields Station. The 876 bus service from Macquarie Fields Station to Eucalyptus Drive (loop service) is operational on weekdays (Monday-Friday) only. It runs infrequently with services approximately every 30 minutes between 5:30 – 7am and 3:45pm – 6:20pm. There are two school buses, the 3007 bus service from Macquarie Fields Station to Mount Carmel High School and the 4013 bus service from Macquarie Fields High School to Ingleburn.

Figure 4-4 shows the existing public transport network around Macquarie Fields Station. Additionally, the bus services and their frequency at Macquarie Fields Station are summarised in Table 4-4.

There are additional bus services 1 kilometre (15-minute walk) away from the station at the Parliament Road opposite Dale Lane bus stop. The bus stop serves the 870 bus from Campbelltown to Liverpool via Glenfield, the 871 bus from Campbelltown to Liverpool and the 872 bus from Campbelltown to Liverpool via Macquarie Fields buses. Services run from Monday to Friday every 30 minutes to 1 hour and Saturday to Sunday every 1 hour to 2 hours.



Source: Aurecon, TfNSW, NSW Spatial Services (DCS), ESRI

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Projection: GDA2020 MGA Zone 56

Figure 4-4: Existing public transport

Table 4-4 Bus service summary from Macquarie Fields Station

Bus number	Bus route	Frequency
876	Macquarie Fields Station to Eucalyptus Drive (Loop Service)	On weekdays between 5:30 AM to 7:30 AM and 3:45 PM to 6:20 PM, the service operates every 20-30 minutes. Buses are infrequent with a total of 11 services for the entire day. There is one service during the AM peak at 7 AM. There are five services during the PM peak running every 20-30 minutes. There are no weekend services.
3007	Macquarie Fields Station to Mount Carmel High School	On weekdays, there is one school bus service from Macquarie Fields Station at 7:24 AM.
4013	Macquarie Fields High School to Ingleburn	On weekdays, there is one school bus service from Macquarie Fields High School at 3:49 PM each day.

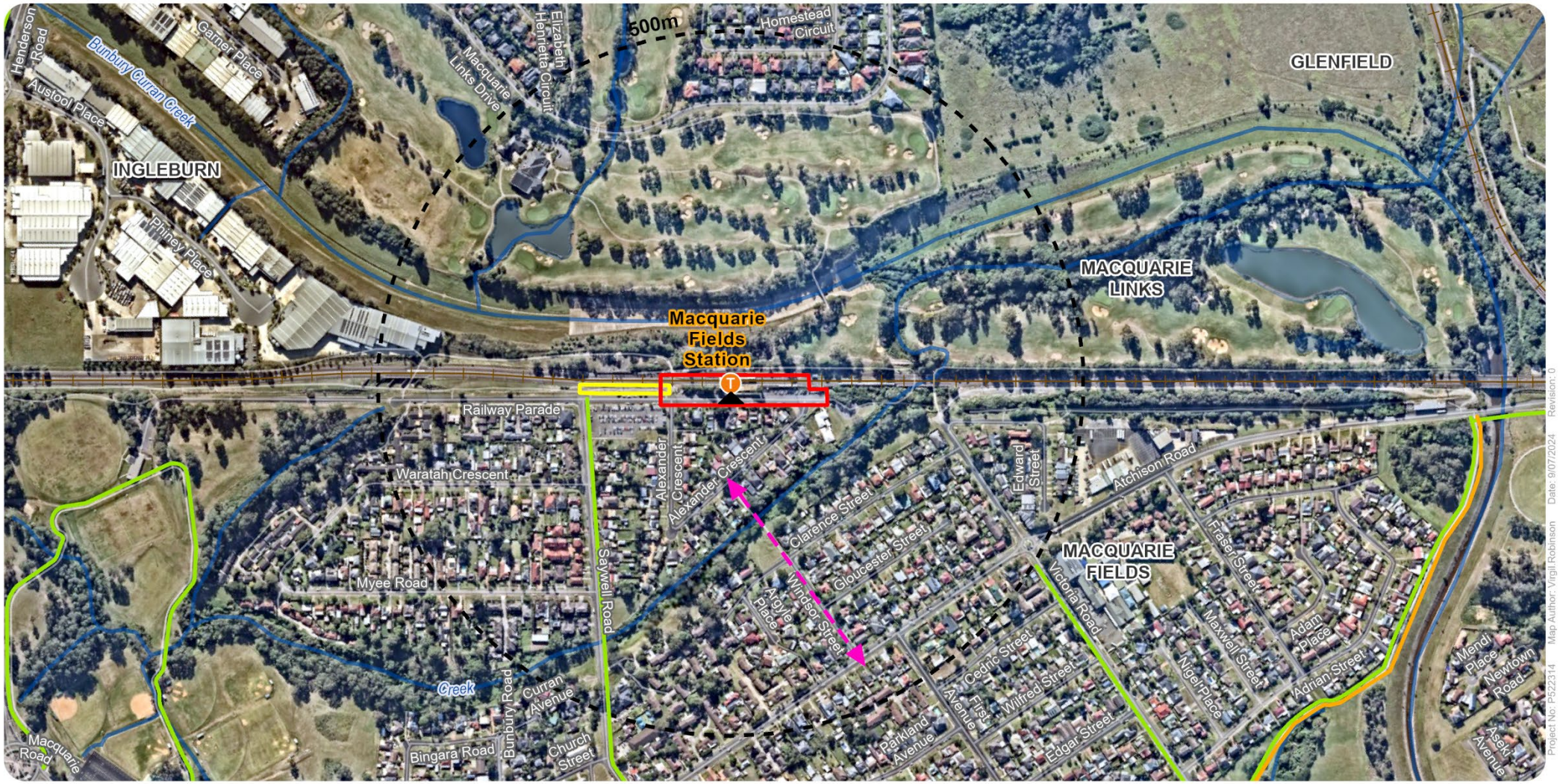
4.4.3 Point-to-point connectivity

There are no taxi zones provided at Macquarie Fields Station or in the surrounding areas.

4.4.4 Walking and cycling

There is limited walking infrastructure leading to and within the Proposal site as shown in Figure 4-5. Pedestrian footpaths are established on the eastern side of Railway Parade, on the northern side of Saywell Road and partially along Alexander Crescent until Clarence Reserve. There is a footpath providing a through-site link connecting Alexander Crescent to the Clarence Street / Windsor Street intersection via Clarence Reserve directly east of the station. During a site visit, it was observed that high school students were approaching the Proposal site from the north-east along the rail corridor on Railway Parade. Macarthur Adventist College is the closest high school, located north-east of the site. The shortest walking route involves travelling along Railway Parade, Alexander Crescent, Clarence Street via the Clarence Reserve through-site link and then Victoria Road.

There are no dedicated cycling lanes on Railway Parade, however there are currently six bicycle hoops and two bike hire lockers outside of the station. There are on-road paths for cycling on Saywell Road, Parliament Road, Fields Road and Victoria Road which connect to cycling routes that extend south-west towards Ingleburn and north-east towards Glenfield.



Proposal area
Site compound
Buffer area (500m)
Train Station
Railway
Railway station entry
Existing cycle routes
Existing shared path
Through-site link for pedestrians
Watercourse

Source: Aurecon, TfNSW, NSW Spatial Services (DCS), ESRI

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Projection: GDA2020 MGA Zone 56

Figure 4-5: Existing pedestrian and cycle routes

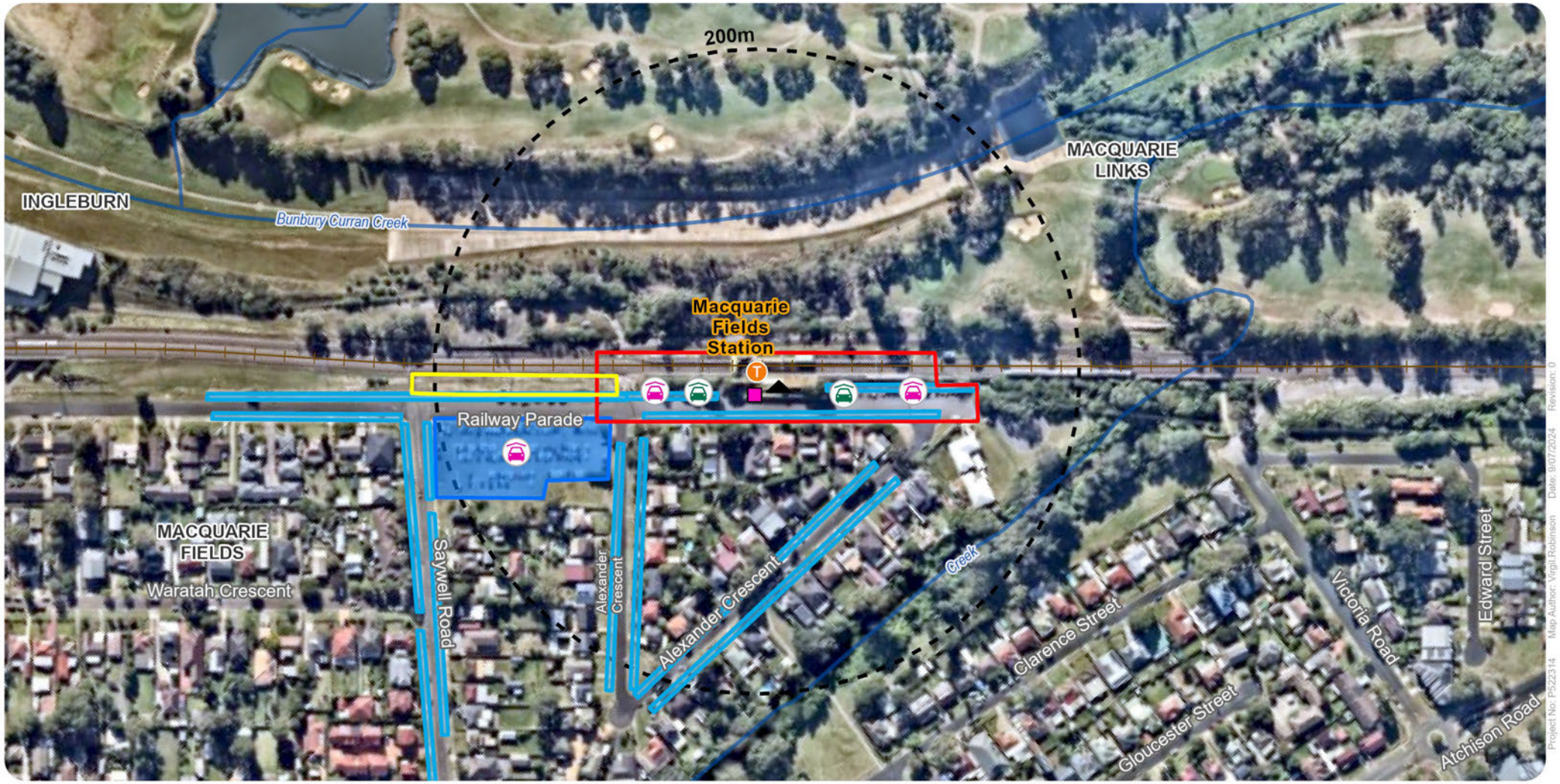
4.4.5 Vehicle parking

The existing vehicle parking arrangements around the Proposal site were examined using a 200-metre buffer to cover routes within a 5-minute walk, aligning with commuter preferences and aiding last-mile connectivity planning. This buffer also accounts for areas potentially affected by construction workers occupying parking spaces and ongoing construction activities.

Macquarie Fields Station has adequate parking surrounding the immediate and surrounding area. There is an on-street commuter carpark with 40 car spaces including six accessible spaces provided immediately outside of the station, along the western side of Railway Parade. A Council commuter car park is located approximately 100 metres (one-minute walk) from the station on Railway Parade between Alexander Crescent (south) and Saywell Road. A kiss and ride zone is also provided outside of the station on Railway Parade. Along the eastern side of Railway Parade between the Alexander Crescent intersections, there is generally unrestricted on-street parking available outside of the hours between 6:30 AM to 9:30 AM. There is unrestricted all-day parking on both sides of Railway Parade from the southern leg of the Railway Parade /Alexander Crescent (south) intersection to the cul-de-sac at Milton Park.

On the broader road network, there is adequate unrestricted on-street parking along nearby streets including Alexander Crescent in the east and Saywell Road in the south. Alexander Crescent has unrestricted on-street parking along most of the road, with sections in proximity to Railway Parade having parking restrictions between 6:30 AM to 9:30 AM on Monday to Friday. A review of recent aerials between 2021 to 2024 was undertaken which indicate that on-street parking utilisation on local roads nearby such as Railway Parade west of Saywell Road, Waratah Crescent and Myee Road is generally low throughout the week.

The parking arrangements for the context of the Proposal site are shown in Figure 4-6.



Source: Aurecon, TfNSW, NSW Spatial Services (DCS), ESRI

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Projection: GDA2020 MGA Zone 56

Safe Accessible Transport program - Macquarie Fields Transport Impact Assessment

Figure 4-6: Existing parking arrangements

4.5 Haulage routes

Heavy vehicles (HV) that conform with mass requirements within the definitions of General Access Vehicles (GAV) and are under 19 metres in length do not require a notice or permit from the National Heavy Vehicle Regulator (NHVR) to operate on the road network surrounding the Proposal site. Larger vehicles are required to travel on their relevant approved road network and if other road links are required, consultation with NHVR and Transport should be undertaken to seek approval to travel on the unapproved roads. Access and loading restrictions would be complied with unless specific exemptions are provided. Figure 4-7 shows the indicative main route to access the Proposal site.

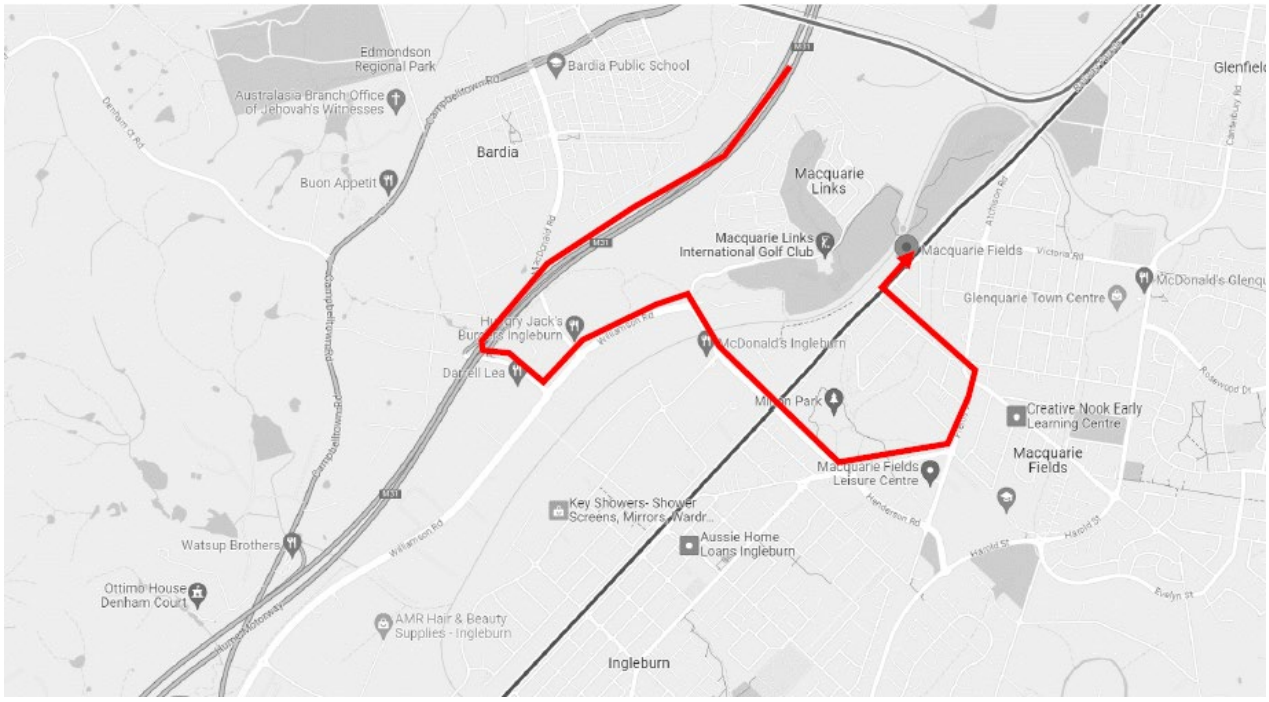


Figure 4-7 Indicative main site access route

The NHVR restricted access vehicle (RAV) maps shows there are no approved larger B-doubles (under General Mass Limit (GML) and Concessional Mass Limit (CML) conditions), Special purpose vehicles (SPV) or oversize overmass (OSOM) routes immediately adjoining Macquarie Fields Station. SPVs includes vehicles such as mobile cranes, piling rigs, road sweeper and telescopic forklift.

Figure 4-8 shows the approved routes for SPV level 6 and highlights the sections of the indicative main site access route that would require approval which also apply to larger B-doubles. This includes roads between the Proposal site and the roundabout located at the Henderson Road, Lancaster Street and Austool Place intersection. The Brooks Road off-ramp till the Henderson Road, Lancaster Street and Austool Place intersection Road is an approved route that can be accessed by the broader approved road network via Hume Motorway. Hume Motorway is an approved route with conditions and a restricted structure is located on the Hume Motorway over Macdonald Road for SPV level 6. Other SPV levels, 19 metre B-double (over 50 tonnes) and 23 metre to 25/26 metre B-doubles approved routes may contain different conditions.

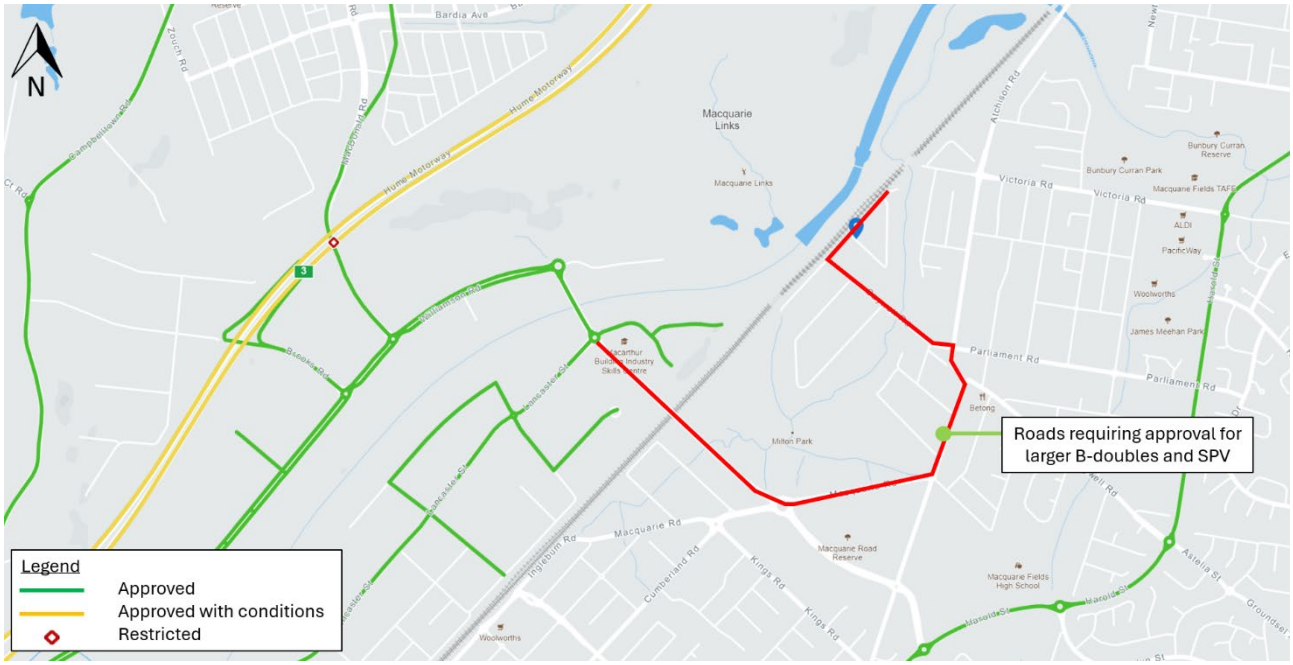


Figure 4-8 Indicative access route to the Proposal site by SPV level 6

Some oversized materials or deliveries would occur outside of standard working hours. These deliveries could include major plant and equipment, crane components, components of the new footbridge, lift shafts and prefabricated elements such as precast beams or reinforcing cages. Figure 4-9 shows the approved routes for OSOM vehicles and highlights the sections of the indicative main site access route that would require approval. This includes roads between the Brooks Road off-ramp and the Proposal site. The Hume motorway is an approved route with conditions.

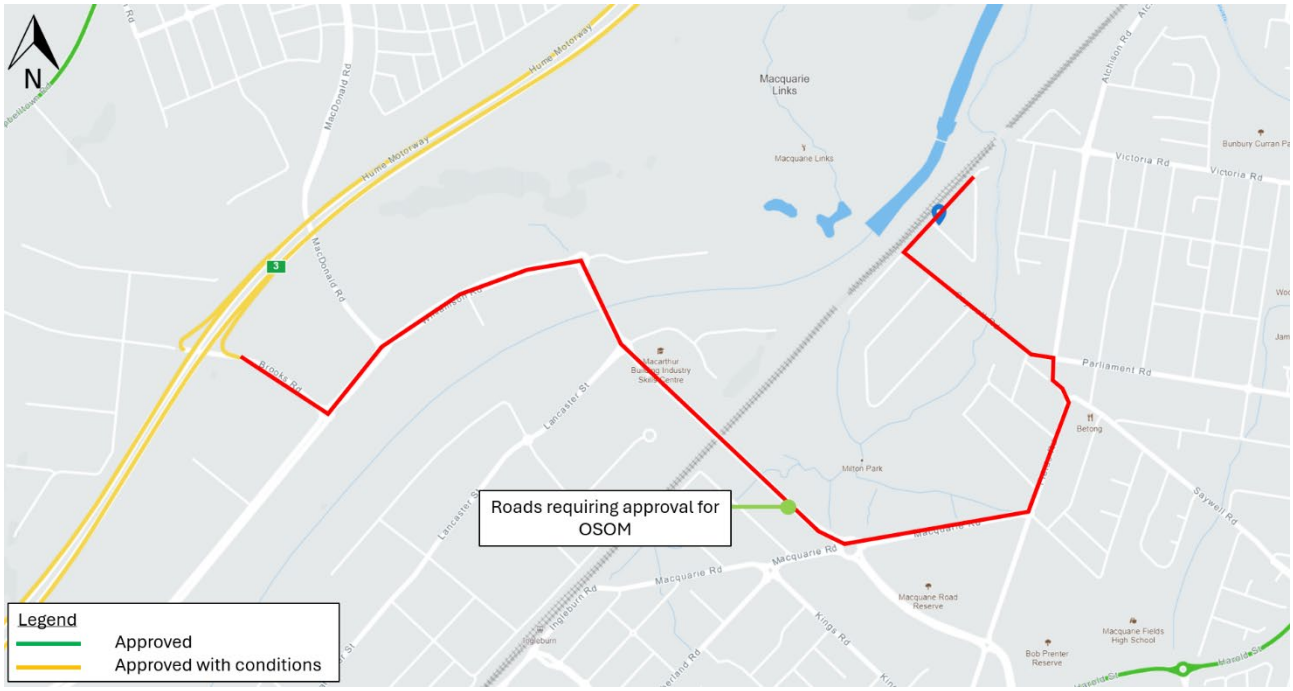


Figure 4-9 Indicative access route to the Proposal site by OSOM vehicles

5 Assessment of potential construction impacts

This section describes the traffic, transport and access impacts that would result from the construction activities.

5.1 Proposal construction activities

The construction methodology would be further developed during the detailed design of the Proposal by the nominated Contractor in consultation with Transport.

The proposed construction activities for the Proposal are identified in Table 5-1. This staging is indicative and is based on the current concept design and may change once the detailed design methodology is finalised. The staging is also dependent on the Contractor's preferred methodology, program and sequencing of work. The staging and activities are often concurrent to increase efficiency and reduce impact on the community and construction timeframes.

Table 5-1 Proposal construction activities

Stage	Activities
Site establishment and enabling work	■ establish ancillary facilities (including erection of fencing, site offices, amenities and plant and material storage areas) ■ carry out validation of utility services ■ relocate or upgrade services/utilities as required ■ remove vegetation ■ install safety barriers, lighting and hoarding around the nominated work zones, including any areas of the platform used for temporary laydown/storage of plant, material and spoil for the duration of the construction
Construction of new footbridge (including stairs and lifts)	■ construct new footbridge (including stairs), comprising the following activities: – construct footbridge foundations (including stairs) – lift and install new aerial footbridge into place and connect with foundations – lift and install canopy on new footbridge – install mesh protection and anti-throw screens along new stairs and footbridge walkways ■ construct and install new lifts, comprising the following activities: – excavate and pile for lift shaft – construct lift foundations/bases – install formwork and reinforcement for lift pits and walls and upper lift landings – install steelwork for lift shafts and canopy roofing – install lift car and motor – install lift shaft services, lift cars, motors and fit-out lift cars – install cladding and glazing to lift shaft ■ commission new footbridge and lifts.
Demolition of existing footbridge	■ following commissioning of the new footbridge, close the existing footbridge to customers ■ remove stairs to existing footbridge in stages ■ remove existing footbridge in stages.

Stage	Activities
Station access, forecourt and interchange work	■ construct new station access connecting the station forecourt, Platform 2 and new footbridge on the north-eastern end of the forecourt, opposite the new lift ■ relocate the existing 'Macquarie Fields Station, Railway Parade' bus stop and install two bus parking spaces, seating and an accessible waiting area ■ install six new accessible parking spaces (including one long accessible parking space), and two kiss and ride spaces on Railway Avenue ■ install signage for new bus stop, accessible parking and kiss and ride areas ■ relocate the two existing bicycle lockers and install eight new bicycle hoops adjacent to the lockers ■ install new pedestrian crossing ■ adjust footpaths and kerbs to align with parking and footpath changes throughout the station forecourt ■ following commissioning of the new footbridge and lifts, close the existing ramp and stairs ■ upgrade existing ramp and stairs providing access from the station forecourt to provide compliant accessible station access ■ relocate the memorial plaque ■ upgrade the kerb ramps at both intersections of Railway Parade and Alexander Crescent (four kerb ramps total) ■ new line-marking of on-street commuter car spaces along Railway Parade adjacent to the station entry/forecourt.
Platform work	■ temporary removal / reinstatement of platform furniture ■ excavate for new platform canopy footings ■ upgrade existing canopies to provide longer canopies near the new footbridge and boarding assistance zones ■ regrade and resurface the platform, including installation of TGSIs to provide compliant accessible paths throughout the station ■ resurface other areas of the platform where impacted by construction activities, including services trenching work.
Station building modifications	■ install a temporary toilet on platform ■ demolish internal walls, fixtures, fittings and wall and floor finishes of existing toilet and cleaners' storeroom in station building ■ install a new dividing wall and door to create the new unisex ambulant toilet and cleaners' storeroom ■ extend the existing building by constructing a new floor slab, new walls and new doors for the new unisex family accessible toilet and electrical storage enclosures ■ waterproof and re-tile toilet areas ■ introduce new internal fixtures and fittings.
Electrical upgrades	■ isolate and remove existing transformer and install new pad-mounted transformer ■ carry out trenching for new cable routes ■ removal of the footing of the overhead wiring structure to provide appropriate earthing and bonding for the station ■ install new lighting in the Railway Parade on-street commuter car park.

Stage	Activities
Finishing work	■ install compliant kerbs, balustrades and handrails throughout the station ■ adjust fencing and install bollards ■ connect the new canopies to the existing stormwater drainage system through new stormwater drainage connections ■ install new wayfinding and other station signage ■ install a new water fountain adjacent to the new family accessible toilet ■ relocate bin storage to an out of sight location below Platform 2 ■ carry out landscaping and planting within the station precinct and forecourt ■ install, test and commission new hearing loops within the station platforms, new CCTV cameras and new / adjusted Opal card readers ■ line-mark existing parking spaces in the on-street commuter car park on Railway Parade.
Site demobilisation	■ verify that all finishing work has been completed ■ remove temporary safety barriers, lighting and hoarding ■ demobilise and reinstate site compound area.

5.2 Ancillary facilities

Construction of the Proposal would require a temporary site compound to accommodate a site office, amenities, laydown and storage area for materials, plant and equipment and the like. An area for a site compound has been proposed within the rail corridor opposite the Council commuter car park on Railway Parade, shown in Figure 4-1. The area nominated for the site compound is on land owned by Transport Asset Holding Entity (TAHE).

The station platform would also be used as a temporary laydown and spoil storage area for the duration of construction. Laydown and storage areas would be appropriately fenced off and would not inhibit customer access to the platform during the construction period. However, temporary hoarded construction areas and laydown and storage areas may limit patron movement on the platform. Furthermore, hi-rail access points (either to be constructed or existing) would be used for hi-rail track plant and equipment to gain access to the track and traverse to the worksite during possession periods. Existing rail access gates are shown in Figure 4-1.

If vehicular access to the ancillary facilities is required, the temporary site compound, additional laydown and storage areas, and rail access gates can be accessed via Railway Parade.

Impacts associated with using these ancillary facilities have been considered in the environmental impact assessment including requirements for rehabilitation.

The location and size of the temporary site compound would be subject to further consideration by the Contractor and may be adjusted to suit the Proposal's needs.

5.3 Construction work hours and duration

The majority of work required for the Proposal would be undertaken during standard construction hours, which are defined by the NSW Environment Protection Authority (EPA) 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.

Construction of the Proposal may require certain work to occur outside of standard hours, including night work and work during scheduled rail possessions. Rail possessions are temporary closures of the rail

network. It is anticipated that approximately four rail possessions would be required throughout construction. The purpose of conducting work outside of standard hours is to minimise disruptions to customers, pedestrians, motorists, and nearby sensitive receivers. Out of hours work may also be scheduled outside of rail possession periods to reduce the potential impact on the wider community and road network. For example, this could involve facilitating deliveries, minor road work, and platform work.

Subject to approval, early construction activities are expected to commence in late 2024, with main construction commencing early 2025 and taking around 18 months to complete. Timeframes are subject to detailed design and final construction methodology.

5.4 Construction traffic and parking impacts

This section summarises the assessment of the key potential Proposal construction impacts.

Given the scope, the site is not expected to generate excessive volumes of waste or heavy vehicle volumes. As such, it is not proposed to enforce an approved heavy vehicle hourly volume.

5.4.1 Construction traffic generation

During non-possession periods, an average of about 20 construction workforce staff are expected per day. During possession periods, up to 50 construction workforce staff are expected on the Proposal during peak periods. A worst-case scenario of all construction staff travelling to and from the Proposal site by private vehicles has been assumed for a conservative assessment. This equates to:

- 40 light vehicle (LV) trips per day during non-possession periods by construction staff
- 100 LV trips per day during possession periods by construction staff.

Site management and inspections are also likely to occur and while these would be encouraged to arrive via public transport, these are expected to increase the residual amount by up to 10 LV trips per day.

Construction vehicle trips due to the movement of site material and supply drop off is expected to occur uniformly throughout the day. A conservative allowance of 20 heavy vehicle (HV) trips per day has been made.

Construction vehicle trips due to the movement of construction plant and equipment such as mobile cranes, which are classified as SPVs would be infrequent and not expected to occur daily. A conservative allowance of 10 two-way SPV trips throughout the construction period has been made.

Overall, a total of 70 (50 LV trips and 20 HV trips) vehicle trips per day can be expected during non-possession periods and a total of 130 (110 LV trips and 20 HV trips) vehicle trips per day can be expected during possession periods. The trips by construction staff to and from the Proposal site are expected to occur outside of the road network peak periods and is not expected to have any additional impacts on the performance of the road network. A summary of the construction traffic generated, excluding construction waste trips is provided in Table 5-2.

Table 5-2 Summary of construction traffic two-way trips (excluding construction waste trips)

Vehicle type	Trip purpose	Non-possession period two-way trips	Possession period two-way trips
LV	Movement of construction staff	40 trips per day	100 trips per day
	Site management and inspections	10 trips per day	
HV	Site material and supply drop off	20 trips per day	
SPV	Movement of plant and equipment	10 trips throughout construction period	

5.4.2 Construction waste

In addition to construction vehicle movements, construction activities have the potential to generate waste through excess use of materials during construction and demolition works. Construction activities would be undertaken according to the Construction Environmental Management Plan (CEMP) developed by the construction Contractor to address waste management and reduction practices.

It is estimated that excavations and earthworks would generate approximately 250 cubic metres of excavated material from the activities listed below. Excavated material would be reused onsite where possible or disposed of in accordance with the relevant legislative requirements.

For a conservative assessment, it is assumed that all the excavated material would be disposed of using heavy rigid trucks or truck and dog configurations, which are commonly used for transportation of construction waste. Construction waste vehicle trips are not expected to occur throughout the entire construction period and are likely to occur only during the early phases of construction. The approximate carrying capacities and the additional trips generated are summarised in Table 5-3.

Table 5-3 Summary of construction waste vehicle trips

HV type	Approximate Carrying capacity	Maximum length	Trips to transport 250 m^3 of waste
Heavy Rigid Truck	15 m3	12.5 m	34 two-way HV trips (17 trips to the site / 17 trips away from the site)
Truck and Dog	43 m3	19.0 m	12 two-way HV trips (6 trips to the site / 6 trips away from the site)

5.4.3 Haulage routes

Designated access routes for heavy vehicle movements during demolition, construction and spoil removal would be via the regional roads accessed from arterial (State) road networks as much as practically possible. If other road links are required, access and loading restrictions would be complied with unless specific exemptions are provided. Access movements should be restricted to left in and left out where possible.

It is anticipated that most of the heavy vehicle traffic generated by the construction of the Proposal would be general heavy vehicles up to 19 metre B-double (under 50 tonnes), therefore no road upgrades are required, subject to a detailed route survey for higher order vehicles.

Temporary traffic management may be implemented for any works including when mobile cranes and other bulky items are required. The volumes for these vehicles would be occasional only (not expected every day) and when they occur, they would occur in isolated periods with any movements focused outside of network peak hours.

5.4.4 Impacts on road traffic

Full road closures are not expected for the Proposal, although partial closures may be used for the movement and operation of larger equipment and works. The delivery and installation of the new lifts would require a crane which may require a partial road closure on Railway Parade, north of the station forecourt. The decommissioning and removal of the old transformer may necessitate a partial road closure on Railway Parade, north of the station forecourt. The delivery and installation of a new padmount transformer may require a partial road closure on Railway Parade situated west of the Railway Parade/Alexander Crescent (north) intersection behind the on-street commuter car park. This closure would facilitate the removal of trees in front of the transformer and provide space for a staging area that would support the transportation vehicle and its outriggers, ensuring vehicle stability during removal and installation. The impact on local traffic is expected to be minimal since the work would be carried out within the station forecourt and station boundary.

Construction vehicles would access the temporary site compound, laydown and storage areas, and rail access gates via Railway Parade. Construction vehicles entering rail access gates may need to enter and

exit these gates via traffic control measures to minimise impacts on the local road network and safety. These traffic movements are expected to be short in duration, of minor impact, and managed through the CEMP.

The construction of a kerb extension on the eastern side of Railway Parade to accommodate the new pedestrian crossing may require a partial road closure. This closure would lead to a slight narrowing of the carriageway to 7.6 metres. Therefore, the impact to local traffic is negligible due to the isolated nature of this construction area and unlikely use of large machinery.

All roadwork would be undertaken on a progressive basis whilst ensuring minimal space and time is required to undertake particular phases of work. Campbelltown City Council would be consulted about any traffic changes and a traffic control plan in accordance with AS1742.3 would be prepared for approval by Council prior to construction.

As detailed in Section 5.4.1, Proposal construction is expected to generate a total of 70 vehicle trips per day during non-possession periods, and a total of 130 vehicle trips per day during possession periods. Assuming a daily split of 50% of trips travelling to the Proposal site in the AM, and 50% of trips travelling away from the Proposal site in the PM. Therefore, the additional trips due to the construction of the Proposal is expected to be:

- **Non-possession periods**:
  - AM: 35 vehicle trips travelling to the Proposal site
  - PM: 35 vehicle trips travelling away from the Proposal site.
- **Possession periods**:
  - AM: 65 vehicle trips travelling to the Proposal site
  - PM: 65 vehicle trips travelling away from the Proposal site.

It is expected that vehicle trips would have multiple points of origin. The distribution of construction staff trips has been estimated based on the proportion of people employed as technicians and trade workers within Campbelltown LGA and the surrounding LGAs using Census 2021 data from the Australian Bureau of Statistics (ABS) as shown in Table 5-4.

Table 5-4 Number of technicians and trades workers by LGA

Occupation	Campbelltown LGA	Liverpool LGA	Canterbury-Bankstown LGA	Sutherland Shire LGA
Technicians and Trades Workers	8,805	10,872	15,371	15,283

The data for Campbelltown LGA indicates that some of the suburbs with the highest percentage of technicians and trade workers are:

- Eschol Park: 16.3%
- Woodbine: 15.7%
- Blairmount: 15.6%

Most suburbs with a high proportion of its residents working as technicians and trade workers are located towards the south-west of the Proposal site. There was a total of 8,805 technicians and trade workers in the LGA.

The distribution of trips to the Proposal site considered the total number of technicians and trades workers residing in the surrounding LGAs, which include Canterbury-Bankstown, Liverpool, and Sutherland Shire. The cumulative number of workers in the surrounding LGAs was 41,528 persons, compared to 8,805 persons in Campbelltown LGA.

As a result, it is assumed that 70% of vehicle trips would originate from the Sydney CBD direction via the westbound off-ramp on Hume Motorway due to the greater number of workers surrounding Campbelltown LGA. Within Campbelltown LGA, a majority of workers are expected to travel via Williamson Road, as it generally offers the shortest travel time from the southwest of Macquarie Fields. Therefore, it is assumed

that 20% of all vehicle trips would approach the Proposal site northbound via Williamson Road. The remaining 10% of trips would be evenly split between workers traveling southbound via Canterbury Road and northbound via Harold Street, both of which do not require travelling through busier roads or reside in the local area. Using the assumed trip distributions, the anticipated additional trips on the Proposal site's immediate road network in the AM are outlined in Table 5-5. The anticipated vehicle routes are illustrated in Figure 5-1.

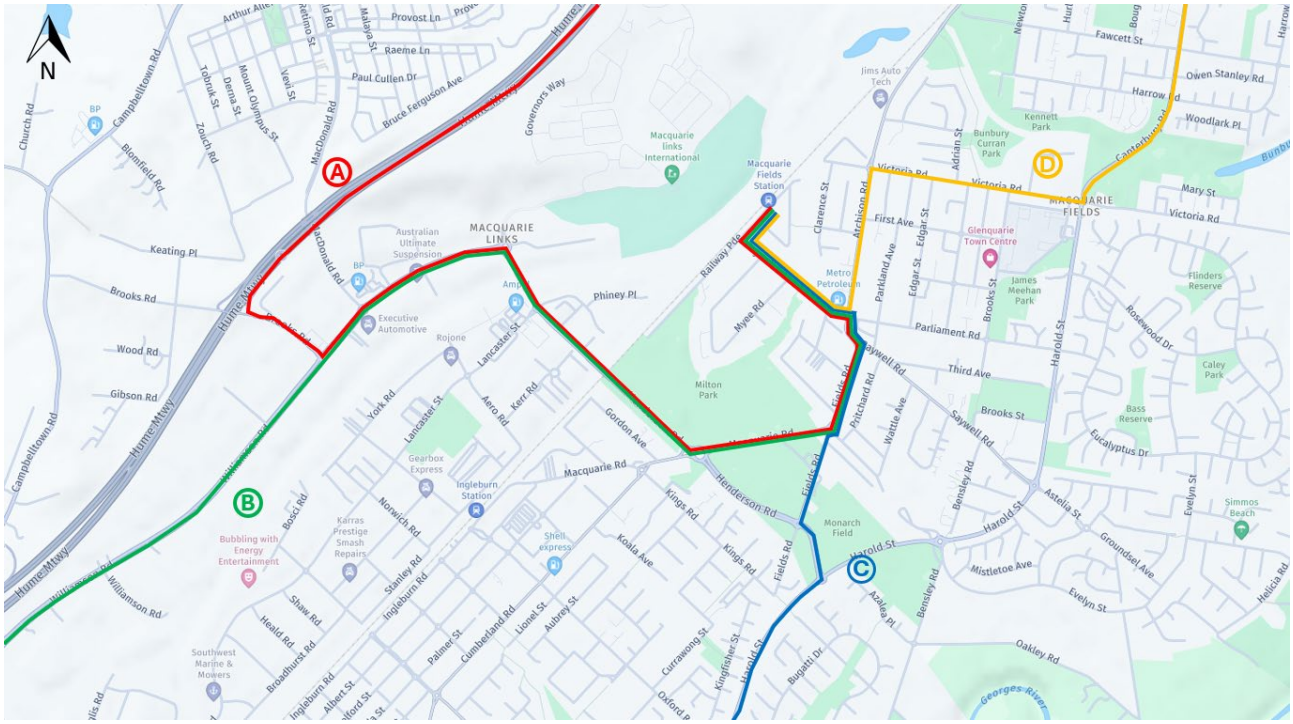


Figure 5-1 Anticipated vehicle routes to Macquarie Fields Station

Table 5-5 Distribution of daily vehicle trips during the AM

Route	Proposal site access road	Distribution percentage	Non-possession periods vehicle trips (rounded to nearest number)	Possession periods vehicle trips (rounded to nearest number)
A	Westbound on Hume Motorway	70%	25 trips	46 trips
B	Northbound on Williamson Street	5%	2 trips	3 trips
C	Southbound on Canterbury Road	20%	7 trips	13 trips
D	Northbound on Harold Street	5%	2 trips	3 trips

Vehicle trips away from the Proposal site are expected to utilise the same routes but in the opposite direction. The trips by construction staff to and from the Proposal site are expected to occur outside of the road network peak periods. The low volume of additional vehicle trips is not expected to have any impacts on the performance of the road network.

The potential traffic and access changes expected during the construction of the Proposal include:

- temporary pedestrian management to facilitate construction vehicle access to worksites
- temporary pedestrian access arrangements to the train station
- temporary detours due to construction work in the station forecourt and on platforms.

5.4.5 Impacts on parking

The constrained nature of the site means that off-street car parking for all construction personnel and vehicles would not be possible. As such, workers are likely to access the worksite via public transport or use public on-street parking nearby the site and would be discouraged from using the Council commuter car park and on-street commuter parking spaces. Subject to the extent of the partial closures of Railway Parade, some on-street parking spaces may temporarily be unavailable. A review of recent aerials between 2021 to 2024 was undertaken which indicate that on-street parking utilisation on local roads nearby such as Railway Parade west of Saywell Road, Waratah Crescent and Myee Road is generally low throughout the week. These roads primarily front residential developments, as such parking for commuters is not expected to be affected.

Parking is not permitted on Alexander Crescent, between the on-street commuter carpark and the cul-de-sac, and on the southern side of Railway Parade opposite the station access during 6:30 AM to 9:30 AM on Mondays to Fridays. Construction workers driving to the Proposal site are likely to arrive at the site prior to 6:30 AM and are anticipated to avoid parking in these areas. It is expected that construction workers would seek unrestricted parking which is located on Railway Parade, west of Saywell Road and on Alexander Crescent which loops north to intersect with Railway Parade. As mentioned in Section 4.4.5, there is adequate on-street parking which can accommodate construction worker vehicles during possessions (20 vehicles) and non-possession (50 vehicles) periods. As such, parking impacts from construction worker parking is expected to be low throughout the entirety of the construction period.

The expansion of the station forecourt including the construction of six new DDA compliant car spaces is expected to impact the number of available on-street commuter car parking spaces on Railway Parade for the duration of construction. During the works to relocate the existing kiss and ride bays, it is expected that vehicles may use general on-street parking areas to perform kiss and ride functions. As such on-street parking is expected to have a slightly higher utilisation, however this impact is expected to be minor. The Proposal would result in the temporary closure of the on-street commuter car park on Railway Parade while repainting of the parking bays is carried out. This car park would otherwise be kept open during construction.

The construction of a kerb extension on the eastern side of Railway Parade to accommodate the new pedestrian crossing may require a partial road closure. Any partial road closures on the southern side of Railway Parade are expected to be temporary and have minor impact on on-street parking in its vicinity.

5.5 Impacts on public transport

5.5.1 Rail connectivity

The decommissioning works would involve the decommissioning of the existing stairs, ramp and footbridge, however there would be temporary access stairs installed at the existing station entrance. These works would take place during a scheduled rail possession. Rail services would not be impacted by the construction works of the Proposal. Platform widening works would occur during scheduled rail possession periods and therefore have no impact on rail connectivity. Access to platforms would be maintained throughout construction and any changes to the access through the station would be sign posted to ensure adequate way finding.

5.5.2 Bus connectivity

The existing ‘Macquarie Fields Station, Railway Parade’ bus stop would be relocated due to temporary road closures along Railway Parade to facilitate construction works of the station entry/forecourt including the installation of two bus parking spaces, seating and an accessible waiting area. Bus services should not be significantly impacted by the construction works of the Proposal and any changes to the access through the station would be sign posted to ensure adequate way finding. Temporary changes to bus stop locations would require consultation with the relevant bus operators.

5.5.3 Impacts on point-to-point connectivity

There would be no impacts to point-to-point connectivity services as there are no existing taxi zones provided at or nearby the Proposal site. Should point-to-point connectivity services require parking near the Proposal site during construction, as discussed in Section 5.4.5, it is expected that general vehicles would use on-street parking areas to perform these functions. This would increase the on-street parking utilisation slightly and would have a minor indirect impact on parking availability for point-to-point connectivity services.

5.6 Impacts on walking and cycling

Alternate temporary station access and pedestrian detours would be established to allow continuous access to the station platforms for pedestrians for the duration of the construction works on Railway Parade. Construction of the Proposal would include the decommissioning of the existing stairs, footbridge and ramp, commissioning of new kerb and footpath adjustments along Railway Parade, and regrading works to align with parking and footpath changes throughout the station forecourt. There would be temporary disruptions to pedestrians as a result of the temporary partial road closures on Alexander Crescent to facilitate kerb ramp upgrades. The construction works would be completed while ensuring access to the station is not inhibited when train services are running.

Erection of suitable demarcation, hoarding and fencing would be required to provide temporary enclosure of work sites and work areas to safely separate the public from the construction works and to facilitate the delivery of plant and materials.

Hoarding would be required in areas of high pedestrian usage such as along Railway Parade, including any temporary closure or diversion of pedestrian throughfares as well as management of pedestrians around worksites and past work site access points. Additionally, works on the station platform would be appropriately fenced off and would not inhibit customer access to the platform during the construction period. There may be temporary impacts to cycling infrastructure prior to the relocation of the two existing bike lockers and installation of the eight new bicycle hoops adjacent to the lockers parking area immediately south of the station forecourt.

During the construction period, there may be temporary changes to how pedestrians, passengers and cyclists pass the station entry, rail access gates, and site compound, and pedestrians and cyclists would be required to detour to the existing pedestrian pathway. Furthermore, during temporary road closures or other isolated aspects of construction management, cyclists may be required to dismount at select points. There are no proposed impacts to the broader pedestrian and cycling network, as such delays and impacts from pedestrian and cyclist detours are expected to be minimal.

5.7 Impacts on emergency vehicles

Emergency vehicle access would not be impeded or modified from the current arrangements as part of the construction. Under *NSW Road Rules 2014 – Rule 305* and *306,* emergency vehicles may be permitted to travel on roads closed for construction when responding to emergencies but must exercise due care and take precautions to ensure safety. Access through closed roads for emergency vehicles is also subject to the ongoing construction works.

During construction, the Contractor shall notify emergency services with any changes to access for an emergency. The Contractor shall also consult with the local authorities and emergency services to determine the priority access routes to all sections of the Proposal site and emergency vehicle and service access requirements throughout construction.

5.8 Impacts on delivery, service vehicles and other kerbside uses

Macquarie Fields Station currently contains general waste bins and recycling bins on the platform in addition to general waste bins along the canopy approaches to the station on Railway Parade. Waste is removed from site by licenced waste contractors and disposed of at licenced waste facilities. The construction work is

expected to have minimal impacts on the current servicing arrangements and waste contractors would be consulted on any impacts. The construction works would also have no impact on any existing delivery/service vehicle operations to the existing developments in the vicinity of the Proposal site.

6 Assessment of potential operational impacts

This section describes the traffic, transport and access impacts that would result from the operation of the Proposal.

6.1 Impacts on road traffic

The Proposal would provide a new pedestrian crossing at the station forecourt, across Railway Parade which may introduce slight delays to vehicles and therefore, have minimal impacts on the road performance on Railway Parade. Otherwise, the ongoing operation of the Proposal is not expected to have any additional changes to the existing performance of the road network.

6.2 Impacts on parking and other kerbside uses

The Proposal would provide the following:

- Relocation of the existing 'Macquarie Fields Station, Railway Parade' bus stop about 40-metres south-west along Railway Parade and provision of additional capacity to allow for two buses, seating and accessible waiting areas at the new location
- Six new accessible parking spaces (including one longer accessible parking space), and two kiss and ride spaces on Railway Avenue, in accordance with AS2890.5
- Kerb extensions at the new pedestrian crossing.

The Proposal would result in the permanent reduction of 15 car parking spaces to accommodate upgrades to the station forecourt including the provision of six accessible parking spaces and a pedestrian crossing. The reconfigured accessible parking spaces (with one longer accessible parking space to accommodate accessible community transport vehicles) would be located closer to the new lift providing an accessible path of travel to both platforms. In accordance with AS2890.5 these spaces would be angled at 90 degrees which would ease parking manoeuvres, particularly in the southbound direction.

The kerb extension to facilitate the new pedestrian crossing would be approximately 15 metres in length and its approximate location is shown in Figure 6-1. Access to the adjoining residential properties would not be impacted. As mentioned in Section 4.4.5 there is adequate on-street parking on the surrounding streets to accommodate parking spaces removed. As such, minimal impacts to the on-street commuter parking spaces on Railway Parade are expected.

The upgraded kiss and ride zone would be provided in the indented bays, relocated north-west along Railway Parade, in accordance with AS2890.5. The kiss and ride zone would be located closer to the new lift and pedestrian footbridge, which would improve the accessibility for customers in the area.

Overall, the operation of the new facilities is expected to have minimal impacts on the performance of the existing parking inventory.

Figure 6-1 Approximate location of kerb extension

6.3 Impacts on public transport

The Proposal would relocate the existing 'Macquarie Fields Station, Railway Parade' bus stop about 40 metres south-west along Railway Parade and provide additional capacity to allow for two buses, seating and accessible waiting areas at the new location. The additional bus parking space also allows for future bus service expansion.

6.4 Impacts on point-to-point connectivity

The Proposal would upgrade the kiss and ride zone to accommodate two car spaces along the station forecourt, making it easier for customers to identify where to stand and thereby improving the usability of the area for taxi and ride-share users. Although there are no existing or proposed taxi zones at the Proposal site, the usability of point-to-point connectivity services would still be improved.

6.5 Impacts on pedestrians

The Proposal would provide a new compliant footpath, adjoining the station, in accordance with AS2890.5 to meet the minimum angle parking requirements (front to kerb) with a minimum width of two metres. The proposed footpath width has been locally widened to allow 1.5 metres from the back of the kerb ranks to offer sufficient landing for wheelchairs. The new car parking bays would include wheel stops to protect pedestrian movements.

The Proposal would also provide a new pedestrian crossing across Railway Parade from the station forecourt that will would align with pedestrian desire lines for accessing and departing from the station. The new kerb lines have been realigned to reduce the crossing length and enhance the pedestrian sight distance, which are in accordance with the *TDT 2002/12c – Stopping and parking restriction at intersections and crossings*.

The Proposal would include a new footbridge to improve accessibility to the station platforms, upgrade the existing ramp and stairs to the station forecourt to provide compliant accessible station access, and a new accessible pathway throughout the station forecourt. Overall, the implementations and operation of the Proposal would provide an improved user experience and accessibility for pedestrians.

6.6 Impacts on cyclists

The Proposal would relocate the two existing bicycle lockers, to be closer to the station forecourt and provide eight new bicycle hoops south of the station forecourt. The double-sided bicycle hoops would be able to accommodate a total of 16 bicycles and is expected to match existing usage.

6.7 Impacts on emergency vehicles

There are no expected impacts on emergency vehicles as a result of operation of the Proposal.

6.8 Impacts on loading and servicing

The operation of the Proposal is not expected to have any impacts on the existing loading arrangements for developments immediately surrounding the site.

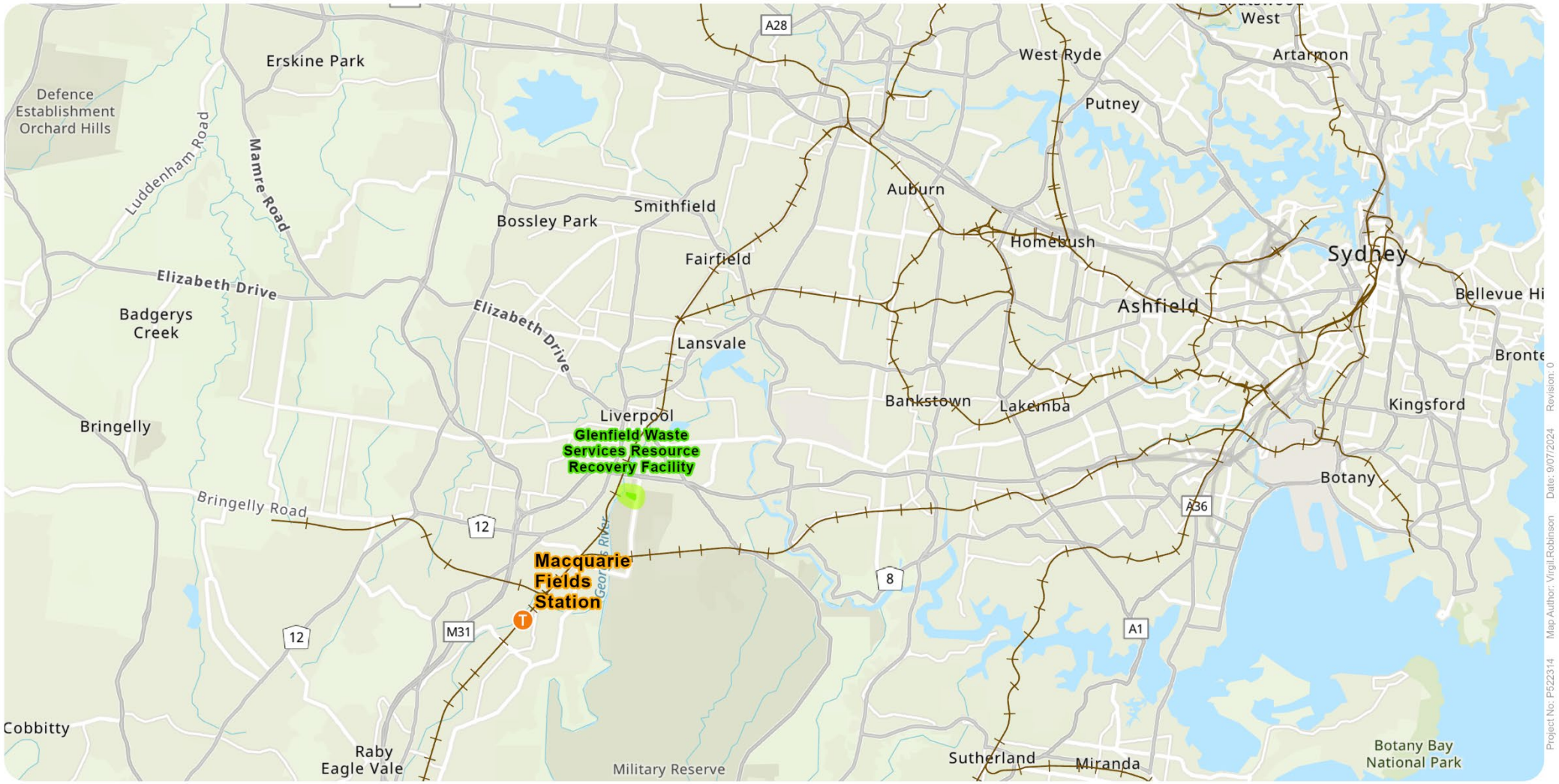
A new bin storage room would be established to the north of the station forecourt along Railway Parade. This relocation is expected to have no impacts on the servicing arrangements for the station and allow for improved waste management practices.

7 Cumulative impacts

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 in local communities, particularly around noise, traffic and air quality impacts, if not appropriately managed.

Other future major projects planned near the site that have the potential to generate cumulative impacts are included in Figure 7-1. The cumulative impact assessment has considered projects within the suburb of Macquarie Fields and projects in the broader context that may have anticipated construction routes that coincide with the Proposal. These projects were identified using the Campbelltown City Council Approved Development Register and the Department of Planning, Housing and Infrastructure (DPHI) Major Projects Planning Portal in June 2024.

A search on 3 July 2024 identified no projects with the potential for cumulative impacts alongside the Proposal. In the broader context a future project was identified and a short summary and the anticipated cumulative impacts are provided in Table 7-1.There is expected to be negligible cumulative impacts given consideration of other project timings and locations.



Safe Accessible Transport program - Macquarie Fields Transport Impact Assessment

Figure 7-1: Nearby developments

Table 7-1 Cumulative impacts summary

Project number	Reference and Project name	Project description	Relationship to Project footprint	Potential cumulative impact
1	Glenfield Waste Services Resource Recovery Facility (SSD-6249)	The project would involve the expansion of an existing resource recovery facility to accept and process up to 450,000 per annum of non-putrescible waste from construction and demolition, and commercial and industrial sources.	This project is located around five kilometres northeast of the Proposal.	The Glenfield Waste Services Resource Recovery Facility is currently in the Response to Submissions phase. Funding has not been approved and therefore, timing is not confirmed for the delivery of this project. The overall traffic generation of the facility is expected to remain the same as its current operation. The Proposal is anticipated to generate five full-time equivalent jobs during construction and employ 20 staff during operation. Accordingly, the site is expected to generate approximately: AM peak: 27 vehicular trips PM peak: 8 vehicular trips Vehicular trips include light and heavy vehicles. The project's preliminary Construction Traffic Management Plan (CTMP) indicates that during the construction of the project, the construction vehicles are anticipated to access the site via Cambridge Avenue from Campbelltown Road. This route does not impact the Proposal. Due to the project being located approximately five kilometres from the Proposal with no timing confirmed for the delivery of the project and the construction traffic routes not coinciding with the Proposal, there are no cumulative impacts anticipated.

8 Environmental management measures

This section provides a summary of the recommended construction and operational management measures to mitigate against, monitor and manage any traffic, transport and access impacts described in Sections 5 to 7 and as shown in Table 8-1.

Table 8-1 Environmental management measures

Impact	Environmental management measure	Timing
Road Condition Reports	Prior to construction commencement, road condition surveys and reports on the condition of roads and footpaths to be affected by construction shall be prepared and provided to Transport for information. Any damage resulting from the construction of the Proposal, aside from that resulting from normal wear and tear, shall be repaired at the Contractor's expense.	Pre-construction and post-construction
Authorisation for Road Use	Relevant authorisation(s) from the appropriate road authority will be obtained for the proposed operational changes to Railway Parade, such as changes to parking, bus stops, pedestrian crossing arrangements and signage.	Operation
Road Occupancy Licence(s)	The temporary partial road closures and traffic management controls on public roads around the station will be managed and implemented in accordance with the provisions of Road Occupancy Licence(s).	Pre-construction / construction
Notification of station changes	The emergency services, public transport operators, and other key users will be notified in advance of all internal and external changes at the station. The public will be advised to allow additional travel time.	Pre-construction / construction
Oversize vehicle movements and routes	Oversized vehicle movements and routes will be confirmed in advance in consultation with NSW Police, Transport for NSW, and Campbelltown City Council. They will be scheduled with the guidance of the above authorities. Additional traffic controls such as police escorts will be used where needed or directed.	Pre-construction / construction

9 Conclusion

Subject to approval, early construction activities are expected to commence in late 2024, with main construction commencing early 2025 and taking around 18 months to complete. Timeframes are subject to detailed design and final construction methodology. This TTIA is focused on the worst-case impacts that are expected to be associated with the construction including the number of construction workers and construction vehicle traffic, which are summarised below:

- **Non-possession periods**:
  - AM: 35 vehicle trips travelling to the Proposal site
  - PM: 35 vehicle trips travelling away from the Proposal site.
- **Possession periods**:
  - AM: 65 vehicle trips travelling to the Proposal site
  - PM: 65 vehicle trips travelling away from the Proposal site.

The worse-case impacts anticipated as a result of the construction and operation of the Proposal are temporary and minor in nature. The key findings of this impact assessment are as follows:

- The surrounding road network is anticipated to operate as per the existing conditions throughout the construction of the Proposal as any additional vehicle trips by construction workers would be made outside of the road network peak hours.
- Throughout the day, additional trips due to the movement of material and for supply delivery would occur. However, these trips are expected to be low in volume and would have minimal impacts to the performance of the road network.
- Any partial road closures of Railway Parade are expected to be temporary and minor on the road network.
- Any partial road closures of Railway Parade, such as installing new lifts, decommissioning and removing the old transformer, and installing a new padmount transformer are expected to have minimal impact on parking availability due to adequate on-street parking.
- The existing ‘Macquarie Fields Station, Railway Parade’ bus stop would be temporarily relocated during construction. Bus services would be maintained and is expected to have temporary and minor impacts on public transport accessibility.
- The on-street parking around the Proposal site would experience a higher utilisation due to the construction of the Proposal. Due to the high supply of on-street parking the impact is expected to be minor.
- No road safety impacts are anticipated as a result of the construction and operation of the Proposal.

Despite the absence of any significant impacts, several best practice mitigation measures are proposed by this TTIA to minimise an impacts or inconveniences as a result of the Proposal.

10 References

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Document prepared by

Aurecon Australasia Pty Ltd
ABN 54 005 139 873

Level 11, 73 Miller Street
North Sydney 2060 Australia

PO Box 1319
North Sydney NSW 2059
Australia

T +61 2 9465 5599
F +61 2 9465 5598
E sydney@aurecongroup.com
W aurecongroup.com

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