TRANSPORT FOR NSW

FAULCONBRIDGE STATION - TRANSPORT ACCESS PROGRAM UPGRADE

TRAFFIC, TRANSPORT AND ACCESS IMPACT ASSESSMENT

OCTOBER 2019

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Faulconbridge Station - Transport Access Program Upgrade
Traffic, Transport and Access Impact Assessment

Transport for NSW

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1 INTRODUCTION

This Traffic, Transport and Access Impact Assessment report (the Report) has been prepared by WSP Australia for Transport for NSW (TfNSW) to accompany the Review of Environmental Factors (REF) report for the Faulconbridge Station Transport Access Program (TAP) Upgrade proposal (the Proposal).

1.1 BACKGROUND

TfNSW is the lead agency for integrated delivery of public transport services across all modes of transport in New South Wales. The Transport Access Program (TAP) is a rolling program of works established by TfNSW. The objective for TAP 3 is to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure where it is needed most. Faulconbridge Station does not currently meet key requirements of the Commonwealth *Disability Discrimination Act 1992* (DDA) or the *Disability Standards for Accessible Public Transport* (DSAPT).

TAP is an initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure. Key benefits include:

- stations that are accessible to people with a disability, limited mobility and parents with prams
- modern buildings and facilities for all modes that meet the needs of a growing population
- modern interchanges that support an integrated network and allow seamless transfers between all modes for all customers.

1.2 KEY ELEMENTS OF THE PROPOSAL

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

- Construction of a new lift on the platform to connect to the existing footbridge.
- Construction of a new lift off the Great Western Highway (eastern side only) to connect to the existing footbridge.
- Upgrade of the existing pedestrian footbridge over the Great Western Highway and all stairs including new handrails, tactile ground surface indicators (TGSIs), nosings and modifying the existing balustrade.
- Internal station building works including:
  - reconfiguration of the existing station waiting room, door widening, and allocated spaces for wheelchairs and persons with disability
  - reconfiguration of the existing toilets to accommodate one new unisex family accessible toilet and one new unisex Ambulant toilet.
- Modifications to the commuter car park and Kiss-and-Ride including:
  - upgrade of the two existing DDA parking spaces, and upgrade of the existing Kiss-and-Ride bay
  - construction of a new DDA compliant ramp (including demolition of existing non-complaint path) from the existing pedestrian footbridge to the commuter car park
  - provision of a new rest area with seating at the western entrance of the existing footbridge.
- Upgrade of existing platform and access paths to include TGSIs and safety zone markings.
- Provision of access paths and circulation spaces to connect all customer facilities at the station (e.g. lifts, Kiss-and-Ride, DDA car space, family accessible toilet etc.).

- Ancillary works including adjustments to lighting, relocation or replacement of existing customer facilities (drinking fountain, seating, telephone booth, guard indicators, Opal card readers, fencing etc.), improvement to station communications (including CCTV cameras, LED lighting, Public Address (PA) system, and hearing loops), wayfinding signage, yellow lines, bike rack etc.

1.3 STUDY SCOPE

The purpose of this Report is to assess the likely traffic, transport and access impacts during the construction and operation of the proposed upgrade and to identify mitigation measures to reduce the likely impacts of the project. This information will be summarised in the REF report. More specifically, the following issues have been covered in this report:

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

This assessment has been prepared noting the following:

- No surveys (traffic, pedestrian and parking), car parking design or swept path analyses were undertaken as part of this assessment.
- Stakeholder or community consultation was not conducted as part of this study.
- Assumptions were made regarding the proposed construction activities and likely generated construction vehicle volumes.
- No traffic and pedestrian modelling was completed as part of this project, noting that the proposed station upgrades are expected to generate minimal traffic during construction.

1.4 REFERENCES

In preparing this report, reference has been made to the following:

- Transport Access Program 3 Lifts to Existing Streel Foot Bridges Scope Design Report – Faulconbridge Station (Stantec, 2018)
- A site inspection of the site and its surrounds
- Blue Mountains City Council Local Environmental Plan (LEP) 2015
- Australian Standard, Parking Facilities, Part 1: Off-street car parking AS 2890.1:2004
- Australian Standard, Parking Facilities, Part 6: Off-street car parking for people with disabilities AS 2890.6:2009.

1.5 REPORT STRUCTURE

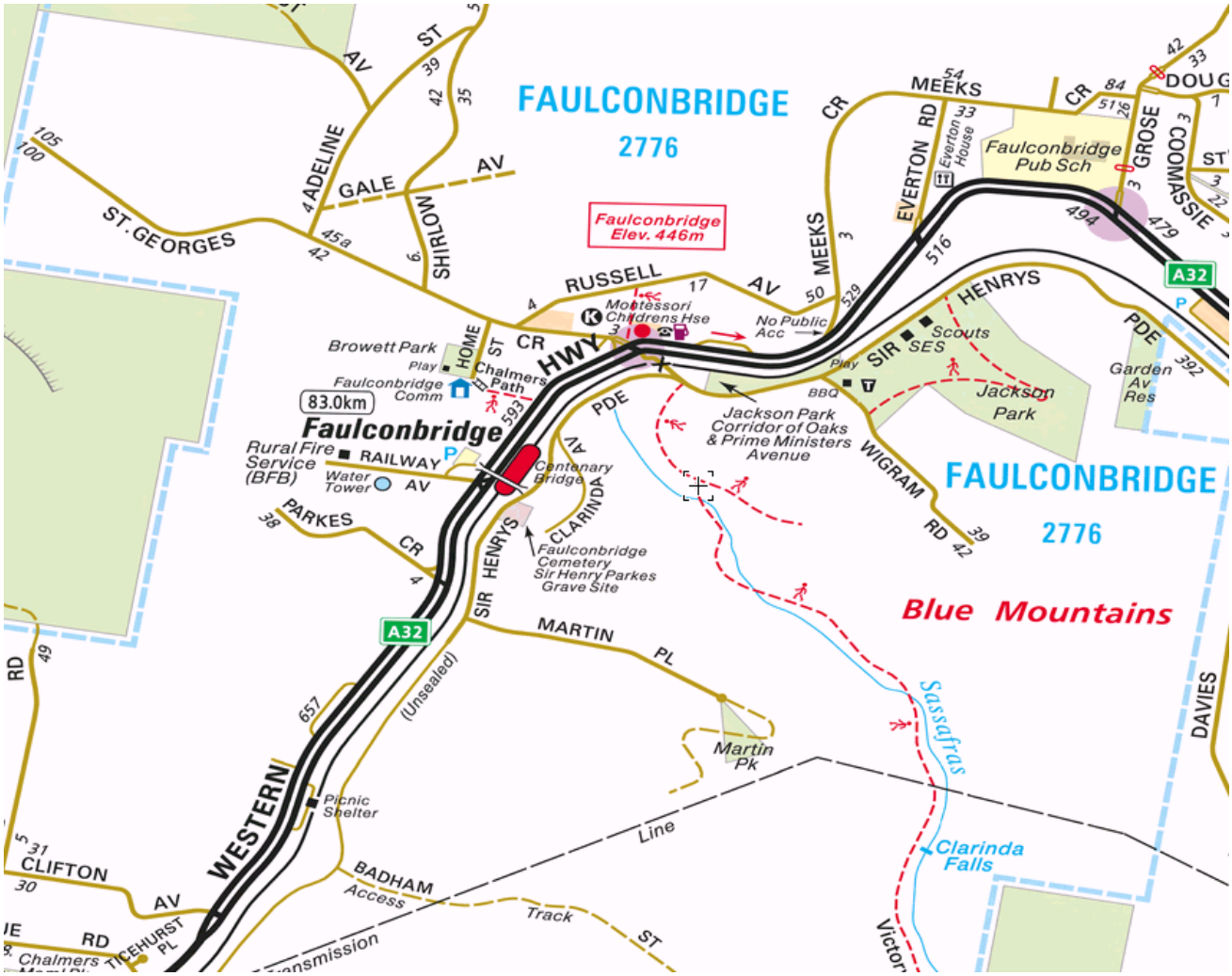
This report has the following structure:

- Chapter 2 Existing Conditions. Describes the existing road network, traffic conditions, public transport and active transport networks in the study area.
- Chapter 3 Proposed upgrades. Describes the key features of the proposed upgrades and construction activities.
- Chapter 4 Construction impacts. Describes the impacts to all users during construction.
- Chapter 5 Operational impacts. Presents the impacts of the proposed changes on all users.
- Chapter 6 Suggested improvements and mitigation measures. Identifies potential improvements and amelioration measures to minimise any identified Proposal related impacts.

2 EXISTING CONDITIONS

2.1 STUDY AREA

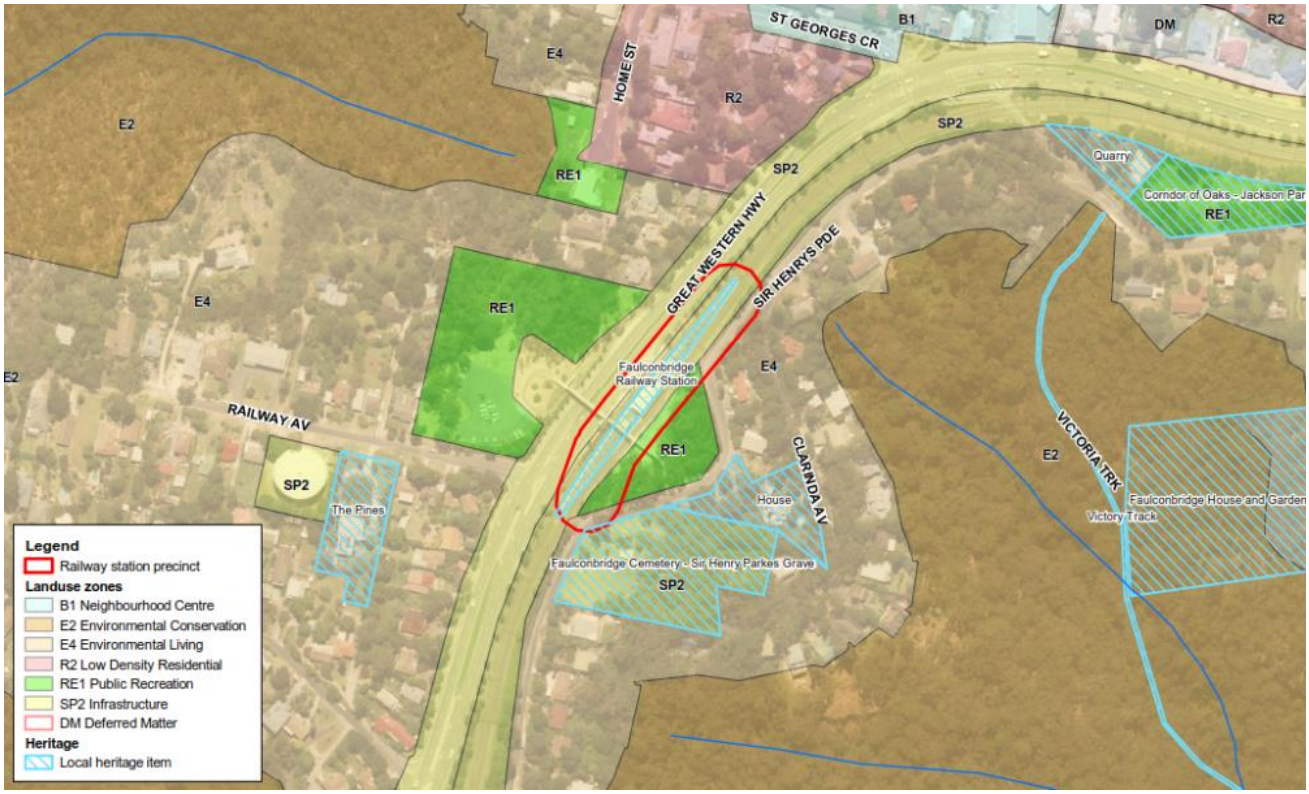
Faulconbridge Station is in the Blue Mountains Region of NSW, approximately 83 kilometres (km) west of the Sydney CBD and about 21 km east of Katoomba. The station located is within the City of Blue Mountains Council Local Government Area (LGA). Faulconbridge Station is bounded by the Great Western Highway to the west and Sir Henrys Parade to the east. The location of Faulconbridge Station and the local context is shown in Figure 2.1.



Source: Sydway

Figure 2.1 Faulconbridge Station precinct

The land uses surrounding Faulconbridge Station are generally low density residential with extensive areas of nearby bushland. Bushland surrounds the town with significant vegetation to the east and west of the station and along much of the rail corridor within this area. The town centre, Faulconbridge Public School and most of the commercial area are located over a kilometre northeast of the station. The land zoning map, with the rail corridor shown in yellow is illustrated in Figure 2.2.



Source: Blue Mountains City Council Local Environmental Plan (LEP) 2015

Figure 2.2 Faulconbridge land use zoning

2.2 SITE INSPECTION

A site inspection was carried out by the WSP study team on Monday 26 August 2019, to get an understanding of existing railway station operations, conditions, facilities and access.

2.3 SURROUNDING ROAD NETWORK

The existing road network around the Faulconbridge Station mainly comprises local roads (residential streets) as well as the Great Western Highway which is located immediately to the west of the station. Key features of this road network include:

- Great Western Highway (A32) – which is a four-lane, two-way Road which extends between Sydney CBD and Bathurst. It is aligned in a north-south direction adjacent of Faulconbridge Station. The Great Western Highway has a posted speed limit of 60 km/h through Faulconbridge and intersects with Railway Avenue.

- Sir Henrys Parade – which is a local road which runs in a north-south direction, providing the access to Faulconbridge Station and residential areas on the eastern side of the railway line. It provides the only level road crossing of the railway line in vicinity of the station and provides an access to the informal commuter car park. There is the HiRail access point located north-east of the study area near the intersection of the Great Western Highway and Sir Henrys Parade which is the main access point for HiRail equipment on the Blue Mountains Line. HiRail equipment vehicles would access the rail corridor from this point for works in the Blue Mountains Line region during track possession periods.
- Railway Avenue – which is a local road that intersects with the Great Western Highway and links areas on the western side which includes the commuter car park and residential area.

Figure 2.3 shows the road network and transport facilities including commuter car parks and bus stops.

Figure 2.3 Road network and existing transport facilities

2.4 STATION ACCESS

Access to Faulconbridge Station is provided through an existing footbridge and stairs leading down to a central island platform and station building via three points:

- access via the existing commuter car park, which is located on the western side of the Great Western Highway using the elevated circular ramp or stairs
- access from Sir Henrys Parade by a steep gradient gravel driveway to a small unsealed car park. From the car park access to the footbridge is via an existing elevated circular ramp or stairs
- stair access is provided in between the railway station and the eastern side of the Great Western Highway.

Faulconbridge is a single island platform station located between two tracks. The main access points are shown in Figure 2.4 to Figure 2.6.

Figure 2.4 Access to the commuter car park

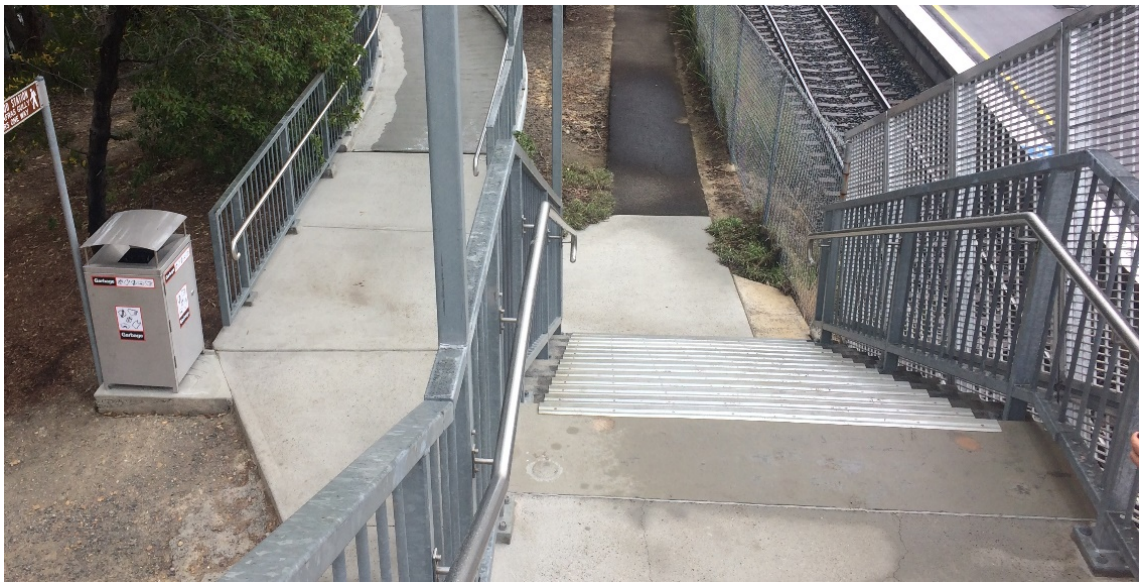


Figure 2.5 Stairs to and from the eastern side of the station

Figure 2.6 Stairs to/from the eastern side of the Great Western Highway

2.5 PARKING

Faulconbridge Station has two dedicated commuter car parks. Figure 2.3 shows the locations of unrestricted parking, both commuter and off-street car parking, close to Faulconbridge Station.

The main commuter car parking is located approximately 110 m away from the station platform, on the western side of the Great Western Highway which can be accessed via Railway Parade. It provides 48 commuter car parking spaces including two accessible car spaces which are currently non-compliant. Parking is free and unrestricted.

On the eastern side of the station, there is an informal commuter car park on TfNSW owned land, located between the station and Sir Henrys Parade. In addition, there is off street parking on the western side of Sir Henrys Parade which has the capacity to hold up to five vehicles.

It is expected that on-street parking demand along the nearby local street (i.e. Sir Henrys Parade and Railway Avenue) would be low due to the narrow road width and ample car park spaces are provided in the commuter car parks on both side of the station.

Figure 2.7 Existing commuter car park on the western side of Faulconbridge Station

Figure 2.8 Informal commuter car park on the eastern side of Faulconbridge Station

Figure 2.9 Off-street car parking spaces on Sir Henrys Parade

2.6 PUBLIC TRANSPORT

2.6.1 RAIL SERVICES

Faulconbridge Station is serviced by the Blue Mountains Line. The Blue Mountains Line generally ends at Mount Victoria for daily services and extends to Lithgow every 2 hours and occasionally to Bathurst. The journey between Faulconbridge Station and Central Station takes approximately 85 minutes during peak periods. There are trains typically every hour in off peak periods in both directions.

Table 2.1 summarises the existing train services at Faulconbridge Station.

Table 2.1 Train services at Faulconbridge Station

RAIL LINE	SERVICES	FREQUENCY OF SERVICES IN THE WEEKDAY	
		AM peak (7.00–9.00 am)	PM peak (4.00–6.00 pm)
Blue Mountains Line	Bathurst and Lithgow to Central	5 (15 to 30 minutes)	3 (30 to 60 minutes)
	Central to Lithgow and Bathurst	3 (30 to 60 minutes)	4 (30 minutes)

Source: Blue Mountain Line timetable https://transportnsw.info/

2.6.2 RAIL PATRONAGE

Table 2.2 includes a comparison of rail patronage data in 2017 to predicted patronage data for 2036.

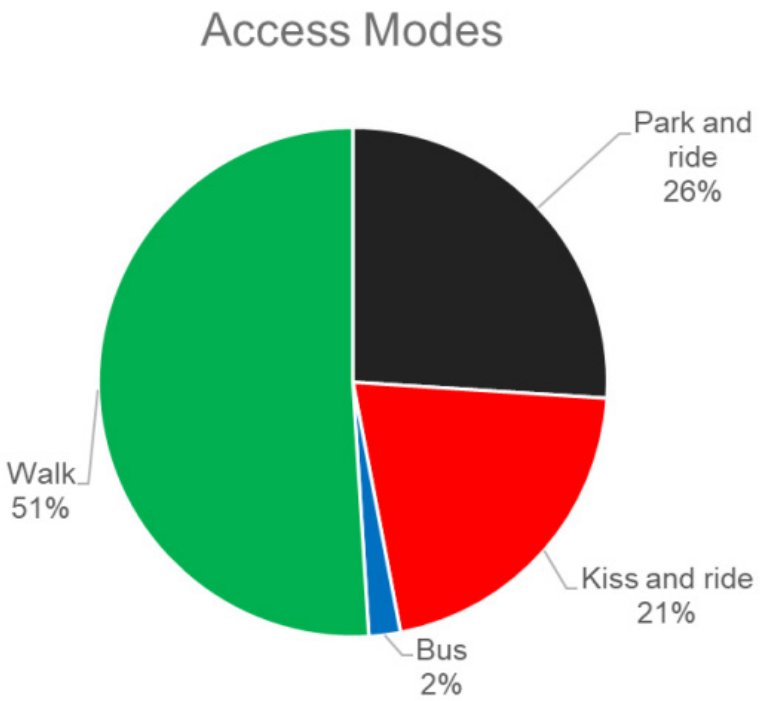
Table 2.2 Faulconbridge patronage

PERIOD	2017	2036
AM peak hour demand	19	22
Assumed peak train AM boarders/PM alighters	7	8
Assumed peak train AM alighters/PM boarders	2	2

Source: Scoping Design Report (Stantec 2018)

The existing rail patronage at Faulconbridge Station is low and the proposed upgrade would not expect to generate additional patronage demand in the future.

Below in Figure 2.10 is a summary of access modes to Faulconbridge Station that is anticipated in a 3.5 hour AM peak in 2036. This shows that most customers access Faulconbridge Station by walking.



Source: Scoping design drawing (Stantec 2018)

Figure 2.10 Access modes to Faulconbridge Station (*Source: Sydney Metro PTPM TPATF_115*)

2.6.3 BUS SERVICES

Faulconbridge Station services three bus routes from the Great Western Highway. These routes include:

- 685H Springwood to North Hazelbrook (Loop Service)
- 690K Springwood to Katoomba
- 690P Springwood to Penrith.

All bus stops associated with the station are located on the western side of the railway line on the Great Western Highway. The bus stop locations and the routes that service Faulconbridge Station are presented in Figure 2.3, with bus frequency detailed in Table 2.3.

Table 2.3 Train services at Faulconbridge Station

ROUTES	SERVICES	FREQUENCY OF SERVICES IN THE WEEKDAY		
		AM peak (7.00–9.00 am)	PM peak (4.00–6.00 pm)	Daily
685H	Springwood to North Hazelbrook (loop service)	2	1	6
690P	Penrith to Springwood	0	3	6
	Springwood to Penrith	0	0	1
690K	Katoomba to Springwood	0	1	6
	Springwood to Katoomba	1	0	7

Source: Blue Mountain Line timetable https://transportnsw.info/

2.7 PEDESTRIAN AND CYCLIST INFRASTRUCTURE

2.7.1 TAXI FACILITIES

Currently there are no taxi-rank facilities at Faulconbridge Station.

2.7.2 KISS-AND-RIDE FACILITIES

A formal Kiss-and-Ride facility is located within the commuter car park on the western side of the Faulconbridge Station. There are currently no formal Kiss-and-Ride bays on the eastern side of the station, but informal car park or on-street car park spaces on Sir Henrys Parade can be used as an informal pick up and drop off area.

2.7.3 CYCLIST FACILITIES

Blue Mountains City Council recognises the Great Western Highway as a regional on-road cycling route with a shared path also provided. The existing shared path facility runs along the both sides of the Great Western Highway with cyclists required to cross the highway via the footbridge at Faulconbridge Station. A dedicated cycleway is provided on the eastern side of the Great Western Highway, south of the footbridge for approximately 250 m section.

No bike storage facilities elements of the Proposal.

STATION UPGRADE

- Construction of a lift located to the south of the existing pedestrian footbridge, to provide access between the existing pedestrian footbridge and the station platform.
- Construction of a lift located to the north of the existing pedestrian footbridge to provide access between the existing footbridge and the bus stop and pedestrian and cycle network next to the Great Western Highway.
- Upgrade of existing platform and access paths to include TGSIs and safety zone markings including removal of planter boxes on platform.
- Upgrade of all existing stairs to include new compliant handrails, TGSIs and nosings.
- Internal station building works including:
  - reconfiguration of the existing station waiting room to allow level access, door widening for wheelchair access, and allocated spaces for wheelchairs and persons with disability
  - reconfiguration of the existing toilets into one new family accessible toilet and one new Unisex Ambulant toilet, including relocating brick privacy screen and existing boarding ramp in front of the existing male toilet entrance to provide access to family accessible toilet.

PARKING, KISS-AND-RIDE AND PEDESTRIAN WORKS

- Upgrade of existing DDA car parking spaces to include new line marking, signage and bollards as required.
- Provision of new Kiss-and-Ride bay, including localised regrading within the car park and any associated works.
- Provision of a new DDA compliant ramp (including demolition of existing non-complaint access path) from the existing footbridge to the upgraded DDA car parking spaces in western commuter car park on Railway Avenue.
- Provision of a new rest area with seating at the western entrance of the existing footbridge including one wheelchair space.

ANCILLARY WORKS

- Modification of existing seating at the bus stops on Great Western Highway to provide one allocated wheelchair space.
- Temporary site compounds for storage of material and equipment.
- Provision of a bike rack near the station. Location to be confirmed in the detailed design stage.

2.8 CONSTRUCTION ACTIVITIES

Subject to approval, construction is expected to commence in mid-2020 and take around approximately 12 to 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 TfNSW. The proposed construction activities for the Proposal are identified in Table 2.4. This staging is indicative and is based on the current concept design and may change once the detailed design methodology is finalised.

Table 2.4 Indicative construction staging for key activities

STAGE	ACTIVITIES	TIMING (INDICATIVE)
Site establishment and enabling work	— Establish site compounds (i.e. 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 etc.). — Erect site hoarding/fencing as required. — Service location and relocation.	Standard hours
Lift work	— Excavation and rock breaking for lift pits/foundations. — Demolition of remnant bridge footing under platform (in new lift location). — Waterproof (as required), install reinforcement, formwork and concrete to form the lift pit. — Erect glass and steel shaft structure. — Lift installation and commissioning. — Architectural fit-out around lift shaft including new awning over the lift.	Standard hours, night-works and 48-hour rail shutdown during scheduled Sydney Trains track maintenance weekends
Stair upgrade	— Demolish existing non-complaint rails (where required). — Modify stairs including installation of new nosings, hand railing and TGSIs.	Standard hours
Ramp upgrade	— Earthworks for new ramp grading. — Ramp formwork and structure. — Ramp fitout of new handrailing, seating and tactiles.	Standard hours
Commuter car park upgrades	— Reconfiguration of the existing roadway (kerb, line marking, etc.) to accommodate the upgraded accessible parking and Kiss and ride bays. — Installation of new kerb ramps. — Widening of footpath landing connection to ramps.	Standard hours

STAGE	ACTIVITIES	TIMING (INDICATIVE)
Station building works	— Provision of new family accessible toilet and Ambulant toilets in place of existing toilet facilities. — Door widening to waiting room to allow wheelchair access, provision of allocated space in waiting room. — Upgrade the general station infrastructure including DDA signage, CCTV etc. where applicable.	Standard hours
Platform modification work	— Regrade platform surface as required for accessible path. — Relocate platform furniture along accessible paths. — Install new yellow line and tactiles along platforms. — Install new canopy extension. — Relocate seating. — Install new drinking fountain and adjust telephone booth height. — Install new Opal card reader.	Standard hours or 48-hour rail shutdown during scheduled Sydney Trains track maintenance weekends
Demobilisation	— Installation of other ancillary features and landscaping. — Removal of hoardings. — Clearing of site. — Remove environmental, safety and traffic controls.	Standard hours

2.9 WORKING HOURS

Most of the works required for the Proposal would be undertaken 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 would need to be undertaken outside of standard hours and would include night works, weekend works and works during scheduled Sydney Trains rail possessions. These are scheduled closures that would occur regardless of the Proposal when part of the rail network is temporarily closed, and trains are not operating.

Out of hours works are required in some cases to minimise disruptions to customers, pedestrians, motorists and nearby sensitive receivers; and to ensure the safety of railway workers and operational assets. It is estimated that approximately six rail shutdowns periods would be utilised to facilitate the following activities:

- detailed site survey, services investigations within and around the rail corridor
- excavation and installation of lift shafts and canopy structures
- regrading platform surface
- services relocations.

Out of hours works may also be scheduled outside rail shutdown periods. Approval from TfNSW would be required for any out of hours work and the affected community would be notified as outlined in the TfNSW *Construction Noise and Vibration Strategy* (TfNSW, Version 4.1 2019).

2.10 PLANT AND EQUIPMENT

The plant and equipment likely to be used during construction includes:

- Trucks
- Jack hammer
- Chainsaw
- Piling rig
- Franna/mobile cranes
- Coring machine
- Water cart
- Suction trucks
- Rail mounted elevated
- Forklift
- Hi-rail plant (ewp/flatbed/hiab/balloon tyred dump truck)
- Vibrating roller/compaction plate
- Road rail excavator
- Bobcat
- Excavator
- Demolition saw
- Concrete pump and truck
- Lighting tower
- Hand tools
- Skip trucks
- Hammer drills
- Torque wrenches
- Impact wrenches
- Grinders and bar
- Benders
- Elevated work platform (ewp).

3 CONSTRUCTION IMPACTS

3.1 SITE COMPOUND

Temporary construction compounds would be required to accommodate construction activities associated with the Proposal including a site office, amenities, laydown and storage area for materials, construction plant and equipment. Two areas have been identified for proposed construction compounds as shown in Figure 3.1. These are:

- main compound site, the cleared land to the east of Faulconbridge Station between the rail corridor and Sir Henrys Parade (orange outline)
- potential compound site, an area of non-cleared land north to the commuter car park on the western side of Faulconbridge Station (yellow outline).

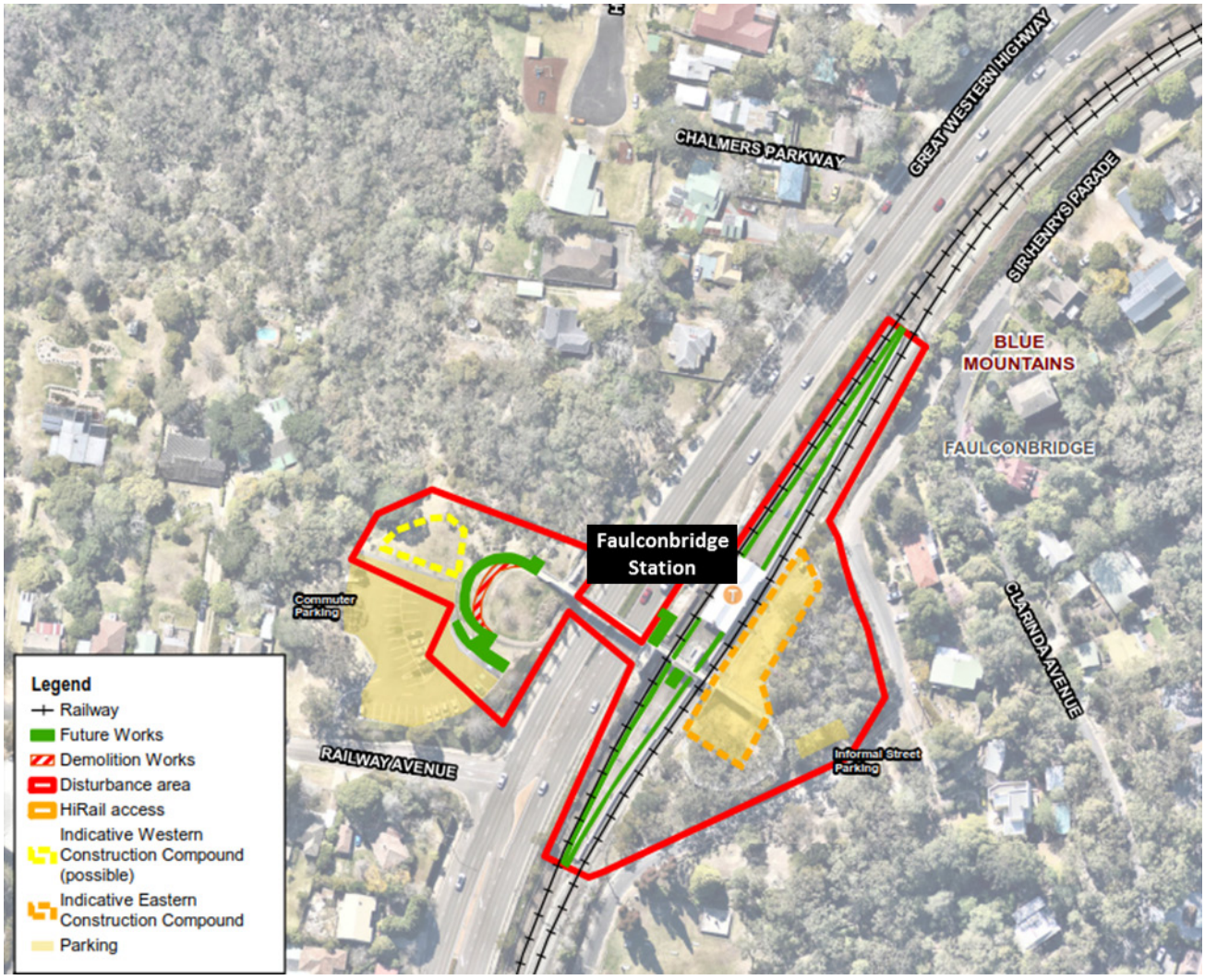


Figure 3.1 Proposed site compound locations

3.2 HAULAGE ROUTES

The road network surrounding Falconbridge Station is well serviced by approved B-double routes with the Great Western Highway which can cater for 19 metre B-double vehicles.

As no definitive haulage route has been identified at this stage, Figure 3.2 outlines the potential haulage routes that can cater for heavy vehicle access to and from the both compound sites. The final construction haulage route would be determined by the nominated construction contractor during the detailed design of the proposal.

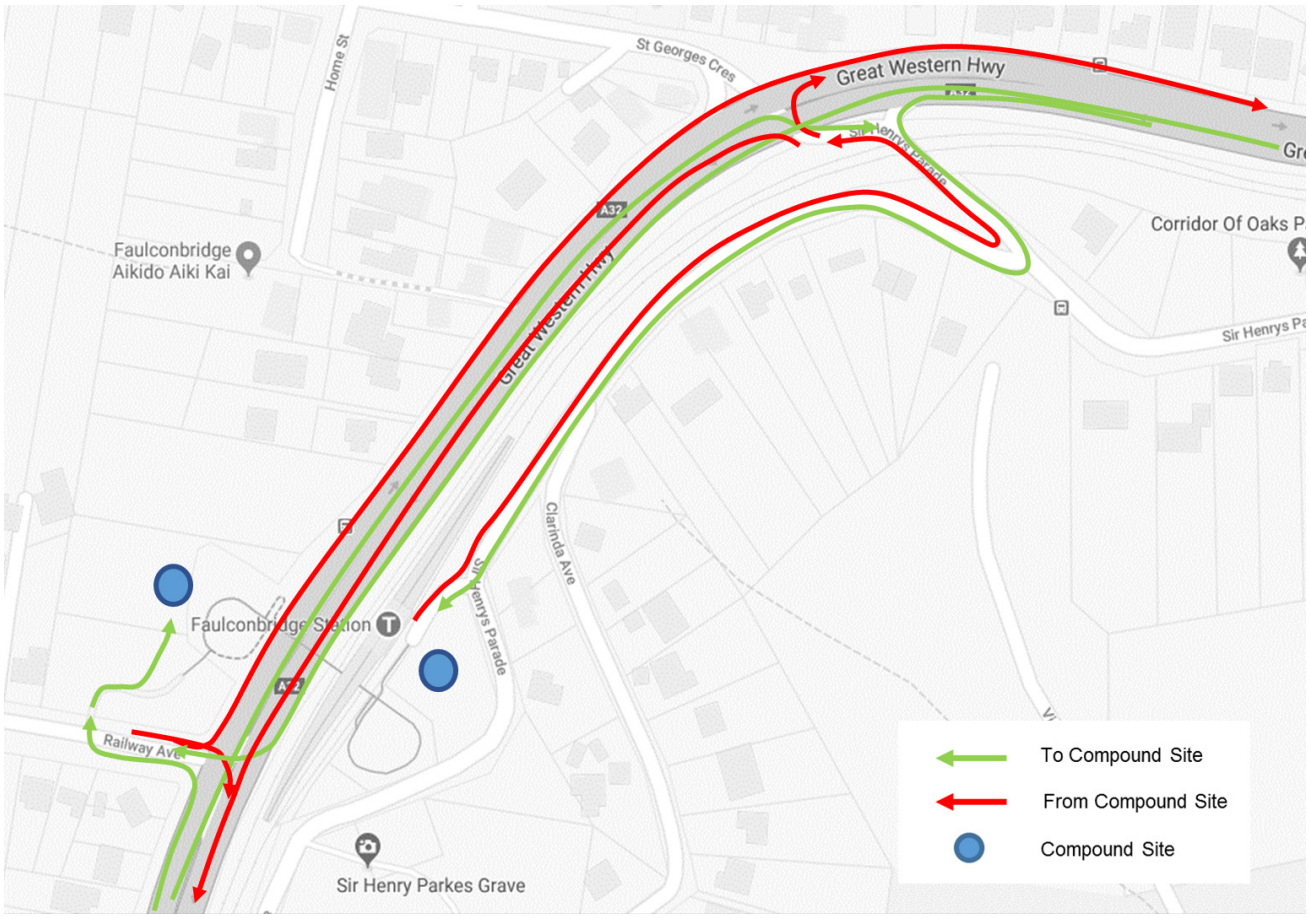


Figure 3.2 Potential haulage routes

Sir Henrys Parade is the only access route to the main proposed compound site via its intersection with the Great Western Highway. It should be noted that access arrangement would not typically be suitable for heavy vehicles due to the tight curve at the Sir Henrys Parade intersection (shown in Figure 3.3) and narrow road width along Sir Henrys Parade (shown in Figure 3.4). Heavy vehicle access plans would be prepared as a part of the construction traffic control management that would be implemented during the construction period (refer to section 3.3).

Access to the potential compound site north to the existing commuter car park would be provided via the Great Western Highway and Railway Avenue where dedicated turn lanes are provided.

Figure 3.3 Tight curve at the Sir Henrys Parade intersection

Figure 3.4 Narrow width along Sir Henrys Parade, adjacent to its intersection with Clarinda Avenue

3.3 TRAFFIC

The vehicles generated onto the road network as a result of the construction works are expected to be mostly light vehicles (including utility vans) from construction workers with minimal heavy vehicle trips for delivery and removal of materials, plants, and equipment when required. The traffic generated as a part of the construction works is not expected to exceed 20 light vehicles and 10 heavy vehicles per day during the typical construction period. During the rail possession period, up to 50 light vehicles and 12 heavy vehicle movements would be generated per day. Given the minimal traffic generated during construction, including both staff light vehicle trips and construction heavy vehicle trips, the surrounding road network and intersections would comfortably sustain project related vehicle trips and continue to perform within capacity.

Construction works are predominately going to be undertaken outside of the road reserve, with minimal works expected to be undertaken that would impact the traffic on the external road network.

The existing HiRail access point is located north-east of the study area near the intersection of the Great Western Highway and Sir Henrys Parade. During track possession periods, approximately eight HiRail equipment vehicles would access the rail corridor from this point for all works in the Blue Mountains Line region. Appropriate traffic control measures will be implemented to facilitate HiRail equipment movement in and out of the rail corridor and maintain access along adjacent roads. Therefore, impacts from HiRail access to general and construction traffic within the surrounding road networks would be negligible.

Access along the Great Western Highway would mostly be maintained throughout construction however a southbound lane closure would be required during works including rock excavation and lift installation involving a crane. As a result, travel time and congestion on the Great Western Highway in southbound direction would be increased during the lane closure period. However, the lane closure on the Great Western Highway is only proposed during the night time, any delays resulting from the proposed scope of works are expected to be brief and non-detrimental to the traffic flow on the external road network with the implementation of mitigation measures (refer to section 5.2).

3.4 PARKING

The existing commuter car park on the western side of the station would be accessible throughout construction with traffic control measures in place, as required. There would be partial car park closures during works including the upgrade of two compliant accessible parking spaces and formalisation of the Kiss-and-Ride bay. Part time loss of less than five car spaces is expected within the commuter car park but the loss in parking is expected to be short term. During the site inspection, it was observed that approximately 20 cars were parked out of 48 provided spaces. Therefore, construction of the proposal is not expected to result in substantial impact to existing parking provisions at the commuter car park.

During the entire construction period, car parking won't be available at the informal car park, located between the station and Sir Henrys Parade. However low usage was observed during the site inspection and park-and-ride passengers could use locally available off-street parking space on the western side of Sir Henrys Parade as shown in Figure 2.9.

During the typical construction work period, all construction parking will be limited to the main compound site located on the western side of Faulconbridge Station. Sufficient off-street parking would be provided for all workers and contractors inside of the compound site to ensure that there is no overspill onto nearby streets.

Access to the commuter car park would be restricted during works undertaken in scheduled weekend track possessions. However, since there will be no train services during track possessions, no parking impacts are expected.

3.5 PEDESTRIANS AND CYCLISTS

Pedestrian and cyclist access through the work zones would be maintained throughout construction where possible and impacts expected would be minimal. Where works are carried out that may potentially disrupt the existing pedestrian facilities, appropriate signs or traffic controllers would be positioned to notify pedestrians of the temporary arrangements. When required, footbridge closures to allow construction would take place only during scheduled track possessions.

Construction work is expected to have a minor impact on the pedestrian and cycle network given the restricted space in which construction works are to be carried out. It is expected that as a part of the works, there may be temporary restrictions and disruptions to pedestrian and bicycle manoeuvrability due to the following features of the proposal:

- Installation of lifts on the footbridge. This has the potential to impact accessibility for customers, including reduced pedestrian path widths. This work will be undertaken during scheduled track possessions.
- Provision of a new DDA compliant ramp from the existing footbridge to the commuter car park (and removal of the existing access path) which would impede customer access during the construction.
- Kiss-and-Ride bay upgrading and provision of new kerb ramp at eastern side of the commuter car park which would impede pedestrian ingress and egress.

- Existing southbound cycleway located on the eastern side of the Great Western Highway south of the footbridge will be closed during the proposed lane closure period which would occur for night time during the scheduled track possessions. However, it is not expected that this section of the Great Western Highway will be heavily used by cyclists during night time. Therefore, no significant impacts would be expected to be introduced during the construction period.

Construction works to be undertaken near the existing footpaths and cycle facilities would occur infrequently with closures expected to be temporary with safe and suitable detours provided as a part of the construction traffic control management to be implemented during the construction period (refer to section 5.2).

3.6 PUBLIC TRANSPORT

Faulconbridge Station and the bus stops within the study area would be maintained during the typical construction periods to ensure that impact to these services is minimised.

It is expected that bus replacement services will be provided on the Blue Mountains line during track possession periods. The existing bus stop located on the eastern side of the Great Western Highway may be affected during the proposed lane closure period. However, the lane closure is only proposed for the scheduled track possessions period when there will be no replacement bus services during the night time.

Therefore, no impacts are anticipated to existing bus or rail services operation during construction.

3.7 KISS-AND-RIDE

During construction, there is potential for temporary disruptions to access the existing Kiss-and-Ride facility located within the commuter car park. However, the potential impacts would be expected to be short term. As previously discussed, passengers would be able to use the other parking spaces in the commuter car park and on-street parking spaces on Sir Henrys Parade as an informal Kiss-and-Ride bay.

3.8 EMERGENCY VEHICLE ACCESS

Access for emergency vehicles would be maintained at the construction sites and Faulconbridge rural fire brigade located on Railway Avenue 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 traffic disruptions, anticipated delays to traffic, extended times of work and locations of any road possessions.

4 OPERATIONAL IMPACTS

4.1 TRAFFIC

The proposed scope of works is not anticipated to have a direct increase in traffic generation during operation. It is anticipated that as a result of the works, access to and from the station would be slightly shifted towards active forms of transport (e.g. biking and walking, refer section 4.3) given the upgrade and improved connection to the nearby bus stops would encourage safe and easy walking alternatives over vehicle transport modes. No traffic impacts are expected with the proposed upgrades.

4.2 PARKING

The number of car parking spaces (48 including two DDA accessible spaces) would be maintained at the commuter car park. The proposed realignment of the ramp from the existing footbridge to the commuter car park and an upgraded DDA car parking spaces and Kiss-and-Ride bay are anticipated to have a positive impact for customers. Given that the proposed upgrade provides a higher level of station accessibility and usability at Faulconbridge Station, the improved commuter experience is likely to attract greater commuter use.

Current car park demand is low, and no other changes are expected on the eastern side of Faulconbridge Station as a result of the Proposal.

Based on the above, the proposal would result in minimal changes to the parking supply without any net changes of parking spaces.

4.3 PEDESTRIANS AND CYCLISTS

The proposed pedestrian facilities including the new lifts and ramps and upgraded stairs would present pedestrian benefits, particularly the user experience by providing improved facilities. Pedestrians and cyclists access would be improved by providing a DDA compliant ramp from the commuter car park to the pedestrian footbridge and via new lift to and from the Great Western Highway. This would improve the accessibility of the station for customers with disabilities, customers with less mobility, parents/carers with prams, and customers with luggage.

Once the proposal is constructed, it is anticipated that the pedestrian access and flow would remain consistent as the proposal has been designed to maintain/improve pedestrian manoeuvrability throughout the station precinct. The proposal would also allow for accessible movement within the interchange across all transport modes, in particular to and from the train station platform and external road network, bus stops and accessible parking spaces.

The exact location for a bike rack is yet to be confirmed, but an additional bicycle storage facility would be provided in the western station precinct. Proposal includes a total capacity for 10 bikes which would be adequate to cater for the current and future demands.

4.4 PUBLIC TRANSPORT

The proposed works would not have any significant impacts on bus or rail operations. Improved station accessibility to bus and station by providing a lift could encourage public transport use.

5 RECOMMENDATION

The following mitigation measures are prepared as per the Infrastructure Sustainability Council of Australia (ISCA) requirements to be implemented to minimise impacts during construction of the proposal.

5.1 GENERAL MITIGATION MEASURES

The following general mitigation measures are recommended for implementation, to minimise impacts during the construction of the proposal:

- Prior to the commencement of construction, a Construction Traffic Management Plan 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
  - ensuring access to the railway station is always maintained outside of the scheduled track possession periods
  - 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
  - consultation with the relevant roads authorities would be undertaken during preparation of the construction TMP and obtaining necessary Road Occupancy Licences for temporary road closures. The performance of all project traffic arrangements must be monitored during construction.
- 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.
- 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 possession periods.
- 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.
- 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.
- Fencing and barriers would be installed between construction site and outside construction zone to ensure safe and easy navigation of pedestrians and cyclists.

5.2 SITE SPECIFIC MITIGATION MEASURES

The following proposed mitigation measures are to address and reduce the level of impact to station patrons using the existing facilities:

- A drive-through assessment or swept path analysis should be conducted to ascertain that sufficient manoeuvring space is provided for the largest design vehicle along the proposed haulage routes between the Great Western Highway and the main compound site via Sir Henrys Parade.
- A Traffic Control Plan (TCP) to be developed for any construction works that requires lane closure on the Great Western Highway. Implementation of TCP will ensure that adequate warning and guidance is provided to road users, thus minimising road related traffic impacts. TCP would be required to be submitted to Transport Management Centre (TMC), Transport for NSW, where required.
- Appropriate traffic control measures will be implemented to facilitate HiRail equipment movement in and out of the rail corridor and maintain access along adjacent roads.
- In parallel with the installation of the lifts, staircase access to Faulconbridge Station footbridge should be maintained. If any closure of the existing footbridge would be required for the lift installation, the construction works should be programmed to undertake during a scheduled track possession period to minimise the impacts to pedestrians.
- To minimise traffic impacts to the existing Kiss-and-Ride and DDA car parking spaces, alternative locations within the commuter car park can be utilised as a temporary zone with signs and line marking.
- Staging of a new DDA compliant ramp (including demolition of existing non-complaint path) is necessary to minimise the impacts to pedestrians and cyclists accessing the station from the proposed works. Alternative staircase access exists, should pedestrians need to be re-directed, to bypass construction activities.
- A suitable path of travel between the existing staircase on the eastern side of Faulconbridge Station and Sir Henrys Parade should be provided during works to allow pedestrians to safely bypass compound site and construction vehicular movements.

5.3 OPERATION

The proposed upgrades to Faulconbridge Station are expected to improve the integration of the various transport modes within the interchange and are anticipated to provide a safer passage for all users between the transport modes.

No specific mitigation measures during operation of the proposal have been identified.