



Blackheath Station Upgrade

Traffic and Transport Impact Assessment

Transport for NSW

March 2022

The Power of Commitment



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Contents

1.	Introduction	1
1.1	Overview	1
1.2	Key features of the Proposal	1
1.3	Purpose of study	1
1.4	Site location	1
2.	Existing conditions	3
2.1	Road network characteristics	3
2.2	Freight routes	5
2.3	Public transport infrastructure	5
2.4	Active transport infrastructure	6
2.5	Station access	8
2.6	Car parking	9
2.7	Kiss and ride, accessible parking and taxi facilities	9
3.	Proposal description	11
3.1	Station entrances	11
3.2	Platform works	11
3.3	Car parks and active transport	13
4.	Construction impacts	14
4.1	Overview	14
4.2	Construction hours	14
4.3	Construction compound	18
4.4	Haulage routes	19
4.5	Traffic impacts	20
4.6	Impacts to parking	22
4.7	Impacts to public transport	22
4.8	Road closures	22
4.9	Impacts to active travel	22
4.10	Impacts to kiss and ride	22
4.11	Mitigation measures	24
4.12	Roadwork speed limits	25
4.13	Staff inductions	26
4.14	Occupational health and safety	26
4.15	Contact of emergency services	26
4.16	Certificates and approvals	26
4.17	Obtaining road occupancy approvals	27
5.	Operational impacts	28
5.1	Traffic	28
5.2	Public transport	28
5.3	Active transport	28
5.4	Station parking	28
5.5	Kiss and ride and taxi facilities	29

5.6	Safety	29
6.	Summary	30
6.1	Construction	30
6.2	Operational changes	30
6.3	Conclusion	31

Table index

Table 4.1	Blackheath Station upgrade indicative construction methodology	15
Table 4.2	Proposed intermittent use of commuter car park for construction works	19
Table 4.3	Road Classifications and Managing Authority	27

Figure index

Figure 1.1	Proposal site	2
Figure 2.1	Great Western Highway, viewed southwards at Blackheath Station and Blackheath Town Centre	4
Figure 2.2	Station Street, viewed southwards at Blackheath Station	4
Figure 2.3	RAV map	5
Figure 2.4	Sydney Trains network	5
Figure 2.5	Pedestrian path on Great Western Highway looking south from the station.	6
Figure 2.6	Bicycle lockers at Blackheath Station	6
Figure 2.7	Existing bicycle routes in proximity to Blackheath Station	7
Figure 2.8	Blackheath Station access from the Great Western Highway	8
Figure 2.9	Blackheath Station access from Station Street	8
Figure 2.10	Commuter car park	9
Figure 2.11	Accessible parking bays and informal kiss and ride area	10
Figure 3.1	Proposed Blackheath Station upgrade	12
Figure 4.1	Haulage routes	21
Figure 4.2	Walking catchment	23

1. Introduction

1.1 Overview

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

The Transport Access Program is a NSW Government initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure where it is needed most.

Blackheath Station does not currently meet key requirements of the *Disability Standards for Accessible Public Transport* (DSAPT) or the Commonwealth *Disability Discrimination Act 1992* (DDA).

The non-compliant station access points, ramps and stairs to the Blackheath Station platforms do not facilitate access for people with reduced mobility, a disability, parents/carers with prams or customers with luggage. There are currently no lift facilities at Blackheath Station. The proposed works would provide safe and equitable access to the platforms and to the pedestrian network surrounding the station.

GHD has been commissioned by Transport for NSW to undertake a review of the existing and proposed traffic and transport facilities provided at Blackheath Station as part of the Review of Environmental Factors (REF) for the project.

1.2 Key features of the Proposal

The key features of the Blackheath Station upgrade (the Proposal) are summarised as follows:

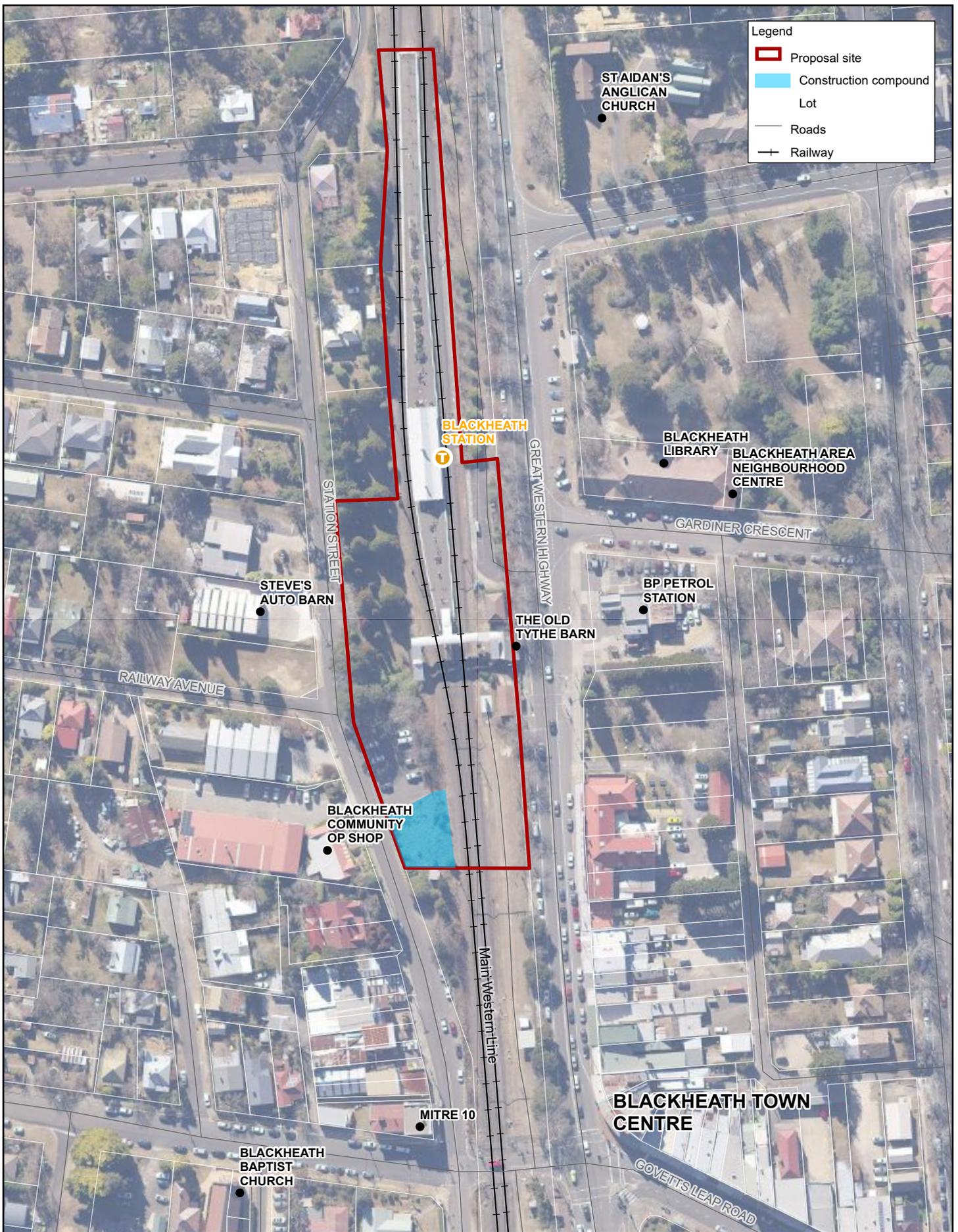
- provision of three new lifts, associated landings and canopies providing access to the station platforms from Station Street and the Great Western Highway station entry area
- provision of an entry plaza from the Great Western Highway including a new ramp and new stairs from the footpath to the lift landing and existing stairs
- upgrade of the existing informal kiss and ride area on the eastern side of the station, including line marking, installation of bike hoops, sheltered seating and an upgrade of the accessible path to the station entry
- upgrade of the accessible path from lift 2 to the station platforms
- upgrade of the accessible path from the commuter car park to lift 3, on the Station Street side
- provision of two accessible parking spaces and extension of the Station Street commuter car park and localised regraded areas of the existing commuter car park
- widening of the waiting room doors and the family accessible toilet door
-
- upgrades to the station power supply, including provision of a new main switch board
- provision of a new accessible water bubbler on the island platform by the station building.

1.3 Purpose of study

The purpose of this assessment is to review the traffic and transport impacts of construction activity and the operational upgrades associated with the Proposal for inclusion on the REF.

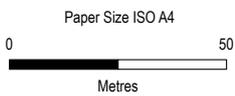
1.4 Site location

Blackheath Station is located within the Blue Mountains City Council Local Government Area (LGA) with frontage to Station Street and the Great Western Highway, as shown in Figure 1.1.



Legend

- Proposal site
- Construction compound
- Lot
- Roads
- +— Railway



Transport for NSW
Blackheath Station Upgrade
 Traffic and Transport Impact Assessment

Project No. 12562533
 Revision No. A
 Date 23/02/2022

Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 56

Proposal site

FIGURE 1.1

2. Existing conditions

2.1 Road network characteristics

Roads within NSW are categorised in the following two ways:

- by classification (ownership)
- by the function that they perform.

2.1.1 Road classification

Roads are classified (as defined by the *Roads Act 1993*) based on their importance to the movement of people and goods within NSW (as a primary means of communication).

The classification of a road allows Transport for NSW to exercise authority of all or part of the road. Classified roads include Main Roads, State Highways, Tourist Roads, Secondary Roads, Tollways, Freeways and Transitways.

For management purposes, Transport for NSW has three administrative classes of roads. These are:

- **State roads** – Major arterial links through NSW and within major urban areas. They are the principle traffic carrying roads and fully controlled by Transport for NSW with maintenance fully funded by Transport for NSW. State Roads include all Tollways, Freeways and Transitways; and all or part of a Main Road, Tourist Road or State Highway.
- **Regional roads** – Roads of secondary importance between State Roads and Local Roads which, with State Roads, provide the main connections to and between smaller towns and perform a sub arterial function in major urban areas. Regional roads are the responsibility of councils for maintenance funding, though Transport for NSW funds some maintenance based on traffic and infrastructure. Traffic management on Regional Roads is controlled under the delegations to local government from Transport for NSW. Regional Roads may be all or part of a Main Road, Secondary Road, Tourist Road or State Highway; or other roads as determined by Transport for NSW.
- **Local roads** – The remainder of the council controlled roads. Local Roads are the responsibility of councils for maintenance funding. Transport for NSW may fund some maintenance and improvements based on specific programs (e.g. urban bus routes, road safety programs). Traffic management on Local Roads is controlled under the delegations to local government from Transport for NSW.

2.1.2 Functional hierarchy

Functional road classification involves the relative balance of the mobility and access functions. Transport for NSW define four levels in a typical functional road hierarchy, ranking from high mobility and low accessibility, to high accessibility and low mobility. These road classes are:

- **Arterial roads** – generally controlled by Transport for NSW, typically no limit in flow and designed to carry vehicles long distance between regional centres.
- **Sub-arterial roads** – can be managed by either Transport for NSW or local council. Typically, their operating capacity ranges between 10,000 and 20,000 vehicles per day, and their aim is to carry through traffic between specific areas in a sub region or provide connectivity from arterial road routes (regional links).
- **Collector roads** – provide connectivity between local roads and the arterial road network and typically carry between 2,000 and 10,000 vehicles per day.
- **Local roads** – provide direct access to properties and the collector road system and typically carry between 500 and 4,000 vehicles per day.

The road network in the vicinity of Blackheath Station is shown in Figure 1.1.

Access to Blackheath Station is provided from the Great Western Highway and Station Street.

The Great Western Highway (refer to Figure 2.1) is a state road/arterial road that links Sydney with Bathurst. In proximity to Blackheath Station, the Great Western Highway provides a single travel lane in either direction.

Time restricted on-street parking is provided on both sides of the highway, south of the station, to support retail and commercial activity in the Blackheath Town Centre.



Source: Google Maps (2021)

Figure 2.1 Great Western Highway, viewed southwards at Blackheath Station and Blackheath Town Centre

Station Street (refer to Figure 2.2) is a local road with a single travel lane in either direction. Unrestricted on-street parking (for approximately 15 spaces) is typically available on Station Street south of the station.

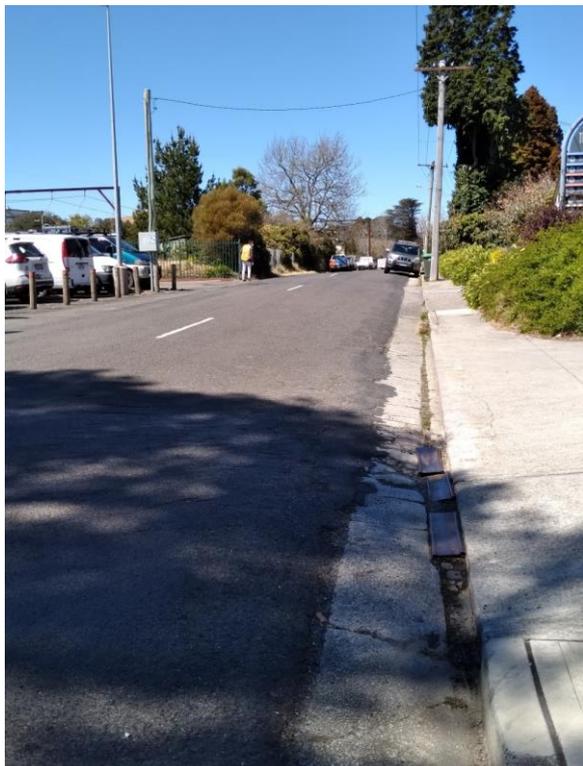
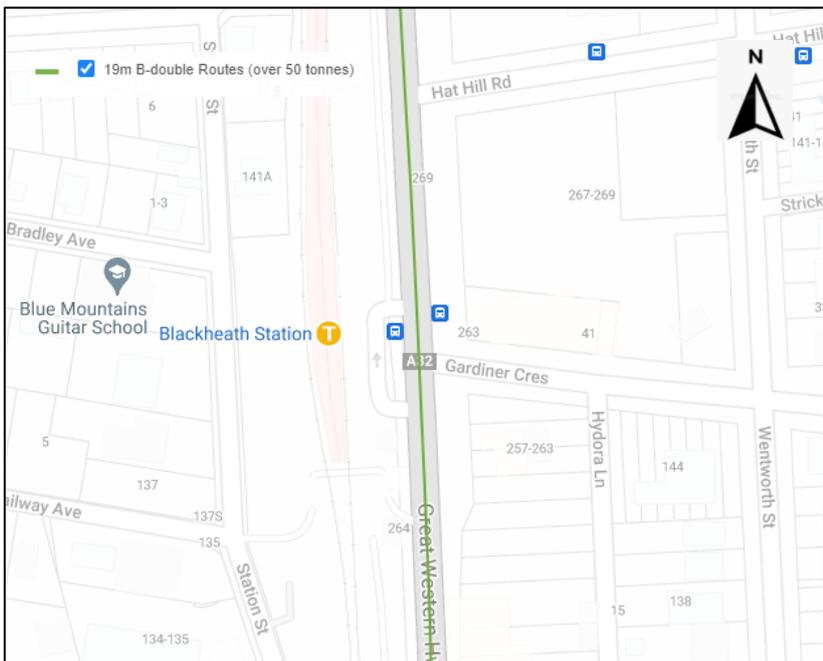


Figure 2.2 Station Street, viewed southwards at Blackheath Station

2.2 Freight routes

The Transport for NSW Restricted Access Vehicle (RAV) map indicates that the Great Western Highway is authorised to accommodate vehicles up to the size of a 19 metre semi-trailer (refer to Figure 2.3).



Source: TfNSW (2021)

Figure 2.3 RAV map

2.3 Public transport infrastructure

2.3.1 Rail services

Blackheath Station is located on the Blue Mountains Line. The Blue Mountains Line operates between Lithgow and Sydney CBD via Katoomba, Springwood, Penrith, Blacktown and Parramatta. Train services typically run with:

- 15-20 minute frequencies during peak weekday periods
- 60 minute frequencies during off-peak weekday periods, weekends and public holidays.

The location of Blackheath Station within the wider intercity train network is displayed in Figure 2.4.



Source: transportnsw.info/sydney-trains-network-map, modified by GHD

Figure 2.4 Sydney Trains network

2.3.2 Bus services

The bus services operating near Blackheath Station include:

- 698 Katoomba to Blackheath (loop service), operates two services to the station per day (8:10am and 8:51am)
- 698V Katoomba to Mt Victoria (loop service), operates three services at the station per day (11:33am, 2:37 pm and 4:20pm).

2.4 Active transport infrastructure

A signalised mid-block pedestrian crossing is provided across the Great Western Highway, which is located adjacent to the main entrance of Blackheath Station (refer to Figure 2.1).

Footpaths are provided on either side of the Great Western Highway (refer to Figure 2.5). Additionally, a narrow footpath is provided on the western side of Station Street (refer to Figure 2.2).



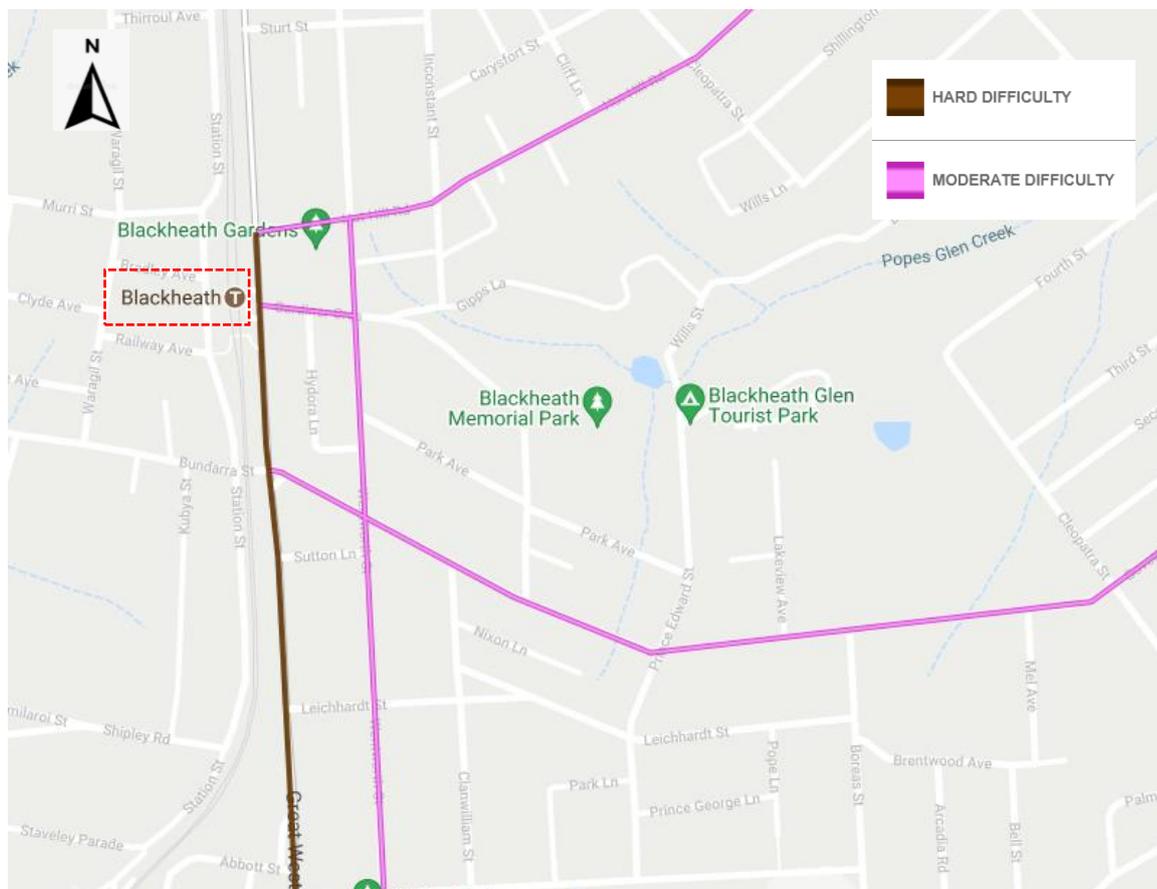
Figure 2.5 Pedestrian path on Great Western Highway looking south from the station.

Bike lockers are provided adjacent to the east of the station, as shown in Figure 2.6.



Figure 2.6 Bicycle lockers at Blackheath Station

The bicycle network in the vicinity of Blackheath Station is shown in Figure 2.7, which identifies the Great Western Highway in proximity to the station as being a “hard difficulty” route, with roads to the east of the station, including Hat Hill Road and Govetts Leap Road as being “moderate-to-difficult” routes.



Source: https://www.rms.nsw.gov.au/maps/cycleway_finder (2021), modified by GHD

Figure 2.7 Existing bicycle routes in proximity to Blackheath Station

The “hard difficulty” designation on the Great Western Highway is consistent with its function as an arterial road and the absence of designated bicycle infrastructure.

2.5 Station access

The main access to Blackheath Station is provided from the Great Western Highway, as shown in Figure 2.8.



Figure 2.8 Blackheath Station access from the Great Western Highway

Additionally, access to Blackheath Station is provided from Station Street, as shown in Figure 2.9, which also provides a pedestrian link between the commuter car park and Blackheath Station.



Figure 2.9 Blackheath Station access from Station Street

2.6 Car parking

A commuter car park with 20 spaces is provided adjacent to the south-west of Blackheath Station and is accessed/egressed to/from Station Street (refer to Figure 2.10). The commuter car park does not provide any accessible parking spaces for mobility impaired passengers.



Figure 2.10 Commuter car park

In proximity to the south of the station, time-restricted parking is provided along the Great Western Highway (one-hour parking 8:30am – 6pm Monday to Friday and 8:30am – 12pm Saturday).

The time-restricted parking areas support the operation of the Blackheath town centre and discourage commuters from parking along the road in proximity to Blackheath Station.

2.7 Kiss and ride, accessible parking and taxi facilities

A taxi zone is located on the western side of the Great Western Highway to the south of the station entrance.

An informal kiss and ride area is provided on the eastern side of the station and accessed from the Great Western Highway, as shown in Figure 2.11.

A total of five parking spaces are provided within the informal kiss and ride area on the eastern side of the site, with two of these being designated as accessible parking spaces and three being utilised for informal kiss and ride activity.

The informal kiss and ride area is signposted as “No Parking”, which enables drivers to stop for up to two minutes if they remain within three metres of their vehicle.

All movement through the informal kiss and ride area is one-way in a south to north direction.



Figure 2.11 Accessible parking bays and informal kiss and ride area

3. Proposal description

Transport for NSW is proposing an upgrade of Blackheath Station to improve accessibility, and amenity for customers. The Proposal include the construction of new, lifts and stairs, platform work and upgrades to the commuter car park and pedestrian pathways.

Key features of the Proposal are shown in Figure 3.1.

3.1 Station entrances

Details of the proposed works to upgrade the access arrangement at Blackheath Station include:

- a new 17-person lift to connect the Great Western Highway entry to the existing footbridge, including appropriate lift landings, canopies and protection/safety screens
- the upgrade of the Great Western Highway station entrance to provide accessible paths between the new lift and existing stairs and the upgraded kiss and ride/ taxi zone off the Great Western Highway, and the pedestrian crossing of the Great Western Highway outside the station entry
- a new 17 person lift to connect the Station Street entry to the existing footbridge, including appropriate lift landings, canopies and protection/safety screens
- the upgrade of the Station Street station entrance to provide accessible paths between the new lift and existing stairs, the commuter car park, and Station Street.

With the exception of the weekend possessions during scheduled track maintenance, pedestrian access to the platforms would be maintained during the construction works at Blackheath Station.

3.2 Platform works

The Proposal includes the modification of the station building waiting room and existing doorways to achieve a DSAPT compliant clear width. Other platform works at Blackheath Station include:

- a new 17 person lift to connect the existing footbridge to the platforms, including appropriate lift landings, canopies and protection/safety screens
- the upgrade of the pedestrian ramp providing access from the new lift to the platform
- resurfacing of the entire platform, and regrade the platform as required to provide accessible paths connecting the new lifts, existing stairs, boarding assistance zones, family accessible toilet, waiting room and other customer facilities at the station (e.g. help points, information points, Opal top up machine, pay phones, accessible water bubbler, vending machines, etc)
- boarding assistance zones and markings on each platform and allocated waiting spaces on each platform
- new DSAPT complaint water bubbler and retention of existing heritage water fountain
- new Tactile Ground Surface Indicators (TGSI), line marking and stencilling across the entire platform.

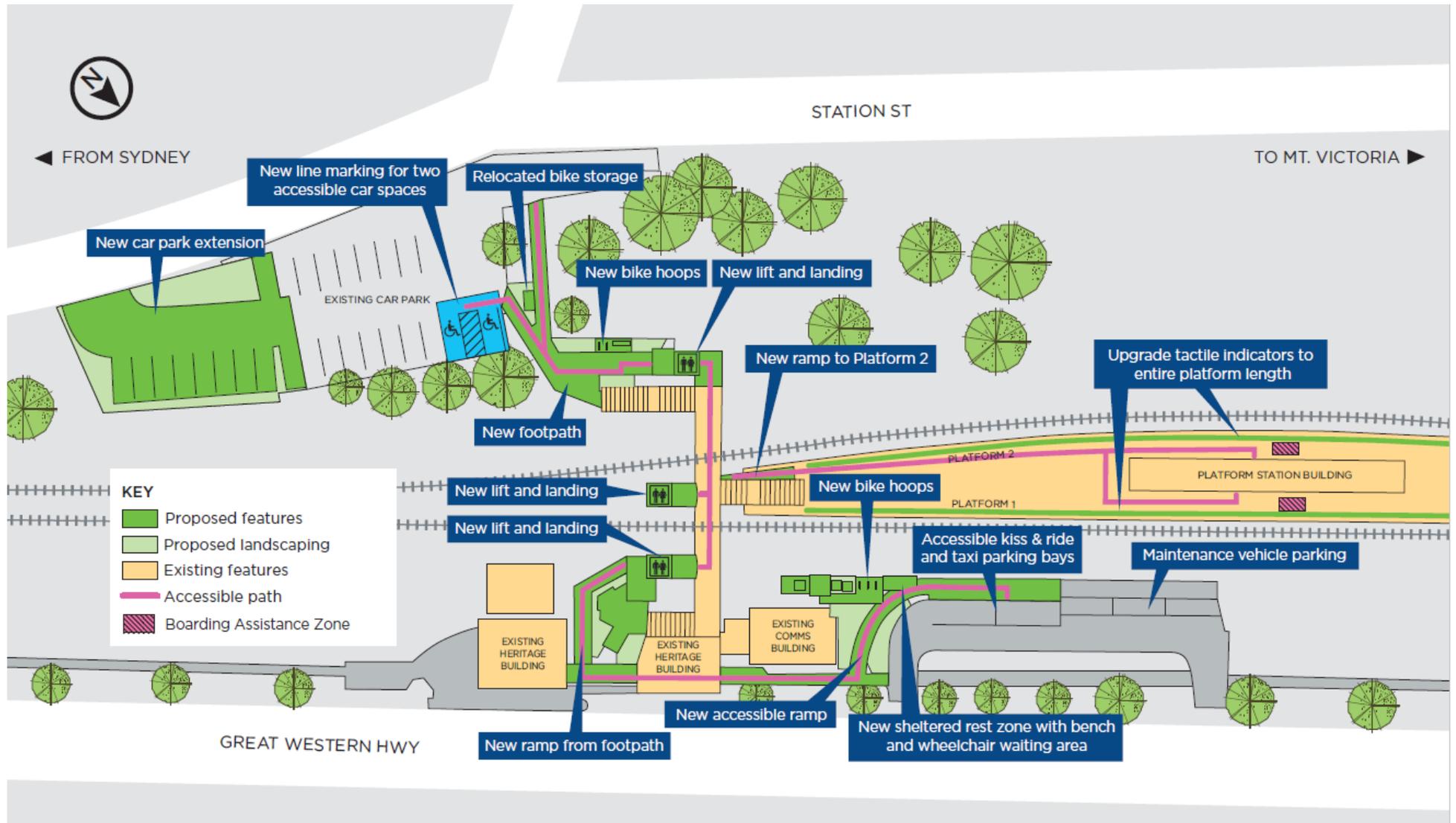


Figure 3.1 Proposed Blackheath Station upgrade

3.3 Car parks and active transport

The following upgrade works would be undertaken at the car parking at Blackheath Station:

- modification of the existing car parking spaces within the informal kiss and ride area on the Great Western Highway to provide one accessible kiss and ride space, one accessible taxi space, and a NSW Trains maintenance vehicle parking zone
- extension of the existing Station Street commuter car park to provide 10 additional parking spaces, including two accessible parking spaces.

The following upgrade works would be undertaken to the walking and cycling facilities at Blackheath Station:

- bike hoops (a minimum of five) within 60 metres of a station entrance
- a sheltered rest area along the access path between the station entry and the upgraded kiss and ride spaces
- LED lighting internal and external to the station to suit the works, including to all access paths.

4. Construction impacts

4.1 Overview

Subject to approval, construction is expected to commence in mid 2022 and take approximately 12 months to complete. The construction methodology would be further developed during the detailed design of the Proposal by the nominated Contractor in consultation with Transport for NSW.

The proposed construction activities for the Proposal are identified in Table 4.1. 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 nominated Contractor's preferred methodology, program and sequencing of works.

4.2 Construction hours

As detailed in Table 4.1, the majority of construction works would occur during "recommended standard hours".

The NSW Environmental Protection Authority (EPA), Interim Construction Noise Guidelines, details the recommended standard hours for construction works as follows:

- weekdays 7am – 6pm
- Saturdays 8am – 1pm
- Sundays and public holidays, no work.

During activities 2, 4, and 6, some works would occur at night and on weekends during scheduled shutdowns for rail maintenance (referred to as rail possessions). The works that would be undertaken during rail possessions are summarised in Table 4.1 and include:

- demolition of the level crossing
- platform resurfacing
- lift installation.

Possession periods would generally comprise a weekend, where works would be undertaken over a 48-hour period, and the subsequent five days where works would take place during standard hours.

Out-of-hours work (work conducted outside of the recommended standard construction hours) may be required, particularly during possession works. As detailed in the EPA Guidelines, in these circumstances:

- all works would be undertaken in accordance with out of hours work (OOHW) permits issued by Transport for NSW
- the noisiest work would be timed to minimise potential sleep disturbance (i.e. prior to 10pm)
- the nearby community would be informed prior to the proposed works being undertaken.

Approval from Transport for NSW would be required for any out of hours work and the affected community would be notified as outlined in Transport for NSW's *Construction Noise and Vibration Strategy* (Transport for NSW, 2019).

Table 4.1 Blackheath Station upgrade indicative construction methodology

Activity	Works undertaken	Vehicle types	Indicative duration	Indicative timing
Site establishment and enabling work	<ul style="list-style-type: none"> - site investigations and survey - establishment of site compound (erect fencing, tree protection zones, site offices, amenities and plant/material storage areas) - relocation of services - installation of temporary services - installation of temporary fencing and hoarding as required - traffic control measures 	<ul style="list-style-type: none"> - 20t franna crane - delivery trucks - 20kVA diesel generator (until the permanent electrical connection is made) - various powered and unpowered hand tools (inc. drills, hammers and saws) 	five days	standard working hours
Rail possession 1	<ul style="list-style-type: none"> - decommission and removal of the pedestrian level crossing - removal of the old ramp between the level crossing and platform - installation of hoarding from the level crossing area to the platform - piling for new lift and ramp footings - excavation of the platform for the combined service route <p><i>The station, footbridge and commuter car park would be closed to customers during these works</i></p>	<ul style="list-style-type: none"> - 5t excavator with rock hammer attachment (x2) - 5t piling Rrig (x2) - balloon tyre dump truck (x2) - delivery trucks (x5) - various powered and unpowered hand tools (inc. drill, hammers and saws) - 8t excavator (the week following possession - standard hours) - bogie tipper (on rotation week following possession - standard hours) (x2) 	one week	<p>two 24 hour shutdowns during scheduled track maintenance weekends</p> <p>Standard working hours</p>
Stage 1: lift 3 and platform building works	<ul style="list-style-type: none"> - family accessible toilet and waiting room door widening works (temporary closures of each space would be required) - lift piling - lift pit excavation - concrete works to lift pit (concrete pour in situ) and waterproofing - installation of scaffold and completion of concrete works (in situ) up to footbridge level, support beams for new landing area - preassembly of lift steel structure (commuter car park spaces may be temporarily occupied) 	<ul style="list-style-type: none"> - 5t piling rig - concrete agitator (2 per pour) x2 - concrete pump (1 per pour) x2 - delivery trucks x2 - various powered and unpowered hand tools 	three and a half months	standard working hours

Activity	Works undertaken	Vehicle types	Indicative duration	Indicative timing
Rail possession 2	<ul style="list-style-type: none"> - platform resurfacing (new asphalt) to half the platform area - excavation of lift pits (lifts 1 and 2) - installation of lift pit shoring boxes (precast concrete) - footbridge modification works to allow for lift 3 landing - installation of lift 3 steel structure (crane) - platform combined service route works - installation of water bubbler in ground plumbing works <p><i>The station, footbridge and commuter car park would be closed to customers during these works</i></p>	<ul style="list-style-type: none"> - 130-150t crane - delivery Trucks (x8) - 5t excavator (x3) - 2t excavator (x2) - 8t excavator (x2) - 3t roller (x2) - bobcat (x2) - balloon tyre dumper (x4) - wacker packer (x2) - concrete agitator (x2) - concrete pump - bogie tipper (on rotation week following possession – standard hours) (x2) - various powered and unpowered hand tools such as drills, saws and hammers 	one week	<p>two 24 hour shutdowns during scheduled track maintenance weekends</p> <p>standard working hours</p>
Stage 2: precast lift 1 and 2 components and station entry civil works	<ul style="list-style-type: none"> - installation of new platform tactiles (to the platform area that was resurfaced during Possession 2) - lift 1 and 2 detailed excavation works - lift 1 and 2 precast assembly works in the car park (car park temporarily closed) - preassemble lift 1 and 2 steel structures in car park (car park temporarily closed) - installation of lift 3 landing balustrade works including roofing and anti-throw screens - installation of lift 3 - civil and landscaping works carried out in the station entry areas, (changes to pedestrian access around the station would be in place with paths sign posted) - service works in platform and station entries as required (drainage, low voltage power, CCTV, Lighting etc.) 	<ul style="list-style-type: none"> - 5t excavator - delivery trucks (approximately 20) - concrete agitators (2-3 per pour) x8 (approximately 20 in total) - concrete pump (1 per pour) x8 - 25t franna crane - utilised for 1 week only - wacker packer - bogie tipper (on turn around for 1 week) x2 - various powered and unpowered handtools 	five months	standard working hours

Activity	Works undertaken	Vehicle types	Indicative duration	Indicative timing
Rail possession 3	<p>Platform works:</p> <ul style="list-style-type: none"> - changes to platform hoardings - platform resurface works (to the remaining half of the platform) - crange setup for precast and structural steel lifts - installation of a new ramp (between the lift and platform) precast slabs, steelworks, balustrades and anti-throw screens - erection of all lift 1 and 2 precast sections and steel components - lift 1 and 2 roofing works - bridge modification works to allow for new lift landings - bridge stair nosing and handrail modification works - civil works to station entries (final stage) - installation supply main switchboard and miscellaneous services commissioning works <p>Note: the Station, footbridge and commuter car park would be closed to customers during these works</p>	<ul style="list-style-type: none"> - 130t crane - 150t crane - 500t crane - delivery trucks (x8) - 5t excavator (x2) - 2t excavator (x2) - 8t excavator - 3t roller (x2) - bobcat (x2) - balloon tyre dumper (x4) - wacker packer (x2) - bogie tipper (on rotation week following possession – standard hours) (x2) - *various powered and unpowered hand tools such as drills, saws and hammers 	one week	<p>two 24 hour shutdowns during scheduled track maintenance weekends</p> <p>standard working hours</p>
Stage 3	<ul style="list-style-type: none"> - completion of the platform ramp works - installation of platform tactiles (to the platform area that was resurfaced during possession 3) - installation of wayfinding signage site wide - installation of lifts 1 and 2 - installation of new accessible water bubbler - relocation of platform furniture - installation supply main switchboard containment - Station Street car park line marking works (commuter car park would be temporarily closed during these works) 	<ul style="list-style-type: none"> - 5t excavator (x2) - delivery trucks (approximately 10) - concrete agitators (4 per pour) x1 - concrete pump (1 per pour) x1 - 20t franna crane - utilised for 1 day only - bobcat x2 - bogie tipper (on turn around for 1 week) x 2 - Various powered and unpowered hand tools - power drill and generator set for tactile installation at night 	three months	standard working hours

Activity	Works undertaken	Vehicle types	Indicative duration	Indicative timing
Demobilisation	<ul style="list-style-type: none"> – installation of ancillary features and landscaping – removal of footpath/pedestrian management and traffic controls – removal of construction fencing/hoarding and environmental control measures – removal of temporary site facilities – asphalt and line marking works to extend the Station Street car park (area previously occupied by site compound) – completion of site clean-up and tidying works. 			

Source: Blackheath Station Upgrade Plant & Vehicle Staging Plans (150333-BTH-SE-PLN-21501 and 21500).

4.3 Construction compound

A construction compound would be established on the eastern side of Station Street to the south of the existing commuter car park. The construction compound would be fenced to maintain public safety.

The proposed construction compound location is shown in Figure 1.1.

The commuter car park on Station Street would also be used intermittently during construction. A summary of the expected use of the commuter car park during each construction activity is provided in Table 4.2.

Table 4.2 Proposed intermittent use of commuter car park for construction works

Activity	Type	Expected use of commuter car park
Activity 1	Site mobilisation	The car park would be closed for up to five days.
Activity 2	Possession 1	The car park would be closed for up to five days.
Activity 3	Non-possession	The lift 3 steel structure would be constructed within in the car park. During this time approximately six parking spaces would be occupied for a period of approximately two weeks.
Activity 4	Possession 2	The car park would be closed for up to five days.
Activity 5	Non-possession	The lift 3 steel structure would be constructed within in the car park. During this time approximately six parking spaces would be occupied for a period of approximately two weeks.
Activity 6	Possession 3	The car park would be closed for up to five days.
Activity 7	Non-possession	The introduction of accessible parking and line marking would require the car park to be closed for a period of approximately two weeks.

The extent to which the commuter car park would be utilised during construction works would be confirmed during detailed design in consultation with Transport for NSW and Blue Mountains City Council.

It is noted that the majority of construction deliveries are expected to occur on Station Street, while a small number of deliveries may occur on the Great Western Highway via delivery vans or small trucks. These vehicles would be expected to layover within the kiss and ride facility or in the parking lane on the western side of the Great Western Highway.

Where possible, deliveries would be timed to occur outside morning and afternoon peak periods of commuter activity at Blackheath Station.

4.4 Haulage routes

Access to the site would require the use of the local road network. In determining appropriate access/egress routes for construction vehicles, an effort would be made to minimise impacts on local and collector roads. The Great Western Highway would be the primary route to and from the construction compound and is authorised by Transport for NSW to accommodate trucks up to the size of a 19 metre semi-trailer. However, the data in Table 4.1 indicates that articulated vehicles would not be used during the construction period.

It is expected that the majority of vehicles would access/egress the construction compound to and from the south, in the direction of Sydney. Additionally, movement through the car park (particularly during the possession periods) would be one way in a north to south direction.

For the proposed construction compound on Station Street, vehicles would access the site:

- from the south via Great Western Highway, Bundarra Street and Station Street
- from the north (if required) via Great Western Highway, the unnamed bridge road and Station Street.

Vehicles would exit the site via Station Street, Bundarra Street and the Great Western Highway.

It is noted that the unnamed bridge road has a load limit of 19 tonnes. Any construction vehicles heavier than this would be required to continue south on Great Western Highway and access the construction compound via Bundarra Street and Station Street.

The recommended haulage routes to/from the construction compound are displayed in Figure 4.1.

As part of the Construction Traffic Management Plan (CTMP), truck drivers would be informed of the designated haulage routes to and from the construction compound.

4.5 Traffic impacts

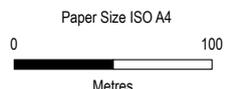
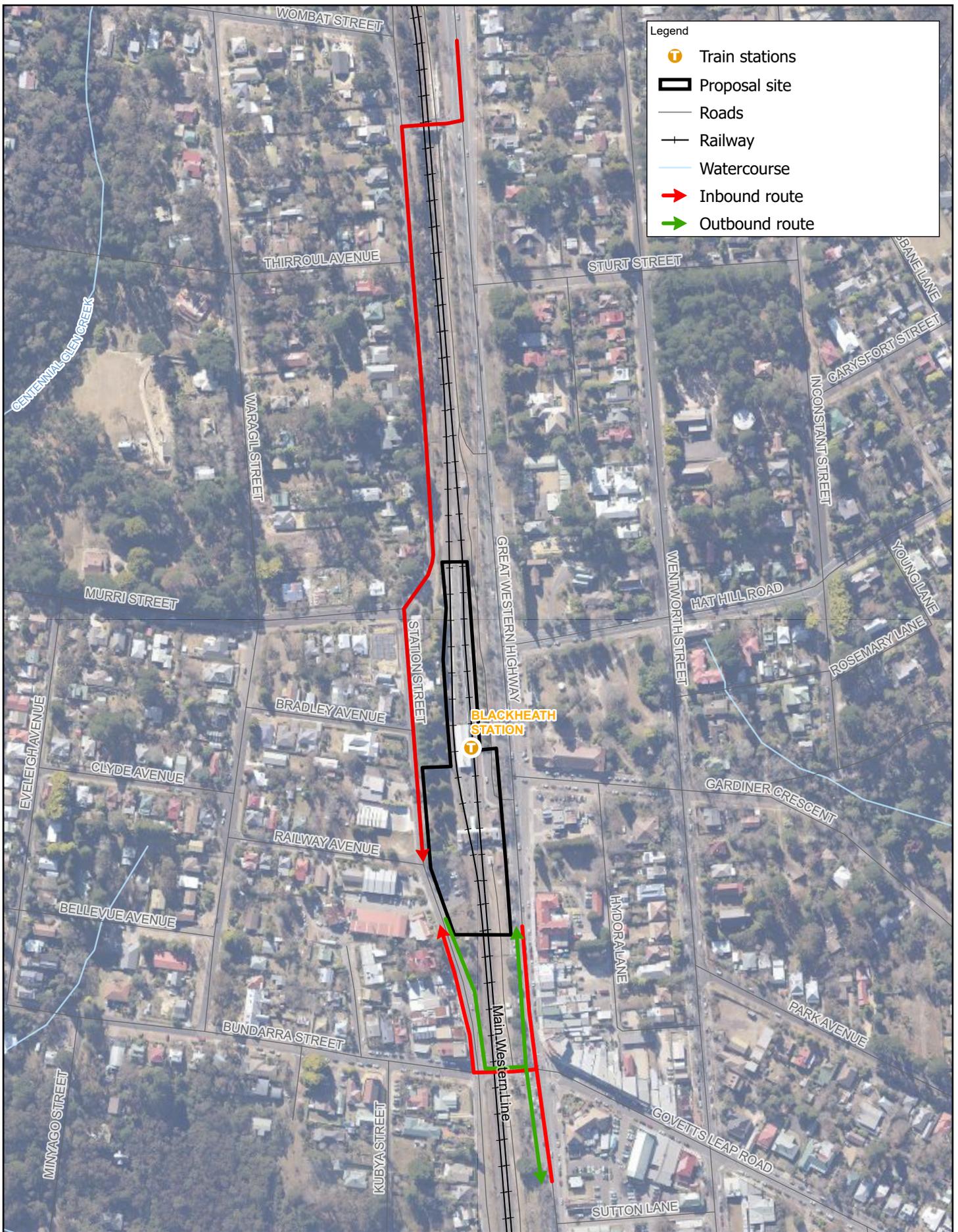
The majority of heavy vehicle activity associated with the Proposal would be associated with the movement of delivery trucks and concrete trucks.

Preliminary construction information indicates the highest volume of delivery vehicles is expected during the track possessions associated with Activity 4 and Activity 6. During these possessions, up to eight delivery vehicles are expected to access/egress the construction compound on a daily basis within recommended standard construction hours.

During Activity 5, up to eight separate concrete pours would be required. During these pours, up to three concrete trucks are expected to access/egress the construction compound per hour.

During possessions, up to 50 workers are expected onsite, with up to 20 workers expected outside of these periods.

Construction vehicle movements are expected to fall within typical fluctuations of daily traffic movements on surrounding local streets and therefore not adversely affect the operation of the existing road network in proximity to Blackheath Station.



Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 56



Transport for NSW
 Blackheath Station Upgrade
 Traffic and Transport Impact Assessment

Project No. 12562533
 Revision No. C
 Date 21/02/2022

Haulage routes

FIGURE 4.1

4.6 Impacts to parking

As detailed in Table 4.2, the construction works at Blackheath Station would require the closure of the commuter parking on Station Street (and the temporary loss of the 20 parking spaces) for periods of up to two weeks on seven occasions across the 12 months indicative construction period.

As detailed in Section 2.3.2, bus services at Blackheath Station are infrequent, and it is expected that the majority of people utilising the commuter car park would find alternative parking arrangements on nearby local roads on either side of the station.

The area within 400 metres (which is the approximate equivalent of a five minute walk) of Blackheath Station is shown in Figure 4.2.

Unrestricted on-street parking is available on a number of roads within the 400 m walking catchment, including Bundarra Street, Bradley Avenue, Murri Street and Waragil Street.

A review of historical aerial imagery (using MetroMap) indicates that there is typically significant spare parking capacity on these local roads in proximity to Blackheath Station.

Additionally, the volume of additional on-street parking demand (up to 20 vehicles) and periods of demand (up to two weeks at a time) are short. Accordingly, the parking impacts associated with the temporary closure of the commuter car park are expected to be minor.

4.7 Impacts to public transport

Some of the works associated with the Proposal would occur on weekends during scheduled rail shutdowns. These scheduled closures would occur regardless of the upgrade when part of the rail network is temporarily closed and trains are not operating. Buses would replace trains during rail shutdown periods.

As per current arrangements, the bus stop to support weekend rail closures, would be set up on the Great Western Highway, in proximity to the station entrance.

Bus services may be subject to minor delays due to interactions with construction vehicles accessing/egressing the site compound from the Great Western Highway.

Generally, the construction impacts associated with the upgrade of Blackheath Station is expected to have a negligible impact on the operation of public transport services.

4.8 Road closures

Road closures are not proposed on the road network for the duration of the Proposal construction works.

4.9 Impacts to active travel

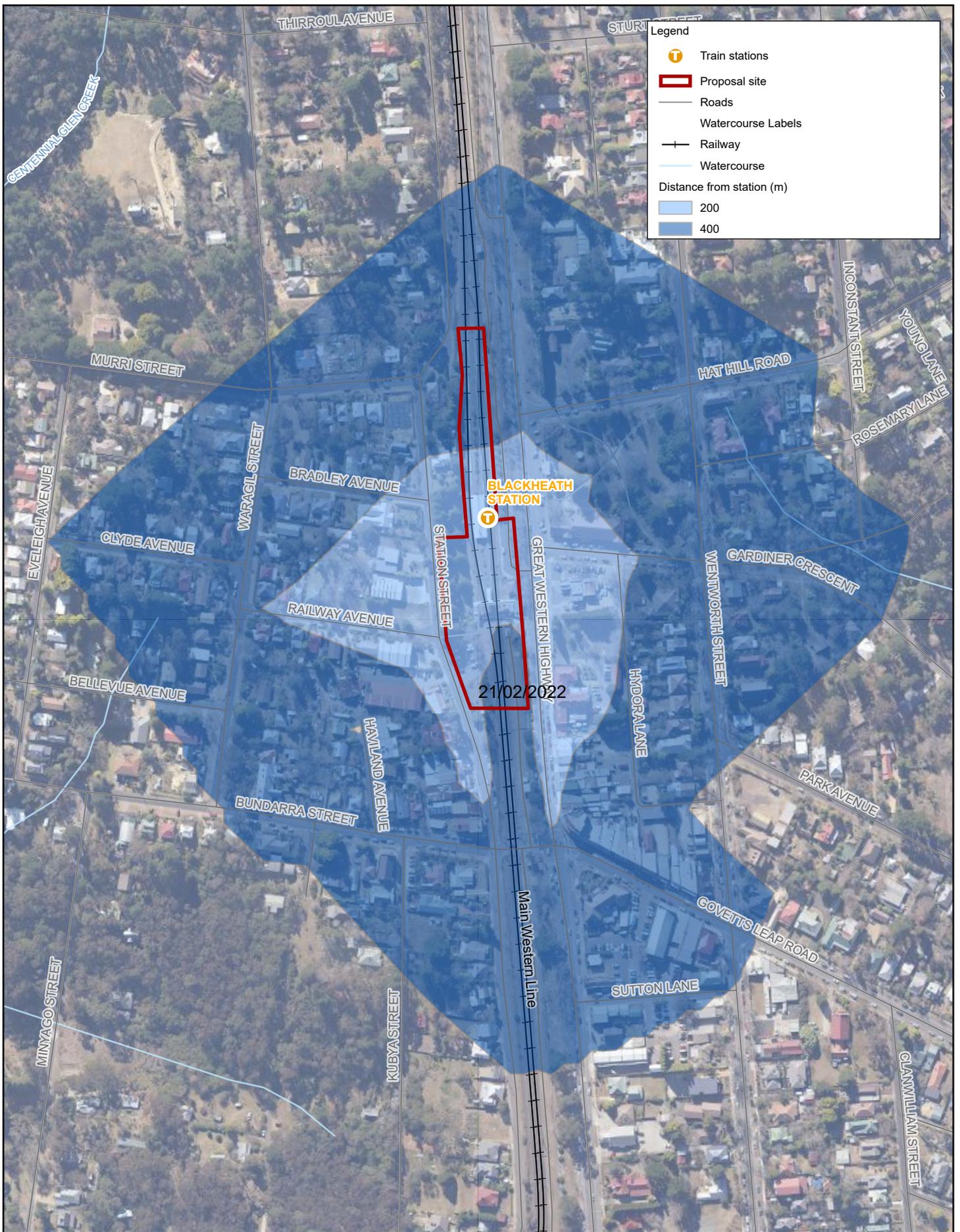
Other than during possessions when trains are not operating, pedestrian access to the Blackheath Station would be maintained from Station Street and Great Western Highway for the duration of construction.

Pedestrian access to the platform would be via the footbridge and stairs during construction; with the level crossing decommissioned early in the works to permit the construction of the new lift 2.

4.10 Impacts to kiss and ride

As stated in Section 2.7, informal kiss and ride facilities at Blackheath Station (three spaces) are provided within an area that is accessed from the Great Western Highway, east of Blackheath Station.

The impacts on the informal kiss and ride facility caused by the construction works at Blackheath Station are expected to be negligible.

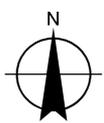
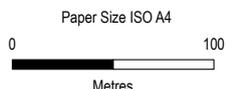


Legend

- Train stations
- Proposal site
- Roads
- Watercourse Labels
- Railway
- Watercourse

Distance from station (m)

- 200
- 400



Transport for NSW
Blackheath Station Upgrade
Traffic and Transport Impact Assessment

Project No. **12562533**
 Revision No. **C**
 Date **21/02/2022**

Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 56

Walking catchment

FIGURE 4.2

4.11 Mitigation measures

4.11.1 Construction Traffic Management Plan

Prior to the commencement of construction, a Construction Traffic Management Plan (CTMP) would be prepared for the upgrade of Blackheath Station, and would include at a minimum:

- ensuring adequate road signage at construction work sites 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
- maximising safety and accessibility for pedestrians and cyclists
- ensuring adequate sight lines to allow for safe entry and exit from the site
- ensuring access to railway stations, businesses and residential properties
- managing impacts and changes to off-street parking and requirements for any temporary replacement provision
- parking locations for construction workers away from stations and busy residential areas and details of how this would be monitored for compliance
- routes to be used by heavy construction-related vehicles to minimise impacts on sensitive land uses and businesses
- measures to manage traffic flows around the area affected by the station upgrade, including as required regulatory and direction signposting, line marking and variable message signs and all other traffic control devices necessary for the implementation of the CTMP.

Consultation with the relevant road authorities would be undertaken during preparation of the CTMP. The performance of all project traffic arrangements must be monitored during construction.

Vehicles would be permitted to travel past the work compound on Station Street with appropriate traffic signage (which would be detailed in a Traffic Guidance Scheme) to advise motorists of changes in road network conditions/operation or the expected vehicle movements to/from the site. TGSs are to be developed in accordance with Transport for NSW Traffic Control at Works Sites v.06 2020 and *AS1742.3 – Traffic Control for Works on Roads as part of a Construction Traffic Management Plan* and be coordinated with the onsite staging requirements.

4.11.2 Monitoring of Traffic Guidance Schemes

During construction, the Contractor shall, each morning, prior to work commencing, ensure all signage is erected in accordance with the Traffic Guidance Scheme (TGS) and clearly visible. After work hours, each evening, upon completion of work, the Contractor is to ensure signage is either covered or removed as required.

Any variation to the layout of the TGS on site is to be recorded and certified by Transport for NSW accredited personnel. The associated TGS road signage would inform drivers of works activities in the area, including truck movements in operation.

4.11.3 Access to adjoining properties

Access to all adjoining properties would be maintained for the duration of works.

4.11.4 Method of communicating traffic changes

Prior to the commencement of works on site, the Contractor is to inform neighbouring properties of proposed works, impacts and site contact information as per the Community Liaison Plan (to be developed prior to construction). Notification can be provided by various means including, but not limited to:

- letterbox distribution
- email distribution
- project website.

Prior to construction works progressing, the following is proposed:

- Access to all adjoining properties would be maintained at all times. Should the detailed design and construction staging of the Proposal identify impacts to residents, affected occupants would be consulted and notified in advance of the scheduled works.
- Further, it is suggested, following the approval of property owners and car park operator, car park users should be notified of proposed works, via signage to capture frequent users of the car park.

As stated previously, during some periods of construction, the commuter car park on Station Street would be closed.

Accordingly, it is recommended that notices be placed in the car parks prior to construction and Transport for NSW communicate this change to passengers, i.e. public notices at Blackheath Station, to inform passengers and help suppress parking demand during the construction period.

4.11.5 Environmental controls

The following environmental requirements are to be adhered to:

- All vehicles transporting loose materials would have the entire load covered and/or secured to prevent any large items, excess dust or debris depositing onto the roadway during travel to and from the site, including but not limited to construction rumble strips/wheels wash at the site egress location.
- The Contractor would monitor the roads leading to and from the site and take all necessary steps to rectify any road deposits caused by site vehicles, to maintain the safety of all road users.
- Vehicles operating to, from and within the site shall do so in a manner which does not create unreasonable or unnecessary noise or vibration.
- Public roads and station access points would not be obstructed by any materials, vehicles, refuse skips or the like, under any circumstances.
- All subcontractors must be inducted by the Contractor to raise awareness and understand that all relevant environmental control procedures are to be met.

4.12 Roadwork speed limits

Temporary roadwork speed limits are one of many traffic controls that can be implemented to manage the speed of traffic approaching and passing through a work site. However, they can, over long distances, have a significant impact on road user delay.

Any roadwork speed zones set up on Station Street must be logical and credible, as well as enforceable. When considering the use of a roadwork speed zone on Station Street, they would:

- only be used where they are self-enforcing or would be enforced
- not be used alone but with other traffic control signs and devices
- not be used in place of more effective traffic controls
- only be used while road works are in progress or the lower speed road conditions exist.

4.12.1 Construction speed zone

When night works are required, special consideration would be taken to determine appropriate changes in the speed limit depending on the location and type of works. As mentioned before, the Contractor would aim to minimise impact to overnight freight vehicles.

As required by Transport for NSW's Traffic Control at Work Sites Manual, when working adjacent to traffic in side streets, the speed limit selection would be based on the following criteria:

- degree of vehicular and pedestrian conflicts
- type and extent of the work
- characteristics of the road and proximity of workers to passing traffic.

4.12.2 Speed zone authorisation

An application to Council must be made for any proposed adjustment to speed limits, whether they are temporary (tactical), such as those required for short-term road occupancies, longer term such as those for the duration of a construction stage, or permanent. A Speed Zone Authorisation (SZA) application usually accompanies a Road Occupancy License (ROL) application where a change in speed limit is proposed as part of a road occupancy. The SZA application would be forwarded to Council's Interface Manager. Councils generally require at least ten working days to process the application and would grant or reject the application within this period. All SZAs would comply with the over-arching road safety and traffic management principles, objectives and targets outlined in the CTMP.

4.13 Staff inductions

All staff and subcontractors engaged on site would be required to undergo a site induction. The induction would outline the requirements of the CTMP, including site access routes, environmental and occupational health and safety responsibilities, emergency procedures, potential carpooling opportunities and vehicle height/weight restrictions.

Additionally, the Site Manager would discuss CTMP requirements regularly as a part of "toolbox talks".

4.14 Occupational health and safety

Any workers required to undertake works or traffic control shall be suitably trained and hold the required accreditation to carry out works on site and would also be inducted. All traffic control personnel would be required to hold Transport for NSW accreditation in accordance with the Transport for NSW Traffic Control at Worksites manual.

4.15 Contact of emergency services

In the event of a construction traffic incident on the public road network, it would be the responsibility of the Site Manager to ensure that emergency services are notified. The emergency services include but are not limited to:

- fire
- ambulance
- police
- phone "000" in cases of emergency.

Furthermore, it is the responsibility of the Site Manager to advise the emergency services of any restriction of vehicular access to public and private areas (1) one week prior to implementation.

4.16 Certificates and approvals

Relevant approvals are to be obtained from Council and other relevant authorities as required to facilitate the works. Approvals that may need to be obtained for items such as but not limited to:

- roadwork speed zone
- council road opening permits
- road occupancy approvals
- hoarding/fencing approvals
- crane and barricades
- oversize and articulated vehicle use on local roads.

4.17 Obtaining road occupancy approvals

The Contractor would obtain the necessary approvals, as required by the *Roads Act 1993* and NSW traffic acts and regulations, prior to conducting any works. The Contractor is required to seek the concurrence of the relevant road authority prior to undertaking works. The Contractor would ensure that all public roads to be used by construction traffic would be identified prior to construction and that management methods would be undertaken so that construction traffic uses the identified roads.

The three specific areas of approval would include:

- all construction works and/or any changes to existing infrastructure
- the installation and/or changes of any regulatory traffic control device
- occupation of the road network to conduct works, and the associated installation of temporary traffic control devices.

The road authorities responsible for roads affected by the project are listed below in Table 4.3.

Table 4.3 Road Classifications and Managing Authority

Classification	Authority
State	Transport for NSW (Great Western Highway)
Local	Blue Mountain City Council (Station Street and all other roads on proximity to Blackheath Station).

The Contractor would obtain the concurrence of Blue Mountain City Council prior to the installation of temporary traffic controls/devices and/or occupying the local road network. The Contractor's submission to Council would include:

- brief details of the works to be undertaken
- any relevant design drawings of the works
- program of the works
- copies of TGSs
- if applicable, details of SZA
- contact details of a construction site representative.

Specific consultation would be undertaken with council and local residents regarding instances of special deliveries through local access roads (as required).

5. Operational impacts

5.1 Traffic

The Station Street commuter car park is expected to increase in size from 20 spaces to 27 parking spaces and two accessible spaces as part of the Proposal. The additional vehicle activity associated with these spaces is expected to result in no significant traffic impacts within the vicinity of the station or the road network.

Any additional vehicle activity is expected to fall within typical daily fluctuations on the adjoining local road network.

5.2 Public transport

No changes to bus services or infrastructure are proposed as part of the Proposal.

5.3 Active transport

5.3.1 Pedestrians

Pedestrian access to Blackheath Station would be improved by providing the following:

- Installation of three new 17 person lifts between:
 - the Great Western Highway entry and the existing footbridge
 - the Station Street entry and the existing footbridge
 - the existing footbridge and the island platform
- upgrade of the Station Street entrance to provide accessible paths between the new lift and existing stairs and the new accessible parking spaces in the commuter car park upgrade of the station entrance off the Great Western Highway to provide accessible paths between the new lift, existing stairs and the upgraded kiss and ride bay and taxi zone, and the pedestrian crossing of the Great Western Highway outside the station entrance
- upgrade of the ramp connecting the new lift to the station platform
- resurfacing of the entire platform, and regrade the platform as required to provide accessible paths connecting the new lift, existing stairs, boarding assistance zones, family accessible toilet, waiting room and other customer facilities at the station
- sheltered rest area along the access path between the station entry and the upgraded kiss and ride spaces.

5.3.2 Bicycle riders

A minimum of five additional bicycle parking hoops, which can accommodate up to ten bicycles, would be provided within 60 metres of Blackheath Station.

The current bicycle lockers would be maintained within the informal kiss and ride area off the Great Western Highway.

5.4 Station parking

The commuter car park at Blackheath Station currently provides 20 parking spaces, none of which are allocated for mobility impaired individuals.

The proposed upgrade would convert three standard existing parking bays to two accessible parking bays (adjacent to the access path) and a dedicated shared zone. The shared zone is provided between the two accessible parking bays to meet accessibility requirements and is not available for parking. Additionally, it is proposed to expand the car park to the south and provide an extra 10 standard car parking bays in this extended area. The number of additional spaces that can be provided would be confirmed in the detailed design stage.

As per Australian Standards *AS2890.6 Part 6: Off-street parking for people with disabilities*, the proposed two accessible spaces would provide:

- dedicated accessible parking spaces with dimensions of 2.4 metres by 5.4 metres.
- a shared area (adjacent to the dedicated spaces) with dimensions of 2.4 metres by 5.4 metres. Additionally, a bollard should be provided in the shared space (to prevent people illegally parking in it).

The new parking spaces would be designed in accordance with Australian Standard *AS2890.1 Part 1: Off-street car parking*. The standard classifies commuter car parking as “User class 1” and specifies that parking spaces should have minimum dimensions of 2.4 metres by 5.4 metres and an aisle width of six metres.

5.5 Kiss and ride and taxi facilities

Within the existing informal kiss and ride area, it is proposed to adjust the parking area to provide one accessible taxi space, one kiss and ride space and a NSW Trains maintenance vehicle parking zone. The kiss and ride and taxi spaces would be accessible and for use by all customers.

The existing taxi zone located on the Great Western Highway south of the station entrance would be maintained.

The reduction of one kiss and ride space is expected to have a negligible impact on the operation of the station.

5.6 Safety

The Proposal is expected to improve pedestrian safety by upgrading the existing access pathways and providing opportunities for customers to access the platform via lifts instead of the track level crossing; the stairs to the footbridge would remain with improved stair nosings, handrails and tactiles.

6. Summary

6.1 Construction

The following impacts are likely to be generated by the construction activities associated with the Proposal:

- a minor increase in traffic volumes associated with trucks and construction workers. These increases are expected to fall within typical fluctuations of daily traffic movements and therefore not adversely alter the existing operation of the road network in proximity to Blackheath Station
- temporary loss of up to 20 car parking spaces within the commuter car park on Station Street during seven closures of up to one to two weeks at a time
- minor traffic delays associated with TGS implementation used to slow down and control vehicle movements during periods of construction.

The following list summarises the measures that are required prior to the commencement of and during the execution of the construction period:

- key stakeholders, including operators of adjacent land uses, would be notified of any changed traffic management arrangements prior to the commencement of works
- construction works would typically occur within the standard hours detailed by the NSW EPA
- deliveries would be timed so as to minimise delivery vehicles causing traffic disruption around the site
- truck drivers would be directed to follow the predetermined haulage routes (via the Great Western Highway).
- the construction compound would need to be fenced or separated from public
- car park users should be informed about the constructions works/closure to try and suppress parking demand during the phases of construction
- TGSs developed in accordance with Australian Standards (*AS 1742.3 – Traffic Control Devices for Works on Roads*) and Transport for NSW Traffic Control at Worksites, v.06 2020 manual would identify appropriate signage (and location) to advise motorists of upcoming changes in the road network
- suitable staff induction methods and environmental controls would be implemented prior to the commencement of construction works.

6.2 Operational changes

The Proposal would result in the following changes to access at Blackheath Station;

- provision of three new lifts, associated landings and canopies providing access to the station platforms from Station Street and the Great Western Highway station entry areas
- new Tactile Ground Surface Indicators, stair nosing and handrails to the existing footbridge and stairs
- extension of the existing digital CCTV system and additional cameras
- sheltered rest area along the access path between the station entry and the upgraded kiss and ride bays, including an allocated waiting space
- boarding assistance zones and markings on each platform and allocated waiting spaces on each platform
- the proposed station upgrade would improve cycling access to Blackheath Station by providing a minimum of five bicycle parking hoops nearby the Great Western Highway entrance, which can accommodate up to ten bicycles, and relocating the existing bicycle lockers to the Station Street commuter car park
- no changes to bus routes or bus stops serving Blackheath Station are proposed
- the upgrade would improve car parking at the station, with the provision of two accessible parking bays for mobility and additional standard commuter parking spaces (compared to the current yield)
- the proposed upgrade is expected to result in negligible traffic impacts at roads in the vicinity of the station
- the proposed pedestrian access improvements would provide better accessibility to the station, improve interchange between different modes of transport and encourage public transport use.

6.3 Conclusion

It is considered that the proposed works would provide a satisfactory amenity and level of service improvement for customers once operational and would minimise adverse impacts on the road system and pedestrian access during construction works associated with the Proposal, subject to the implementation of a detailed CTMP and other measures prior to construction by the Contractor.

It is expected that operational impacts of the Proposal would be positive, as a result of the proposed improvements to the adjoining transport infrastructure and the provision of a lift to the platforms to assist individuals with disability, limited mobility, parents/carers with prams, and customers with luggage.



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