

Wyee Station Upgrade

Traffic, Transport and Access Impact Assessment



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Client: Transport for New South Wales

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1.0 Introduction

1.1 Background

Transport for NSW (TfNSW) has proposed the upgrade of Wye Station (the 'Proposal'). The Proposal forms part of the Transport Access Program (TAP), a NSW Government initiative to provide accessible, modern, secure and integrated transport infrastructure.

In 2018, Aurecon (commissioned by TfNSW) produced accessibility upgrades concept plans and undertook options development and assessment for Wye Station. Two options were developed to address deficiencies at the Wye Station Precinct to meet its accessibility obligations in an efficient and cost-effective manner, while being easy to maintain.

The preferred option (Option 1) has since been refined and is being progressed towards construction and implementation. As part of the Review of Environmental Factors (REF), AECOM has been commissioned by TfNSW to undertake a Traffic, Transport and Access Impact Assessment of the construction and operation of the Proposal.

1.1.1 Key Features of the Proposal

The Proposal would include the following key elements:

- installation of three new lifts to provide improved access to the existing footbridge and island platform
- provision of a kiss and ride car space and an additional accessible parking space for a total of two accessible spaces within the Gorokan Road commuter car park. The disabled space from Wye Road would be removed as it is non-compliant with applicable accessibility requirements
- replacing the existing ramp with stairs and the construction of a retaining wall to provide improved access to the eastern station entry from Wye Road
- improved pedestrian crossing point on Wye Road between the Darlingup Road Council car park and the eastern station entry
- construction of a new accessible path on the eastern side of Wye Road connecting the existing southbound bus stop on Wye Road with the improved pedestrian crossing and station entry
- partial removal of the existing footbridge fencing, station fencing and non-compliant ramp to facilitate the new lift
- refurbishment of the existing island platform toilet within the platform building with a new family accessible toilet
- refurbishment of the existing passenger waiting room within the platform building to make it DSAPT compliant
- modification of existing overhead high voltage (HV) (11kV) electrical cabling and signal cabling to facilitate service connections to new lifts. Overhead bundled cables would be used for the 11kV electrical cabling, however there is the potential need for underground works and
- ancillary works including adjustment to lighting, electrical upgrades, improvement to station communications systems (including CCTV cameras), hearing loops, wayfinding signage and installation of tactile ground surface indicators (TGSIs) as required.

A detailed description of the Proposal and its associated works are provided in Chapter 3 of the *Wye Station Upgrade Review of Environmental Factors* (AECOM, 2018).

Subject to planning approval, construction is anticipated to commence in early 2019 and would take approximately 12 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.

1.2 Study Area

Wye Station is located between Wye Road and Gorokan Road in Wye, a suburb located in the Lake Macquarie region of New South Wales. The Wye Station Precinct includes the station, associated interchange facilities and buildings, gates, pedestrian and cycle access paths, pedestrian access, pedestrian linkages to the adjacent streets and bus stops, and car parking facilities.

The indicative boundary definition of Wye Station Precinct (i.e. the study area for this assessment) is shown in Figure 1.



Source: AECOM, 2018

Figure 1 Location map

1.3 Scope of the Study

This Traffic, Transport and Access Impact Assessment provides a high level assessment of the potential impacts of the Proposal on transport, traffic, access and road safety. The purpose of this report is to:

- assess the existing traffic and transport conditions in and around Wyee Station Precinct
- evaluate the potential traffic generation caused by the Proposal
- assess the impacts associated with construction and operation of the Proposal
- recommend mitigation measures to manage impacts, if required.

1.4 References

The following technical documents were reviewed to inform the assessment of Wyee Station, including:

- TAP3 Wyee Station – Scoping Design Report (Aurecon, Sep 2018)
- Wyee Station Transport and Access Report (Aurecon, Oct 2018)
- Wyee Pedestrian Flow Assessment Report (Aurecon, Oct 2018).

2.0 Existing Conditions

2.1 Wye Context

The suburb of Wye is located approximately 35 kilometres southwest of Newcastle, within the Lake Macquarie Local Government Area (LGA).

The suburb is served by the Central Coast & Newcastle Train Line on the Intercity Trains Network, providing connections to the Sydney Trains network (intercity and suburban). The adjacent stations to Wye Station are Morisset Station (to the north) and Warnervale Station (to the south).

The land use surrounding Wye Station consists primarily of low density residential areas and semi-rural properties. Figure 2 illustrates some of the key roads and land use features in Wye, including educational facilities, parks, bushland and environmental areas.



Source: AECOM, 2018

Figure 2 Wye context

2.2 Wye Station

Wye Station is served by the Central Coast & Newcastle Train Line providing train services between Newcastle Interchange and Central Station in Sydney. Figure 3 shows Wye Station on the Sydney Intercity Trains network.



Source: Sydney Trains, 2018 (modified by AECOM 2018)

Figure 3 Location of Wye Station on the Sydney Trains network

The main station entrances are from Wye Road to the east and Gorokan Road to the west. The station is currently not accessible for people with mobility issues. The station is currently accessed by stairs on either side of a footbridge that crosses the railway. Stairs provide the only means of access from the footbridge to the island platform. The footbridge and stairs also provide a means for pedestrian and cyclists to cross the railway corridor. There are no canopies for weather protection above the footbridge and stairs.

The station has one island platform (Platform 1 and 2). Both platforms are currently used for through train services in each direction. The number of services at Wye Station during the AM and PM two hour peak periods are shown in Table 1.

Table 1 Rail services at Wye Station

Key Destination	AM Weekday Peak (07:00 09:00)	PM Weekday Peak (16:00 18:00)
Newcastle Interchange to Central	2 services	4 services
Central to Newcastle Interchange	4 services	3 services

Source: Sydney Trains, 2018

2.2.1 Current Train Passenger Travel Demand

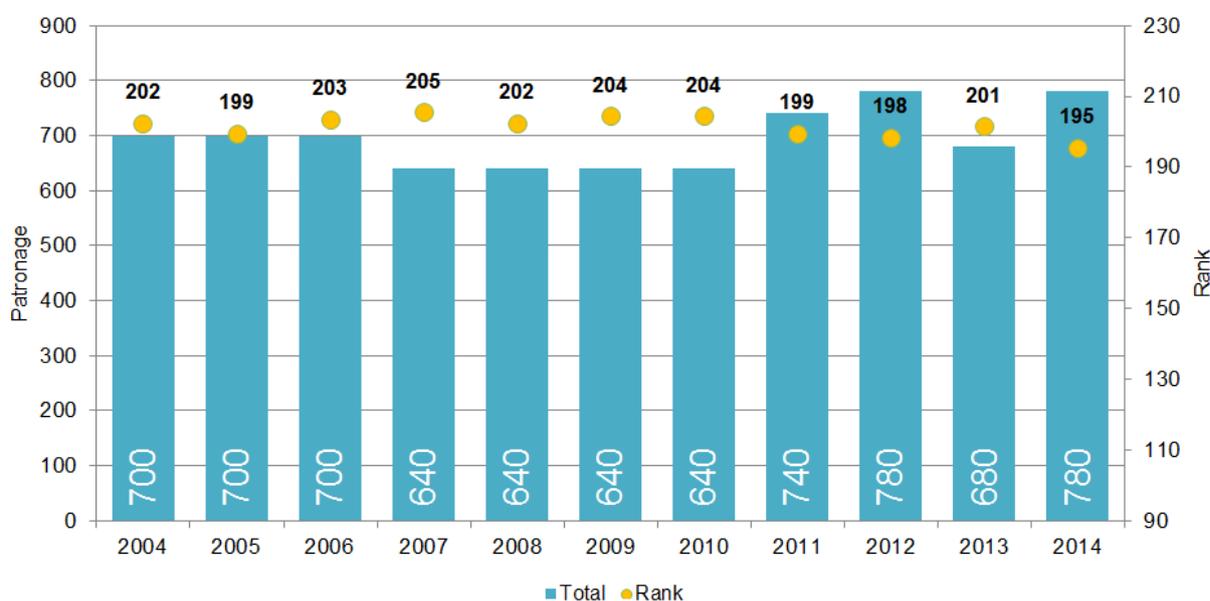
Based on Opal data provided by TfNSW, Wye Station recorded approximately 505 trips per weekday based on May 2017 averages. A breakdown of the Opal data is provided in Table 2.

Table 2 Wye Station May 2017 Opal data

Station	Average weekday			
	Total	Peak 1 hour (8am 9am)	AM peak (6am 10am)	PM peak (3pm 7pm)
Wye	505	34	185	164

Source: TfNSW, 2017

Historical patronage figures for Wye Station are provided in Figure 4, between 2004 and 2014. The general trend in the data shows trips have fluctuated in the past 10 years.



Source: Station Barrier Counts – 2004 to 2014, Bureau of Transport Statistics, 2016

Figure 4 Historical patronage data at Wye Station

2.2.2 Station Accessibility

The station is located between Wye Road and Gorokan Road, with access to the station provided via stairs and a footbridge over the railway. Access to Platforms 1 and 2 is via stairs from the footbridge.

The majority of the station facilities are located on the platform level and there are currently a number of interchange facilities provided at Wye Station, as shown in Table 3.

Table 3 Wye Station facilities

Accessibility	General facilities	Transport interchange
<ul style="list-style-type: none"> stairs hearing loop portable boarding ramp 	<ul style="list-style-type: none"> Opal ticketing machine toilets payphone emergency help point 	<ul style="list-style-type: none"> bus stops car parks

Source: Sydney Trains, 2018

2.2.3 Pedestrian Facilities

Figure 5 shows the stairs from the footbridge to the platform providing a barrier to accessible access to Platforms 1 and 2.



Source: AECOM, 2018

Figure 5 Pedestrian bridge and stairs

Figure 6 highlights some of the key pedestrian facilities in the vicinity of Wye Station. Footpaths are present along both sides of Wye Road, north of Darlingup Road, connecting the station with the interchange facilities on Wye Road. Beyond the extent of the interchange facilities no footpaths are provided. A refuge island is located on Wye Road, opposite the station entrance, which provides pedestrians a safe crossing point to and from the station and Darlingup Road Council car park. No footpaths are present along Gorokan Road.

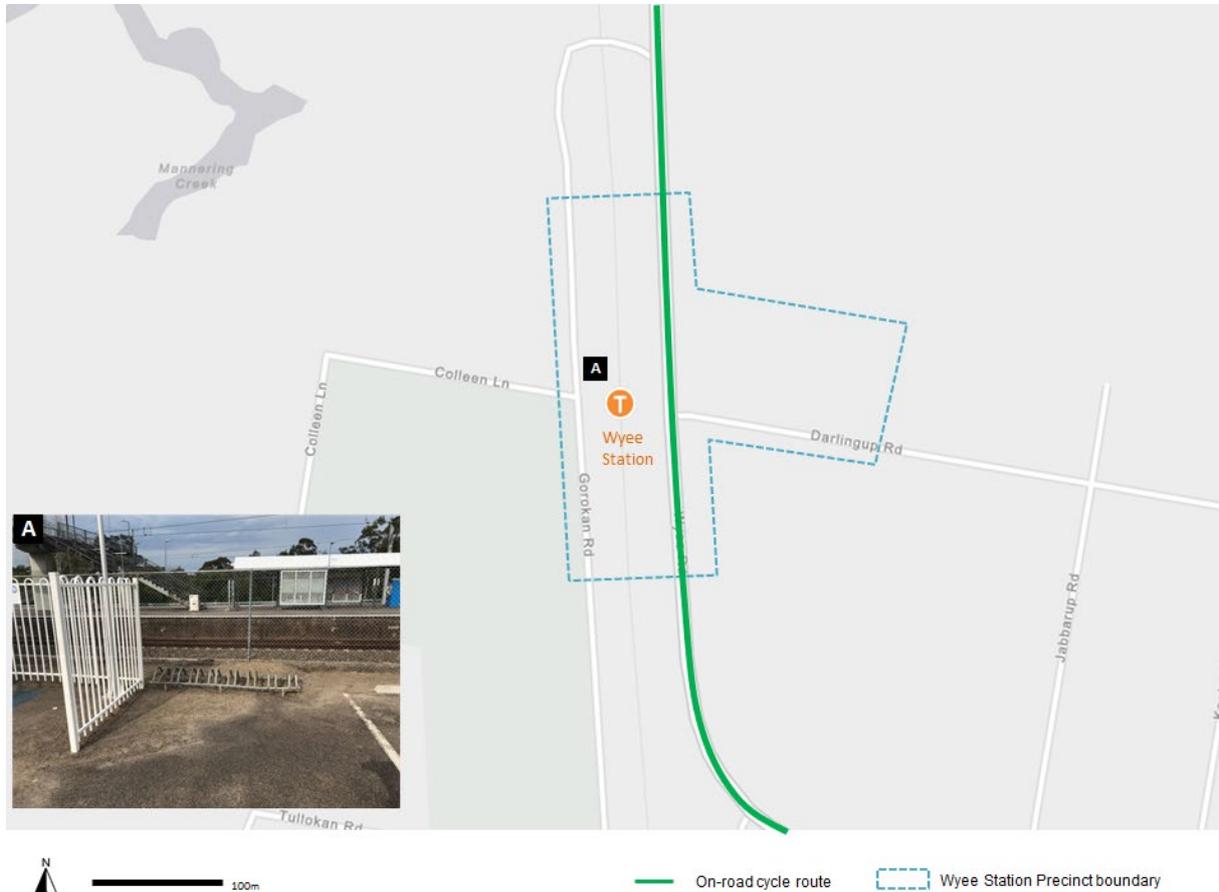


Source: AECOM, 2018

Figure 6 Pedestrian facilities

2.2.4 Cycling Facilities

Cycle connectivity to Wye Station is currently provided in the form of an on-road cycle route along Wye Road. Eight bicycle racks are located within the Gorokan Road commuter car park as shown in Figure 7. There is no shelter provided for weather protection of the bicycle racks.



Source: AECOM, 2018

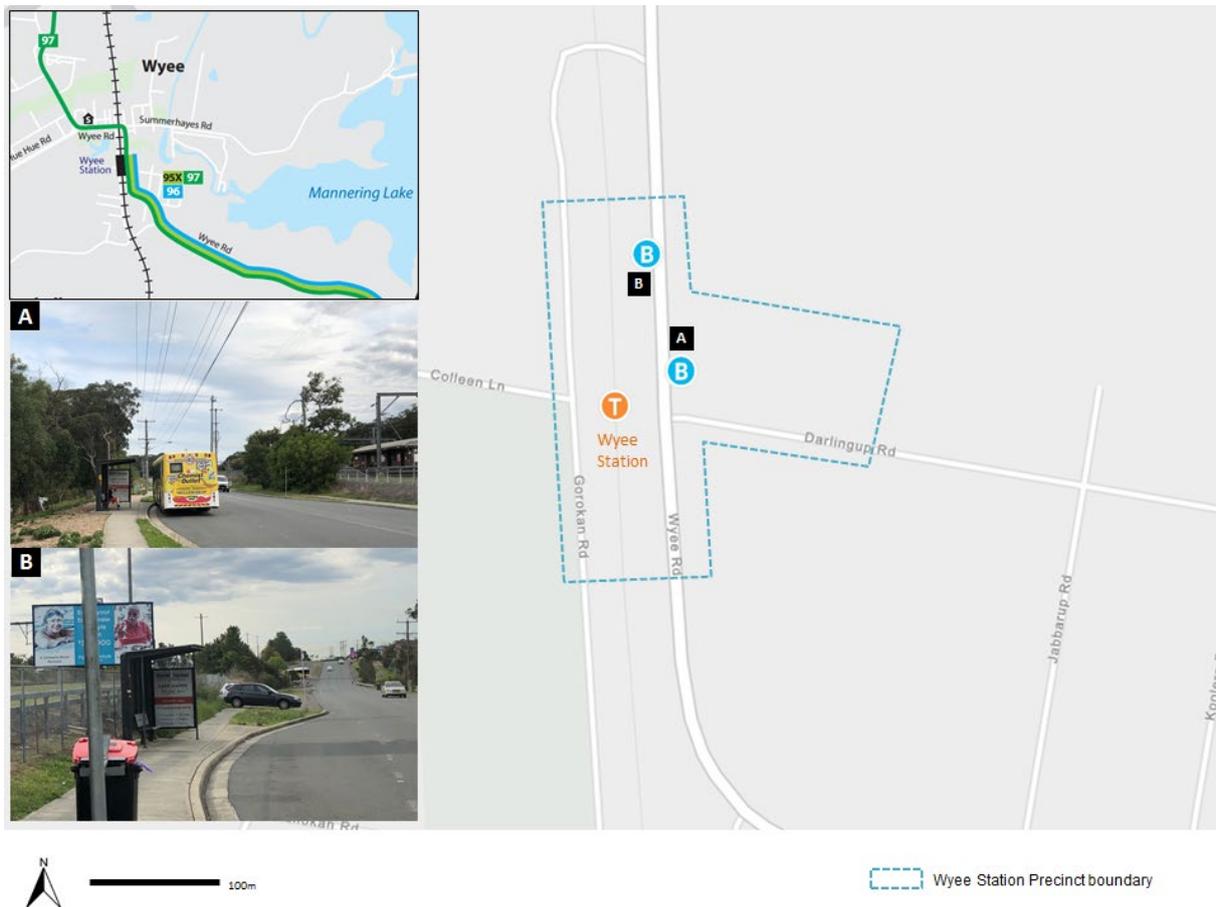
Figure 7 Bicycle racks at Wye Station

2.2.5 Bus Services and Facilities

Figure 8 presents the bus stop and bus services that serve Wye Station. There are two bus stops located along Wye Road within walking distance to the station. Four bus routes serve the bus stops, which is operated by Busways, Coastal Liner and Hunter Valley Buses. These routes include:

- Route 10: Tuggerah to Warnervale via Wye
- Route 95X: Lake Haven to Wye via Gwandalan
- Route 96: Wye to Budgewoi via Blue Haven
- Route 97: Lake Haven to Wye and Mannering Park (loop service)
- Route 281: Lake Haven to Wangi Wangi via Wye.

These bus routes connect residential areas to local transport interchanges, as well as employment and retail areas. Both bus stops on Wye Road provide seating and shelter. The bus stops also cater for temporary bus services during track work.



Source: AECOM, 2018

Figure 8 Bus stops and services

2.2.6 Parking Facilities

Car parking facilities are currently provided on both sides of Wye Station. Darlingup Road Council car park, an off-street car park located north east of the junction of Wye Road and Darlingup Road, provides 87 unrestricted car parking spaces. An off-street commuter car park (90 degree angle) is also provided on Gorokan Road, with 29 unrestricted car parking spaces. Accessible car parking spaces are provided at both car parking facilities, two at the Darlingup Road Council car park and one at the Gorokan Road commuter car park. An accessible parking space is also provided along Wye Road.

Informal parking occurs along the grass verge adjacent to the Gorokan Road commuter car park as shown in Figure 9.



Source: AECOM, 2018

Figure 9 Parking facilities

2.2.7 Kiss and Ride Facilities

There is currently no signposted kiss and ride zone for Wye Station, however the ‘No Parking’ zone at the indented kerb on the northbound carriageway on Wye Road is used by vehicles to drop-off and pick-up passengers.

2.2.8 Taxi Facilities

There is currently no taxi rank provided at the station.

2.3 Road Network

This section outlines the road network with respect to the Wye Station Precinct, providing a description of each key road. The key existing roads in the vicinity of the study area include Wye Road and Gorokan Road as shown in Figure 1.

2.3.1 Wye Road

Wye Road is a regional Council road with one lane in each direction providing connectivity to Wye Station, as shown in Figure 10. The road provides a link between two state roads, Mandalong Road, Morisset to the north and Pacific Highway, Doyalson to the south. Indented kerbs near the station precinct are provided to facilitate interchange movements between transport modes. The sign-posted speed limit is 60km/h.



Source: AECOM, 2018

Figure 10 View of Wye Road (southbound)

2.3.2 Gorokan Road

Gorokan Road is a local road, which provides one traffic lane in each direction, as shown in Figure 11. The road links to Wye Road to the north and Gosford Road / Bushells Ridge Road to the south. The road primarily provides access to the station and properties to the west of the station. The default urban speed limit of 50km/h applies in the vicinity of the station as there is no posted speed limit sign.



Source: AECOM, 2018

Figure 11 View of Gorokan Road (southbound)

2.4 Travel Mode Choice

Travel data obtained from the Bureau of Transport Statistics provides an insight into the Journey to Work characteristics of residents in Wye. The Bureau of Transport Statistics uses the Australian Bureau of Statistics (ABS) data collected during the 2011 Census, which includes method of travel to work at a Travel Zone (TZ) level. TZ 6225 includes the catchment area of Wye Station, with the data from this TZ summarised in Table 4.

Table 4 Journey to work data (TZ 6225)

Mode of travel	TZ 6225 Wye Station ¹ (Number)	TZ 6225 Wye Station ¹ (%)
Train	28	4%
Bus	9	1%
Car – as driver	558	80%
Car – as passenger	47	7%
Walked only	24	3%
Mode not stated	30	4%
Other	6	1%

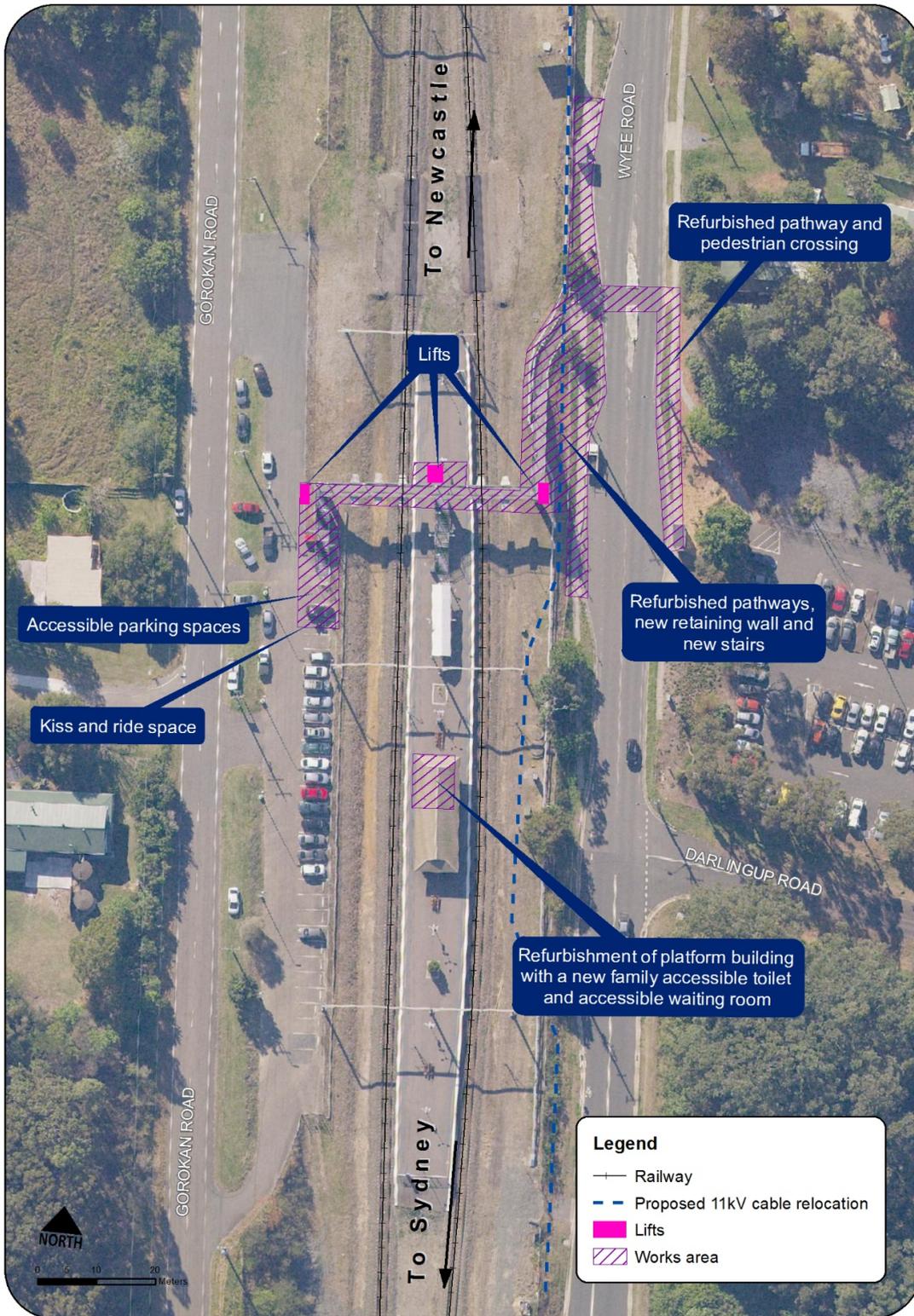
Note 1: Excludes those who worked at home or did not go to work

Source: Bureau of Transport Statistics, 2011

The 2011 Journey to Work data shows that the majority of trips from Wye were by car, with approximately 87 per cent of trips attributable to this mode (including car drivers and passengers), and four per cent of trips were made by train.

3.0 The Proposal

The Proposal retains the existing pedestrian bridge and stairs with the provision of three new lifts. The proposed upgrade to the interchange facilities are highlighted in Figure 12.



Source: AECOM, 2018

Figure 12 Proposed interchange facilities

Details of the proposed works to take place at the station to improve accessibility and customer experience include:

Station upgrade

- construction and installation of three new lifts and associated landings and support structures to provide access to the existing footbridge and island platform
- refurbishment of the existing toilet within the platform building to provide a new family accessible toilet
- refurbishment of the existing eastern station entry (kerb ramps, stairs and retaining wall) to provide an accessible path of travel to new lift structures and existing stairs
- refurbishment of the existing platform building waiting room to make it accessible
- service relocation including communications, signalling, lighting and modification of HV (11kV) electrical cabling to facilitate service connections to new lifts
- additional lighting and CCTV coverage for new infrastructure where required
- upgrades to the pedestrian footbridge including removal of the fencing and extension of the footbridge to facilitate lift access
- upgraded wayfinding signage and the provision of tactiles (where required)
- refurbishment of the footpath on the western side of Wyee Road connecting Wyee Road kiss and ride and bus stop to the new lift.

Commuter car park

- adjustment to the existing Gorokan Road commuter car park to enable the provision of one kiss and ride space and an additional accessible parking space
- signage and line marking to make the Gorokan Road commuter car park one way with entry from the north and exit from the south
- improvement of the existing pedestrian crossing across Wyee Road connecting the Darlingup Road Council car park with the eastern Station entry
- refurbishment of the existing path connecting the southbound bus stop to the west side of Wyee Road to make it accessible.

4.0 Construction Activities

4.1 Overview

The proposed construction activities for the Proposal are identified in Table 5.

Table 5 Construction activities

Stage	Activities
Site establishment and enabling works	<ul style="list-style-type: none"> establishment of site compound (i.e. erect fencing, tree protection zones (TPZs), site offices, amenities and plant/material storage areas) establishment of temporary facilities as required (e.g. hoarding, temporary toilets etc.).
Utility relocation	<ul style="list-style-type: none"> relocation of services if safe to be moved outside of a rail shutdown period relocation of remaining services including excavation and modifying the 11kV cable as required.
Earthworks and piling works	<ul style="list-style-type: none"> mobilisation of piling rigs to access lift locations temporary earthworks and dismantling of fencing and barriers to allow piling rigs to reach desired location trenching and regrading works for new service routes earthworks for retaining wall foundation.
Lift installation works	<ul style="list-style-type: none"> construction of foundation slab including excavation for lifts removal of existing fencing, barriers and site regrading excavation of lift shaft well and establishment of foundations and formworks insertion of piles at the three locations for new lift foundation construction of lift shafts installation of lifts installation of drainage at western and eastern lift areas.
Station, toilet and waiting room reconfiguration works	<ul style="list-style-type: none"> reconfiguration of the existing platform building toilet to provide a family accessible toilet lowering the floor level of the existing platform building waiting room to match the level of the platform and ensure accessibility footbridge modifications, including partial demolition and installation of extension and new handrails installation of cladding, fixtures, lighting, signage and CCTV cameras for the lift areas services and fit-out works and electrical works (including any re-directed services/utilities).
Station surrounds works	<ul style="list-style-type: none"> line-marking of the additional accessible car space in the Gorokan Road commuter car park and one formal kiss and ride space installation of signage, pedestrian crossings and tactiles as required removal of structures no longer required such as fences and walkways replacing the existing ramp with stairs and upgrading the road crossing, to make accessible, linking the station to the eastern side of Wyee Road. staged construction of retaining wall, paved areas and new staircase at the Wyee Road station entry pavement works/regrading for the new parking spaces.
Demobilisation	<ul style="list-style-type: none"> dismantling of existing site compounds/hoarding areas.
Testing and commissioning	<ul style="list-style-type: none"> testing electrical, communications and signalling equipment.

4.2 Construction Vehicles

In facilitating these construction activities, various plant and equipment are likely to be required. These would include a combination of:

- excavators
- trucks
- generators
- piling rig
- concrete pump
- scissor lift
- coring machine
- bob cat
- crane.

Minor volumes of heavy vehicles are likely to be generated during the construction phase when transportation of concrete, equipment, preformed structures etc. is required. It is expected up to 15 heavy vehicles and up to 25 light vehicles would be generated per day during peak construction periods. It is expected there would be minimal impact on existing traffic conditions from these volumes of construction-related traffic.

The size of vehicles used for haulage would be consistent with the access route constraints, safety and any worksite constraints. Some construction activities (such as the delivery of precast sections) may require truck and trailer combinations or semi-trailers. Access arrangements for these vehicles would be defined in the Construction Traffic Management Plan (CTMP) prepared by the contractor during detailed design.

4.3 Working Hours

Construction is expected to commence in early 2019 and take around 12 months to complete. The majority of construction work at Wye Station would be limited to the standard construction hours as recommended by the Environmental Protection Authority (EPA):

- Monday – Friday: 7:00 am – 6:00 pm
- Saturday: 8:00 am – 1:00 pm
- Sunday / Public holidays: No work without prior approval from TfNSW.

However, it would be necessary to undertake certain construction activities, such as overnight concrete pours and delivery of oversized materials, outside of the standard construction hours so as to facilitate structural design requirements and minimise traffic disruption. For out of hours works, prior approval would need to be obtained from TfNSW by the contractor.

Scheduled weekend rail shutdowns would be utilised to undertake a number of construction activities, requiring prior approval from TfNSW as well as community notification. It is estimated that approximately four routine rail shutdowns would be required.

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

4.4 Construction Hoarding

Construction hoardings would be required at each of the proposed lift locations including on the station platform. The design of construction hoardings would be carefully considered and installed, given the level of pedestrian activity that occurs during peak periods. All construction hoardings would:

- comply with relevant codes and standards
- have smooth surfaces particularly for areas adjacent to footpaths to allow pedestrians to brush past without snagging
- free of trip hazards at the base of the hoardings
- be clean and have a regular inspection of the surfaces
- have adequate lighting.

Construction hoardings would discourage entry without approval and minimise vandalism. All access points to fenced compounds would have lockable gates and appropriate information signs would be provided at the hoardings to identify the project, safety and communication protocols.

4.5 Ancillary Facilities

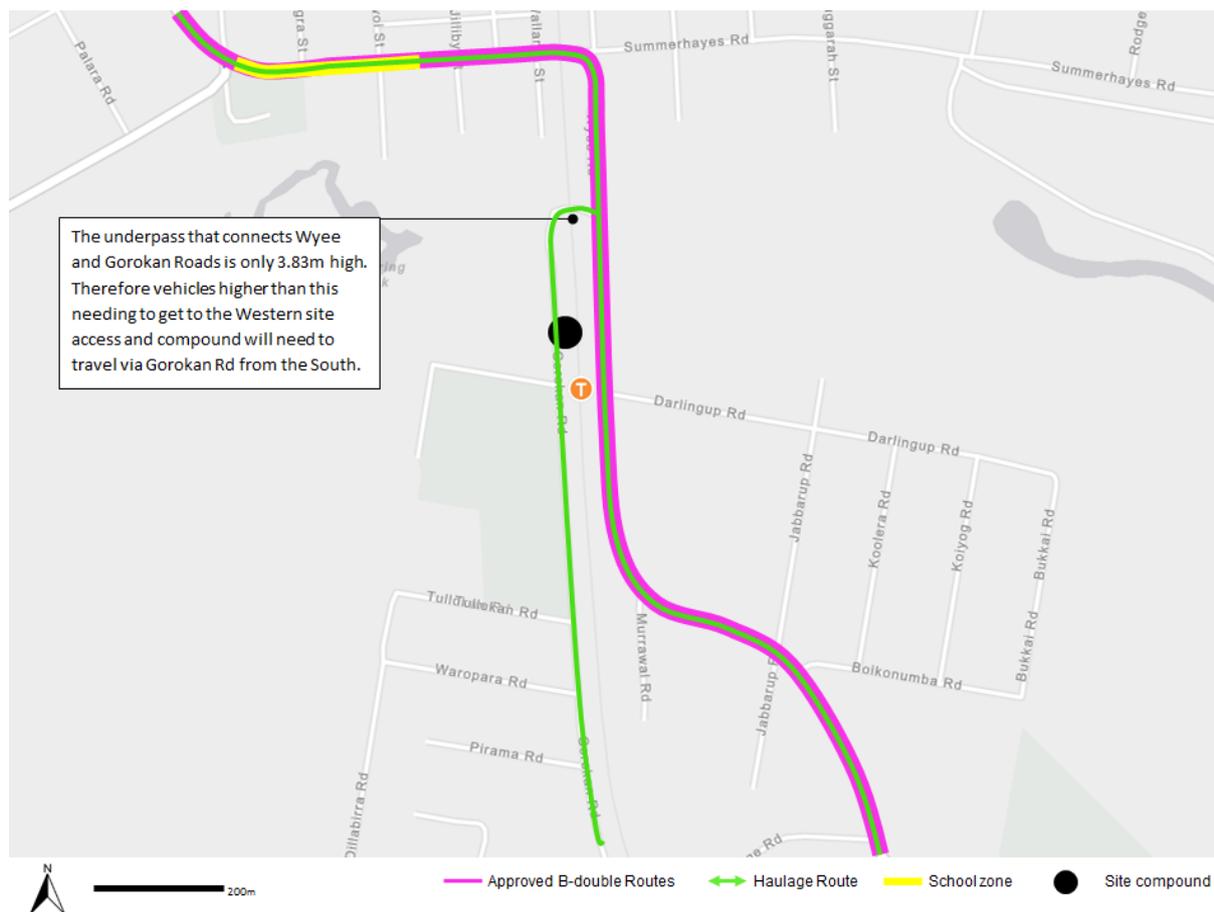
A temporary construction compound would be required to accommodate a site office, amenities, laydown and storage area for materials. The area north of the Gorokan Road commuter car park has been identified for use as a construction compound.

This proposed construction compound is located on land owned by RailCorp (managed by Sydney Trains).

4.6 Construction Vehicle Routes

Figure 13 shows the potential access routes to each side of the station entrance, as well as Roads and Maritime Services approved B-double routes adjacent to the site. The construction site is near Wye Road, which is an approved B-double route. This route provides high clearances and sufficient road widths to accommodate larger vehicles, making them ideal for the haulage routes, however are subject to sign-posted restrictions.

There is currently a 3.83 metre height clearance restriction at the Gorokan Road underpass. Heavy vehicle movements in proximity to Wye Public School would be restricted during peak times.



Source: AECOM, 2018

Figure 13 Proposed haulage routes (indicative only, subject to detailed design)

4.7 Site Security, Site Access and Signage

Access to work areas would consider:

- safety of travelling public
- safety of construction workers and equipment
- impact on local communities in terms of safety, noise and road damage
- ease of access for emergency vehicles
- site security, particularly outside work hours.

4.8 Worker Induction

All workers and sub-contractors engaged during the construction phase would be inducted prior to any commencement of works. The induction would identify the construction haulage routes, local speed zones, worksite protocols, staff parking facilities / public transport availability / carpooling opportunities and emergency / incident management strategies. Workers would be encouraged to park away from the station during the works and not near residences if possible.

4.9 Temporary Diversions

No temporary diversions have been identified. If required, the potential locations of temporary diversions would need to be identified in the CTMP and Road Occupancy Licences would be sought as required.

5.0 Construction Impacts

5.1 Public Transport

Bus services in the vicinity of the Proposal would not be majorly affected during construction. Bus services along Wye Road would continue to operate during construction activities, however may experience minor impacts, such as delays due to road works and temporary lane closures (e.g. use of a crane) or temporary relocations to enable construction activities.

The existing bus stop on Wye Road (northbound) may need to be temporarily relocated during the upgrade of the footpath. Any changes to the location of the bus stop would be communicated to the public via signage or appropriate methods.

Diversions or changes to bus services would be adequately sign-posted with appropriate community notification of any changes.

5.2 Pedestrians

During construction, works would be undertaken in a manner to ensure that public access routes to the station are maintained and pedestrian diversions are minimised. The Proposal is expected to cause temporary disruptions to the existing pedestrian facilities surrounding the station, particularly for pedestrians accessing the station from Wye Road when construction works for the lift and surrounding footpaths are being undertaken. This has the potential for increased safety risks for pedestrians, due to potential interactions with construction plant and vehicles.

Appropriate signs and/or traffic controllers would be positioned to notify pedestrians of the temporary arrangements. Any interaction between construction vehicles and pedestrians would be managed and controlled by traffic controllers. Impacts to pedestrians during construction would be managed through the development of a CTMP. Wherever possible, the community would be notified in advance of any planned works which would impact pedestrian movements through regular project notifications.

Pedestrian movement on the station platform would be temporarily impacted due to the reduced amount of space resulting from ancillary construction facilities or construction work. The reduced space on the platform may increase pedestrian congestion and reduce the amount of standing area for customers, however the likelihood of this occurring is low given the low patronage at Wye Station. Appropriate signage would be provided to mitigate any potential impacts to pedestrian movement on the platform.

Mitigation measures would be subject to further consideration during detailed design and construction planning in consultation with the relevant authorities. Notification would be provided to the community on alternative transport arrangements, including changes to pedestrian access.

5.3 Cyclists

There would be impacts to cyclists accessing Wye Station with the temporary removal of the existing bicycle racks within the Gorokan Road commuter car park. Cyclists may also be impacted with the temporary lane closure of Wye Road associated with the construction of the lift.

5.4 Kiss and Ride / Taxi

There is currently no signposted kiss and ride zones or taxi spaces provided near Wye Station. However closure of the indented kerb lane and “No Parking” zone during construction, which is currently used to pick-up and drop-off passengers, may result in this activity occurring along Wye Road. Given the limited duration of construction along Wye Road, any potential use for kiss and ride activity would be minor and not result in substantial impacts. It is recommended however that signage is erected to direct kiss and ride movements to take place within the Darlingup Road Council car park during the closure of the “No Parking” zone.

5.5 Parking Impacts

The operation of the Gorokan Road commuter car park would be temporarily impacted during the construction of the Proposal. During construction, the following impacts are expected to occur within the commuter car park:

- the temporary closure of access points into the commuter car park to provide access for the piling rig, with traffic being diverted to the middle car park entry
- the partial closure (northern end) of the car park and access points with traffic being diverted to the middle car park entry during crane activity (crane would operate at night or during a rail shutdown).

The partial closure of the Gorokan Road commuter car park would increase demand for parking within the Darlingup Road Council car park and increase informal parking along the verge of Gorokan Road in the short term. Prior notice should be provided to commuters if a temporary loss to existing car parking is required during construction.

Parking provisions are not proposed for staff vehicles within or adjacent to the construction site, therefore construction workers would be encouraged to car-pool or use adjacent public transport services. However, it is expected that workers would travel via private vehicles which may also marginally increase the demand for parking within the two car parks serving the station. The CTMP would be prepared to manage the impacts of construction traffic parking.

5.6 Traffic

Traffic generated by construction vehicles, including staff vehicles, is likely to be low given the nature of the works proposed and would fluctuate dependant on the construction stage. Up to 25 light vehicles and 15 heavy vehicles per day during peak construction periods are expected to be generated during construction. It is expected there would be a minimal impact on existing traffic conditions.

Work zones to construct the proposed interchange facilities along Wye Road may require temporary or partial lane closures and/or traffic diversions. A Road Occupancy License would be sought from Lake Macquarie City Council as required. Road works would be undertaken progressively and in the minimum area and timeframe required to undertake the particular phase of work. Signage would be displayed around work areas to inform the public.

5.7 Property Access

Property access would be maintained, where possible, to minimise the impact to local residents.

Prior to construction, the Construction Contractor would obtain any licences / approvals required for operating a crane within private airspace where required. Proposed works within private airspace would be undertaken in accordance with the requirement of any relevant licences / approvals and in consultation with affected properties and the contractor would adhere to all relevant requirements to ensure the safe operation of the crane.

5.8 Emergency Vehicle Access

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

6.0 Operational Impacts

6.1 Future Demand

Table 6 shows the 2036 patronage forecasts for Wye Station obtained from TfNSW's Transport Performance and Analytics modelling.

Table 6 Patronage forecasts

Year	AM peak entries ²	24 hour (entries and exits)
2036 (+15%) ¹	289	793

Notes:

1 - an additional 15% has been added to the forecast years for design assessment purposes.

2 – period of 4 hours in the morning from 6am to 10am

Source: Aurecon, 2018

The Proposal has been designed to account for the predicted patronage forecasts. Detailed design would also consider future patronage demands.

It is unknown whether the patronage forecasts have taken into consideration the truncation of the Newcastle Line as part of the Newcastle Urban Renewal Strategy (2014), which removes the heavy rail line between Wickham and Newcastle Station for the provision of high frequency light rail services. In the event this has not been taken into consideration, it is unlikely to have a significant impact on patronage numbers at the station and design. Refer to Section 6.3 for the pedestrian modelling outcomes, which show the existing footbridge and staircases have the capacity to accommodate the forecast peak passenger demand.

6.2 Public Transport

The Proposal does not include changes to bus or rail services as part of the works and would not impact on the operation (service operation or timetabling) of public transport in the vicinity of Wye Station. The Proposal includes improved interchange facilities and commuter access to Wye Station, which may increase rail patronage.

6.3 Pedestrians

The Proposal would improve facilities and offer significant benefits to pedestrians, including:

- installation of three new lifts to provide an accessible path of travel to the station platforms and across the railway line
- improved pedestrian crossing point on Wye Road between the Darlingup Road Council car park and the eastern station entry
- construction of a new accessible path on the eastern side of Wye Road connecting the existing southbound bus stop with the improved pedestrian crossing and station entry
- improvements to the forecourt area at both station entrances
- upgraded wayfinding signage and the provision of signage and tactiles (where required).

The Proposal would improve the user experience in the vicinity of the station with the potential to encourage more customers to walk to the station. The 2036 patronage forecasts show 18 per cent of rail passengers would be walking to the station. The pedestrian modelling undertaken for the Concept Design by Aurecon (*Wye Pedestrian Flow Assessment Report*) indicates the footbridge, stairs and platform area achieves a level of service (LoS) A (where normal walking speed can be freely selected and slower pedestrians can be easily overtaken), as shown in Table 7.

Table 7 Pedestrian modelling results – 2036 Concept Design

Structure	LoS
Island platform	A
Stairs – Gorokan Road	A
Stairs – Wye Road	A
Stairs – Island platform	A
Pedestrian bridge	A

South: Aurecon, 2018

6.4 Cyclists

The Proposal is expected to retain the existing eight bicycle racks within the Gorokan Road commuter car park. Wye Station is classified as a Level C¹ interchange, which requires a minimum of 10 bicycle rack spaces. The provision of eight bicycle racks as part of the Proposal does not meet the bicycle storage requirements for the station. Consideration should be given to providing additional bicycle racks near the Wye Road station entrance, which is a key desire line for cyclists with an on-road cycle route on Wye Road,. This would meet the objectives of the NSW Government's Bike and Ride initiative, which encourages improved cycling facilities and transport interchanges.

6.5 Kiss and Ride / Taxi

The 2036 patronage forecasts shows 25 per cent of rail passengers would be dropped off at the station. The Proposal would provide opportunity for kiss and ride and taxi activity to occur near Wye Station.

The Proposal includes the provision of a kiss and ride space within the Gorokan Road commuter car park (to the west) and retains the "kiss and ride" zone operating from the "No Parking" zone on Wye Road (to the east). Both kiss and ride zones are located close to the station entrances. The provision of a kiss and ride space within the Gorokan Road commuter car park would assist in reducing impediments to traffic flow within the car park.

The proposed kiss and ride space does not impact on the parking availability for the station precinct. No formal taxi zone has been proposed as part of the Proposal. Taxi activity for the station precinct is likely to be limited; however taxis are expected to use the kiss and ride zone or car parking area to pick-up and drop-off passengers.

6.6 Parking

The Proposal improves the provision of parking surrounding Wye Station by providing additional parking spaces within the station precinct.

The off-street commuter car park along Gorokan Road is proposed to be upgraded to increase the number of parking spaces from 29 to 33 with two accessible parking spaces.

The Gorokan Road commuter car park is proposed to operate in a one-way direction (north to south) as a result in the reduction of the aisle width to accommodate an accessible path to the lift. This would result in separate entry and exit points for the car park.

¹ PDD Cycle LoS Classification, TfNSW 2015

6.7 Traffic

The Proposal would assist in making public transport infrastructure more accessible to rail customers and in providing an improved transition between transport modes, which would likely increase patronage. It is anticipated the improved commuter experience and upgraded facilities are likely to result in a marginal increase in traffic, with a negligible impact on the surrounding road network. Minor impacts are anticipated to occur along Gorokan Road with the additional accessible parking spaces and kiss and ride space within the Gorokan Road commuter car park.

6.8 Property Access

No changes to private property access would be required as part of the operation of the Proposal.

7.0 Mitigation Measures

Mitigation measures would be implemented to minimise traffic, transport and access impacts during construction and operation of the Proposal.

7.1 Construction Traffic Management Plan

Prior to the commencement of construction, a CTMP would be prepared as part of the Construction Environmental Management Plan and would include as 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 the station and residential properties is maintained (unless affected property owners have been consulted and appropriate alternative arrangements made)
- managing requirements around operating cranes in the airspace of adjacent properties (including any relevant permits or licences)
- managing impacts and changes to on- and off-street parking and requirements for any temporary replacement provision
- managing parking for construction workers - provide parking on-site on open land within the rail corridor and encouraging construction workers to carpool or use public transport. If not possible, parking locations should be located away from the station and residential areas
- considering routes to be used by heavy construction-related vehicles to minimise impacts on sensitive land uses and businesses
- providing details of relocated bus stops, including appropriate signage to direct patrons, in consultation with the relevant bus/taxi operators. Particular provisions would also be considered for the accessibility impaired
- communicating with the community and local residents to inform them of changes to parking, pedestrian access and/or traffic conditions including vehicle movements and anticipated impacts on the local road network relating to site works
- Road Occupancy Licences for temporary road/lane closures would be obtained, where required
- scheduling / staging construction works to minimise temporary loss of interchange facilities and available parking
- managing traffic flows around the area affected by the Proposal, including as required regulatory and directional signposting, line marking and variable message signs and all other traffic control devices necessary for the implementation of the CTMP.

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

8.0 References

- AECOM, 2018, Wye Station Upgrade Review of Environmental Factors*
- Aurecon, 2018, TAP3 Wye Station – Scoping Design Report*
- Aurecon, 2018 TAP3 Wye Station – Volume 2 – Scoping Design Drawings*
- Aurecon, 2018, Wye Station Transport and Access Report Rev 6*
- Aurecon, 2018, Wye Pedestrian Flow Assessment Report Rev 2*