# Chapter 6

Transport and traffic

# **6 Transport and traffic**

This chapter provides an assessment of the potential impact of the proposal on transport and traffic and identifies mitigation measures to address these impacts. This chapter draws on information in Technical Paper 1 (Transport and traffic).

# 6.1 Overview

Potential transport and traffic impacts of the proposal have been avoided and minimised wherever possible, primarily by identifying the most efficient and safe haul route to the arterial road network and minimising movements during existing network peak periods. The selection of truck sizes at each construction site has considered a balance between reducing overall truck movements and safe manoeuvrability to, from and within the construction sites. In addition, the management of construction traffic would be in accordance with the Sydney Metro Construction Traffic Management Framework (Appendix D) and specific mitigation measures to remove or reduce risks to road users and the public so far as is reasonably practicable. This includes measures to manage pedestrian, cyclist and motorist safety around construction sites.

Key potential impacts on the transport network during construction would be primarily focused around the construction sites. There may be some potential temporary impacts to traffic performance on the road network due to the temporary addition of construction vehicles and temporary road closures as a result of the proposal. This would result in some deterioration of intersection performance around construction sites. It may also result in a minor increase in delays to road users, including bus services on routes around construction sites.

The proposal would also result in the temporary loss of parking spaces, the temporary diversion of pedestrians and the temporary decommissioning of a bus stop adjacent to the Pyrmont Station western construction site.

# 6.2 Legislative and policy context

The Secretary's Environmental Assessment Requirements relating to transport and traffic, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Appendix A.

The transport and traffic impact assessment was carried out with reference to the following guidelines, policies and standards:

- Traffic Modelling Guidelines (Roads and Maritime Services, 2013)
- Traffic Signals in Microsimulation Modelling (Road and Maritime Services, 2018)
- Guide to Traffic Management Part 3 Transport Study and Analysis Methods (Austroads, 2020)
- Guide to Traffic Generating Developments Version 2.2 (RTA, 2002).

These are further described in Chapter 2 of Technical Paper 1 (Transport and traffic).

# 6.3 Assessment methodology

### 6.31 Study area

The study area relevant to the traffic and transport assessment comprises the area covered by the traffic modelling undertaken in the following geographical sub-areas corresponding to each construction site:

- The Bays tunnel launch and support site
- Pyrmont Station construction sites
- Hunter Street Station (Sydney CBD) construction sites.

### 6.3.2 Approach

#### Overview

The methodology includes assessing construction transport and traffic impacts, across the tunnel alignment, followed by a detailed analysis of impacts surrounding each construction site. The project wide impacts considered include:

- Pedestrian, cyclist, and road user safety
- Emergency services access
- Road conditions
- Construction worker parking.

The assessment of potential transport and traffic impacts associated with the proposal at each of the three construction sites involved consideration of impacts on:

- Active transport network (pedestrians and cyclists)
- Public transport services
- Road network performance
- Parking
- Property access.

The method of assessment and assessment outputs for each of these components are summarised in Table 6-1.

#### Table 6-1 Overview of approach to the construction transport and traffic assessment

Assessment component	Method of assessment	Assessment output
Active transport network	Analysis of changes to shared user paths, cycle ways, footpaths and pedestrian crossings	Qualitative assessment of impacts on pedestrian and cycling networks and accessibility
Public transport services	Analysis of changes to public transport routes and public transport stops, and service timeliness and efficiency	Qualitative assessment of impacts on public transport performance (increase or decrease in travel times)
Road traffic	Analysis of road network performance based on traffic modelling	Quantitative assessment of road network performance with and without construction traffic from the proposal
Parking	Analysis of a number of temporarily removed parking spaces and availability of comparable alternative parking in nearby locations	Qualitative assessment of parking availability during construction of the proposal
Property access	Analysis of existing access provisions and a comparison with access provisions during construction	Qualitative assessment of property access during construction of the proposal

Consultation has been undertaken with other relevant parts of Transport for NSW on the transport and traffic impact assessment.

#### Traffic modelling approach

The construction traffic impact assessment for the proposal is based on the analysis of existing traffic movements on the road network near each construction site to determine the current operational performance and model:

- A future scenario of operational performance without the proposal, which includes predicted future traffic flows
- An alternate future scenario where construction traffic from the proposal is added to the existing network and predicted future traffic flows, and analysed to identify potential impacts.

The approach to traffic modelling carried out for this assessment aligns with the Transport for NSW *Traffic Modelling Guidelines* (2013) and includes the following broad steps:

• Development of calibrated and validated base models to align with existing operational conditions (2021) along each construction vehicle route

- Development of future year base models to align with anticipated operational conditions in the year of peak construction activity (2024 for The Bays tunnel launch and support site and Pyrmont Station construction sites and 2025 for the Hunter Street Station (Sydney CBD) construction sites) including road network changes as a result of the operation of the WestConnex M4-M5 Link project
- Future cordon demand matrices were extracted from the Sydney Motorway Planning Model (SMPM) for use in the future year modelling assessment (with and without proposal)
- Application of anticipated construction traffic demands to the future year base models to allow the identification of potential impacts to road network performance.

For the purposes of this assessment, it was assumed all spoil would be transported from each construction site by truck. This assessment provides a potential worst-case assessment of road-based traffic. The use of other methods of transport, such as a barge from The Bays, may be possibly subject to further investigation which would reduce the potential road traffic impacts as described in this chapter (refer to Chapter 5 (Project description)).

The modelling methodology for road traffic is described in more detail in Technical Paper 1 (Transport and traffic). Consistent with the standard approach for traffic assessments on major infrastructure projects, traffic modelling was carried out for the morning and evening peak periods only (refer to Table 6-2).

#### Table 6-2 Modelled peak periods for each construction site

Construction site	Morning peak period	Evening peak period
The Bays tunnel launch and support site	7 am to 9 am	4.30 pm to 6.30 pm
Pyrmont Station construction sites	8 am to 10 am	4.45 pm to 6.45 pm
Hunter Street Station (Sydney CBD) construction sites	8 am to 10 am	5 pm to 7 pm

These peak traffic periods represent a worst-case scenario because during these periods the road network experiences the maximum background traffic demand and the available spare capacity on the road network is at its most limited.

To assess the impact of the construction activities on the road network performance, intersections along the proposed construction routes between construction sites and the arterial road network were assessed using Aimsun Next version 20.0.2 modelling software. Vissim (2021 SP06) modelling software was used for The Bays tunnel launch and support site to provide consistency with existing modelling carried out for other major transport infrastructure projects in the Rozelle area.

The main performance indicator for the modelling software was intersection level of service which measures the overall performance of the intersection. For this purpose, average delay from *Guide to Traffic Generating Developments* (Roads and Traffic Authority, 2002) was used. Criteria for these performance indicators are provided in Table 6-3. It is generally accepted that when intersection performance falls to Level of Service D, investigations should be initiated to determine if suitable remediation can be provided. However, limited road capacity and high peak period traffic demands mean that, in general, Level of Service E and Level of Service F are regularly experienced by motorists across all road networks, particularly during peak periods.

Further details on the traffic modelling and additional intersection performance indicators are included in Technical Paper 1 (Transport and traffic).

Level of Service	Average delay (seconds per vehicle)	Traffic signals and roundabouts
А	Less than 15	Good operation
В	15 to 28	Good with acceptable delays and spare capacity
С	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity; at signals, incidents will cause delays Roundabouts require other control mode
F	Over 70	Extra capacity required

Table 6-3 Intersection level of service criteria

#### Cumulative impact assessment methodology

Cumulative impacts have been assessed through a qualitative analysis and use of traffic modelling to determine the performance of the road network with construction vehicle movements associated with other major projects expected to be occurring at the same time as this proposal based on current publicly available information.

#### 6.3.3 Assumptions

#### **Construction hours**

As identified in Chapter 5 (Project description), tunnelling and station excavation activities would be carried out up to 24 hours per day and seven days per week. These activities would require construction vehicles for material supply and spoil removal, to also occur up to 24 hours per day and seven days per week.

The proposed timing of vehicle movements throughout the day is identified for each construction site in Sections 6.6 to 6.8. The development of these truck movements has aimed to minimise movements during the peak hours. The modelled peak periods for each construction site shown in Table 6-4. At Pyrmont, where night-time sensitive receivers are close to construction sites, substantial vehicle movements are not proposed during night-time periods except where required for the safety of construction work.

#### Table 6-4 Modelled peak periods for each construction site

Construction site	Morning peak period	Evening peak period
The Bays tunnel launch and support site	7 am to 9 am	4.30 pm to 6.30 pm
Pyrmont Station construction sites	8 am to 10 am	4.45 pm to 6.45 pm
Hunter Street Station (Sydney CBD) construction sites	8 am to 10 am	5 pm to 7 pm

#### **Construction vehicles**

The heavy vehicle types and sizes selected are shown in Table 6-5. These are based on the proposed vehicles anticipated to be able to service the construction site. Larger vehicles may also be required for oversize deliveries or those under the Safety, Productivity and Environment Construction Transport Scheme. The Scheme allows participating heavy vehicles greater road network access and the ability to carry more construction materials in return for meeting higher environmental, safety and compliance standards.

#### Table 6-5 Construction vehicle type

Construction site	Heavy vehicle <sup>1</sup> type	Capacity (cubic metres)
The Bays tunnel launch and support site	Rigid truck and dog trailer	20
Pyrmont Station construction sites and Hunter Street Station (Sydney CBD) construction sites	Rigid truck	8

Note 1: Under the Heavy Vehicle National Law (NSW), a heavy vehicle is defined as having a gross vehicle mass of more than 4.5 tonnes. Within this Environmental Impact Statement, a light vehicle is classified as any vehicle equal to or less than 4.5 tonnes.

Further details on the key assumptions are provided in Chapter 3 of Technical Paper 1 (Transport and traffic).

# 6.4 Avoidance and minimisation of impacts

The design and development of this proposal has aimed to avoid or minimise potential transport and traffic impacts. This included:

- Developing haulage routes in consultation with relevant sections of Transport for NSW that would minimise the use of local roads and use the most safe and efficient route to the arterial road network
- Selecting truck sizes for each construction site, which provide a balance between reducing overall truck movements and provide safe manoeuvrability to, from and within the construction sites
- Avoiding or minimising traffic movements during peak periods when the road network is most congested
- Avoiding large volumes of traffic movements between 10 pm and 7 am at the Pyrmont construction sites, to avoid traffic noise during night-time periods in the surrounding residential area
- Selection of tunnel boring machines to excavate the twin tunnels because they operate faster than other excavation machinery, resulting in a reduced construction timeframe and less disruption for the local community.

# 6.5 Proposal wide impacts

### 6.5.1 Existing environment

The existing transport environment in the area surrounding the tunnel alignment is described in Table 6-6.

Table 6-6 Tunnel alignment existing environment

Transport mode	Description
Regional active transport network	The regional active transport network consists of footpaths, shared paths, signalised road crossings and cycle networks. Recreational cycle and pedestrian facilities are located along the foreshores of Iron Cove (known as the Bay Run), Rozelle Bay, Blackwattle Bay and Johnstons Bay. Key off-road cycle corridors include Drummoyne to Sydney CBD via Victoria Road and ANZAC Bridge, Kent Street and Pitt Street. The removal of the Victoria Road pedestrian overbridge has also resulted in significant pedestrian and cyclist demand from the A4-City
	West Link Road via James Craig Road and Solomons Way onto the ANZAC Bridge.
Rail network	<ul> <li>Relevant major interchanges are located at Wynyard Station for the following rail lines:</li> <li>T1 North Shore &amp; Western Line</li> <li>T2 Inner West &amp; Leppington Line</li> <li>T3 Bankstown Line</li> <li>T4 Eastern Suburbs &amp; Illawarra Line</li> <li>T8 Airport &amp; South Line</li> <li>T9 Northern Line.</li> </ul>
Metro network	Sydney Metro City & Southwest (currently under construction) will deliver new metro stations within the vicinity of the Sydney CBD, including at Martin Place. The Sydney Metro West major civil construction work between Westmead and The Bays (Stage 1 of the planning approval process) will deliver civil construction work including excavation of the station box at The Bays.
Bus network	Major bus interchanges are located around Wynyard Station and various locations throughout the Sydney CBD.
Light rail network	Three light rail lines operate in the area; L1 Dulwich Hill Line, L2 Randwick Line and L3 Kingsford Line.
Ferry network	Ferry services and stops operate at Circular Quay and Pyrmont in the vicinity of the proposal corridor.

#### 6.5.2 Potential impacts

#### Pedestrian, cyclist and road user safety

Access and egress arrangements at construction sites have been developed with consideration for pedestrian, cyclist and motorist safety.

Safe and appropriate controls would be established where vehicles are required to cross footpaths to access construction sites. This may include manual supervision, physical barriers or temporary traffic signals as required. Road safety audits would be carried out as part of construction traffic management planning for each of the construction sites, with road safety risks removed or reduced so far as is reasonably practicable.

Measures to further enhance pedestrian, cyclist and motorist safety in the vicinity of construction sites include:

- Assessing the suitability of construction haulage routes through sensitive land use areas with respect to road safety
- Deployment of speed awareness signs in conjunction with variable message signs near construction sites to provide alerts to drivers
- Providing community education and awareness about sharing the road safely with heavy vehicles
- Specific construction driver training to understand specific route constraints, safety and environmental considerations such as sharing the road safely with other road users, including pedestrians and cyclists, and limiting the use of compression braking

• Requiring technology and equipment to improve vehicle safety, eliminate heavy vehicle blind spots and to monitor vehicle location and driver behaviour.

If applicable, key locations where safety and amenity measures will be concentrated include:

- Construction site access and egress points where construction vehicles would interface with pedestrians using surrounding footpaths and marked cycle routes. This would be especially important in Pyrmont and Sydney CBD where high volumes of pedestrians and cyclists are expected
- Locations where footpath widths are reduced around construction sites
- Locations of increased vulnerable user demand such as near schools and licensed venues.

#### **Emergency services access**

The introduction of construction traffic is anticipated to result in minor impacts to the surrounding intersection performance at most construction sites (discussed below). As such, there is not anticipated to be any substantial change to emergency vehicle access. Furthermore, construction sites would be arranged so that emergency vehicle access to nearby buildings and the surrounding area would be maintained, or alternative arrangements are in place as determined in consultation with relevant emergency services.

Construction sites may also be made available for emergency vehicle passage if required and whenever possible (e.g. access may not be possible during demolition). Ongoing consultation would be carried out with emergency providers in relation to changed traffic conditions. As no health precincts or hospitals are located in close proximity to the proposal construction sites, emergency vehicle access to health precincts or hospitals is not further considered in this assessment.

#### **Road conditions**

The increase in construction traffic, particularly heavy vehicles, on the road network has the potential to impact the condition of roads along construction vehicle routes. A pre-construction condition survey would be carried out to document the existing condition of all roads along construction vehicles routes. Upon completion, a post-construction condition survey would be carried out to determine whether construction activities and/or construction vehicles have caused sections of road to deteriorate.

A report would be prepared in consultation with Transport for NSW and relevant councils, detailing the findings of the pre-construction and post-construction condition surveys and any remediation work required. Damage attributed to construction work would be rectified by the construction contractor, in line with any relevant Transport for NSW and council requirements.

#### Construction worker parking

Some construction worker parking would be provided at The Bays tunnel launch and support site, although it would not meet the expected full demand based on indicative workforce numbers. Shuttle bus services to transfer construction workers to and from major transport interchange(s) would be considered. The final arrangements for this service would be confirmed during detailed construction planning of this proposal and may be coordinated with other concurrent transport projects in consultation with Transport for NSW.

No construction worker parking would be provided at Pyrmont Station and Hunter Street Station (Sydney CBD) construction sites. Construction workers at these sites would be encouraged to use the extensive existing public transport network options or existing commercial car parking facilities.

The approach to managing and mitigating construction worker parking impacts would be managed through the development of Construction Traffic Management Plan/s as outlined within the Construction Traffic Management Framework (Appendix D).

#### Spoil transport options

Road would be the primary transport method for transporting spoil from the construction sites. This is considered feasible due to the location of construction sites directly adjacent to or close to the existing arterial road network, in particular the proximity to the motorway and arterial road network. Other options for the transport of spoil by barge from The Bays have also been considered and are discussed further in Chapter 2 (Development and alternatives).

#### Major special events

Special events often occur within Pyrmont and the Sydney CBD. The *Transport for NSW Special Events Management Guidelines 2018*, identifies the following classes of special events:

- Class 1 An event that impacts major transport systems and traffic and there is significant disruption to the non-event community. For example, an event that affects a principal transport route in Sydney, or one that reduces the capacity of the main highway through a country town
- Class 2 An event that impacts local transport systems and traffic and there is low scale disruption to the nonevent community. For example, an event that blocks off the main street of a town or shopping centre but does not impact a principal transport route or highway
- Class 3 An event with minimal impact on local roads and negligible impact on the non-event community. For example, an on-street neighbourhood Christmas party
- Class 4 An event that is conducted entirely under Police control (but is not a protest or demonstration). For example, a small march conducted with a Police escort.

Liaison would occur with event organisers of Class 1 and 2 events, and (as relevant) Transport for NSW to provide appropriate management of construction vehicle movements to address potential impacts to event patrons, the public and the construction works. This may involve measures such as temporary adjustment to construction vehicle routes, construction working hours or potentially stopping works for the duration of the event.

Construction activities on road corridors would require a Road Occupancy Licence to close the road or lane for any period. The granting of a Road Occupancy Licence would generally be subject to network operation restrictions, which would preclude road closures during high-activity holidays such as New Year's Eve, or during the set up and pack down times for major events such as sports grand finals or during major road closures.

Major special events in Pyrmont and the Sydney CBD are shown in Table 6-7. No special events are anticipated to occur in the vicinity of The Bays tunnel launch and support site. It is noted that many special events calendars have been disrupted recently due to the COVID-19 pandemic.

Indicative month	Event	Location
Pyrmont		
April	Anzac Day Service	Union Square and Anzac Bridge
September	Pyrmont Food and Wine Festival	Pirrama Park
October	Seven Bridges Walk	Pyrmont Bridge and Pyrmont Village
December	Pyrmont Village Christmas Concert	Pirrama Park
December	Christmas Carols	Union Square
Sydney CBD		
January	Field Day	The Domain
January	Sydney Festival	Sydney CBD
January	Australia Day Celebrations	Primarily harbour foreshore area
February	Sydney Lunar Festival	Throughout Sydney CBD
February	Opera in the Domain	The Domain
March	Mardi Gras Parade / Party	Oxford Street / Hyde Park area
March	St Patrick's Day Parade and Festival	The Rocks
April	Anzac Day Parade	Martin Place, Pitt Street, George Street, Bathurst Street, Elizabeth Street, Hyde Park
April to May	Sydney Comedy Festival	Throughout Sydney CBD
May	Mother's Day Classic	Martin Place, Hyde Park and The Domain
May	Sydney Morning Herald Half Marathon	Throughout Sydney CBD
May/June	Vivid Festival	Throughout Sydney CBD

#### Table 6-7 Major special events in Pyrmont and Sydney CBD

Indicative month	Event	Location
June	Sydney Film Festival	Throughout Sydney CBD
July	Reserve Forces Day	Macquarie Street
July	Sydney Harbour 10k & 5k	Throughout Sydney CBD
July	Bastille Day	The Rocks
August	City 2 Surf	Hyde Park, Park Street, William Street
September	Sydney Marathon	Milsons Point, Circular Quay, Sussex Street, Macquarie Street, Phillip Street, The Domain, Hyde Park, Oxford Street and Darling Harbour
September	Sydney Fringe Festival	Throughout Sydney CBD
September to October	Art and About Sydney	Throughout Sydney CBD
October	Sydney Spring Cycle	Milsons Point, Barangaroo, Cahill Expressway, Sussex Street
October	Seven Bridges Walk	Throughout Sydney CBD
October	Australian Beer Festival	The Rocks
October	Oktoberfest in the Gardens	The Domain
October to November	Good Food Month	Hyde Park
October to November	Night Noodle Markets	Hyde Park
November	Sydney International Art Series	Throughout Sydney CBD
December	Carols in the Domain	The Domain
December	Christmas Tree and Lights	Martin Place
December	Sydney to Hobart Yacht Race	Sydney Harbour foreshore
December/ January	New Years' Eve Celebrations	Primarily Circular Quay, Blues Point and Barangaroo areas. Whole Sydney CBD would be affected.

During special events, mitigation measures would reduce impacts to the transport and traffic network by:

- Minimising the level of construction activity, and if necessary, ceasing all construction activity
- Maintaining appropriate access to all areas within the event precinct
- Erection of hoardings, site fencing and gates at key locations within the construction site boundary to permit pedestrian movements adjacent to the construction site and separate pedestrians from construction vehicles
- Scheduling deliveries to the construction site outside of event periods.

### 6.6 The Bays tunnel launch and support site

#### 6.6.1 Existing environment

The Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD (Sydney Metro, 2020a) assessed the impacts of The Bays Station construction site to:

- Carry out the excavation of The Bays Station
- Launch and support two tunnel boring machines for the drive west to the Sydney Olympic Park metro station construction site.

The Bays Station construction site is being established under the Sydney Metro West Concept and Stage 1 planning approval.

The Bays tunnel launch and support site in this proposal would be located within a part of The Bays Station construction site. The impacts of the proposed use of The Bays tunnel launch and support site are assessed below.

The Bays tunnel launch and support site would be located on Port Access Road and accessed via Solomons Way and James Craig Road as shown in Figure 6-1.



Figure 6-1 The Bays tunnel launch and support site transport network

The transport and traffic environment in the area around The Bays tunnel launch and support site, particularly at the A4-City West Link Road / Victoria Road intersection, has been altered due to work associated with construction of the approved Western Harbour Tunnel and Warringah Freeway Upgrade and the WestConnex M4-M5 Link. However, the road network layout is generally similar with only minor changes to lane provision.

Furthermore, the transport and traffic environment within White Bay (including Port Access Road, Solomons Way and Sommerville Road) has been altered following the recent completion of The Bays Road Relocation Project.

#### Active transport network

Pedestrian activity within the immediate vicinity of the construction site is low given the industrial land uses present. Footpaths are provided on both sides of Victoria Road, James Craig Road and Robert Street. Footpaths are provided on one side of Solomons Way and Sommerville Road. However, sections of these roads are not open to the general public. The surrounding suburbs of Rozelle, Balmain, Glebe and Annandale have well-developed pedestrian networks.

Pedestrian crossings are provided at the following locations:

- Footpaths are only partially provided at A4-City West Link Road due to temporary footpath closures associated with construction of the approved Western Harbour Tunnel and Warringah Freeway Upgrade and the WestConnex M4-M5 Link
- Signalised crossings at the Victoria Road/Robert Street intersection, the Victoria Road / A4-City West Link Road intersection and the James Craig Road / A4-City West Link Road intersection
- Staged crossing via the median at the roundabout on James Craig Road (east of A4-City West Link Road).

The cycle network surrounding the site includes:

- Off-road shared paths on Victoria Road, James Craig Road, ANZAC Bridge, A4-City West Link Road, Robert Street (east of Buchanan Street), Railway Parade, and throughout Jubilee Park and on the western side of White Creek
- On-road cycle routes along Balmain Road, Darling Street, Lilyfield Road, Robert Street, Crescent Street, Gordon Street, Denison Street and Cecily Street.

The future active transport network within the vicinity of The Bays tunnel launch and support site will be modified to accommodate WestConnex M4-M5 Link, which is part of the WestConnex program of works. These changes will be implemented by the time construction of the proposal starts.

#### Public transport services

A summary of the public transport services around The Bays tunnel launch and support site is provided in Table 6-8.

Table 6-8 The Bays tunnel launch and support site existing public transport services

Public transport mode	Description
Train	No train line or stations
Light Rail	No light rail line or stations
Bus	23 bus routes
	20 school bus routes
	<ul> <li>Major bus stops on Victoria Road, A4-City West Link Road and Lilyfield Road</li> </ul>
	<ul> <li>Short bus-only lanes at the Victoria Road / A4-City West Link Road intersection on the westbound approach and the northbound kerbside departure lane between A4-City West Link Road and Lilyfield Road have been removed to facilitate work associated with construction of the approved Western Harbour Tunnel and Warringah Freeway Upgrade and the WestConnex M4-M5 Link</li> </ul>
Ferry	• Ferry service between the White Bay Cruise Terminal and Barangaroo when cruise ships are docked at the White Bay Cruise Terminal (Captain Cook Cruises)

#### Road traffic volume and patterns

Traffic volumes are high on City West Link, A4-City West Link Road and Victoria Road in both directions. These are arterial roads that carry volumes between 1,660 and 3,730 vehicles per hour in each direction. Eastbound volumes on City West Link and A4-City West Link Road are generally higher than the traffic volumes in the opposite direction during the morning and evening peak hours. On Victoria Road, a distinct southbound peak direction is evident during the morning peak hour while traffic volumes are similar in both directions during the evening peak hour.

Substantially lower volumes of up to 140 vehicles per hour are experienced on James Craig Road, which is a local road accessing the White Bay area.

The future road network within the vicinity of The Bays tunnel launch and support site will be modified to accommodate WestConnex Rozelle Interchange. Additional road network changes are proposed as part of the approved Western Harbour Tunnel and Warringah Freeway Upgrade, which would connect to the Rozelle Interchange (part of the WestConnex M4-M5 Link) and the surface road network in Rozelle.

The existing traffic volumes on the surrounding road network are provided in Table 6-9.

Road	Direction	Morning peak hour volume (vehicles per hour)	Evening peak hour volume (vehicles per hour)
A4-City West Link Road west of	Eastbound	3,260	2,970
James Craig Road	Westbound	2,280	2,510
City West Link west of A4-City	Eastbound	2,650	2,440
West Link Road	Westbound	1,660	1,970
James Craig Road east of A4-City	Eastbound	130	40
West Link Road	Westbound	60	140
Victoria Road north of A4-City	Northbound	1,720	2,890
West Link Road	Southbound	3,730	2,820

Table 6-9 The Bays tunnel launch and support site existing peak hour traffic volumes (2021)

Source: Traffic surveys, Thursday 25 March 2021

#### Intersection performance

Modelled existing level of service during the morning and evening peak hours for key intersections in the vicinity of The Bays tunnel launch and support site is shown in Table 6-10. Details of existing queue lengths for these intersections are provided in Technical Paper 1 (Transport and traffic).

Modelled intersection performance indicates that the Victoria Road / Robert Street intersections perform poorly under existing conditions at Level of Service E or F during the evening peak hour. While the proposal would result in traffic impacts on some intersections within the study area, including Victoria Road / Robert Street, it would not directly result in additional heavy vehicles travelling through this intersection.

Modelling results also suggest that the intersection of Victoria Road / A4-City West Link Road is already operating at capacity, with long queues at the westbound approach during the evening peak hour.

Poor performance of these intersections is a result of high volumes of through traffic conflicting with right turning and cross-street traffic, in conjunction with substantial queuing along City West Link in the westbound and eastbound direction. This includes queuing as a result of the construction of the WestConnex M4-M5 Link.

#### Table 6-10 Modelled intersection performance - The Bays tunnel launch and support site

Intersection	Peak hour	Demand flow (vehicles per hour) <sup>1</sup>	Average delay (seconds per vehicle)	Level of service <sup>2</sup>
Vietoria Doad and Dobort Streat	Morning	5,859	24	В
Victoria Road and Robert Street	Evening	6,022	93	F
Victoria Road and A4-City West	Morning	9,992	39	С
Link Road	Evening	10,430	51	D
A4-City West Link Road and James	Morning	5,518	9	А
Craig Road	Evening	5,790	7	А
City West Link and A4-City West	Morning	5,608	25	В
Link Road	Evening	6,022	30	С
City West Link and Cathoring Street	Morning	4,673	26	В
City west Link and Catherine Street	Evening	5,339	25	В

Note 1: Morning peak - No heavy vehicles and 10 light vehicles to be generated to/from the site. Evening peak - No heavy vehicles and 28 light vehicles to be generated to/from the site

Note 2: The Level of Service stated for traffic controlled intersections is an average across all vehicle movements, while the Level of Service stated for priority controlled movements is the worst performing movement.

#### On-street parking, loading, servicing and pick-up arrangements

Parking is prohibited in both directions along City West Link and A4-City West Link Road east of City West Link with clearways in operation at all times. Also, on-street parking is not available along James Craig Road and A4-City West Link Road south of City West Link. The majority of roads in the vicinity of The Bays tunnel launch and support site are currently time-restricted for non-residents.

There are no kiss and ride, loading zone or point to point transport service zones on roads immediately surrounding The Bays tunnel launch and support site.

#### 6.6.2 Potential impacts

#### Vehicle movement forecast and routes

The anticipated vehicle (light and heavy) one way movements at The Bays tunnel launch and support site over a typical day is provided in Figure 6-2 and Figure 6-3 respectively.

The proposed primary haul routes are shown in Figure 6-4. Roads forming the primary haul routes to and from The Bays tunnel launch and support site would include City West Link, A4-City West Link Road, James Craig Road, Port Access Road, Sommerville Road and Solomons Way. Primary site access would be right-in, left-out via Solomons Way.

Construction vehicles would access and egress The Bays tunnel launch and support site 24 hours a day during tunnelling and tunnelling support activities. The arrival and departure pattern of construction vehicles aims to minimise the impact of construction activity during the network peak periods.



# Figure 6-2 Indicative hourly light vehicle movements (arrival and departure) at The Bays tunnel launch and support site over a typical day

Note - Movement means a one way movement. A vehicle entering then leaving the work site represents 2 movements.



Figure 6-3 Indicative hourly heavy vehicle movements (arrival and departure) at The Bays tunnel launch and support site over a typical day





Figure 6-4 The Bays tunnel launch and support site primary haul route

#### Active transport network

Shared paths adjacent to James Craig Road and A4-City West Link Road would remain open during construction.

Within the Bays precinct, nearer to the construction site, temporary footpath and lane closures and diversions may be required from time to time throughout construction. These impacts would be managed through the development of will be documented in the Construction Traffic Management Plan/s as outlined within the Construction Traffic Management Framework (Appendix D).

A number of changes to the active transport network are proposed as part of the approved WestConnex M4-M5 Link project. These active transport links would remain following the construction of the WestConnex M4-M5 Link project, and the proposal would not result in any impacts to or closures of these links.

#### Public transport network

The A4-City West Link Road is used by buses and also forms part of the construction vehicle route for The Bays tunnel launch and support site. Minimal impacts to buses are expected and would be limited to a potential minor increase in travel time due to the additional construction vehicles on the road network. No impacts are anticipated on the operation of bus stops.

No impacts to the light rail network or the White Bay Cruise Terminal are anticipated. There may be some increase in delay for vehicles moving to and from the White Bay Cruise Terminal via the Port Access Road as a result of increased light and heavy vehicle traffic near The Bays tunnel launch and support site. This increase would be managed through the development of Construction Traffic Management Plan/s as outlined within the Construction Traffic Management Framework (Appendix D).

#### Road network performance

Potential impacts to road network performance would be minimised through the implementation of the Construction Traffic Management Framework (Appendix D) and mitigation measures identified in Section 6.10. This includes reducing vehicle movements in network peak periods.

Changes in level of service for intersections under the '2024 without this proposal' (without construction vehicles) and '2024 with this proposal' (with construction vehicles) scenarios are shown in Figure 6-5 for the morning and evening peak hours.

Modelled intersection performance with construction traffic indicates that all intersections forming part of the construction vehicle route would perform at the same Level of Service compared to the scenario without construction traffic. Minor average intersection delay increases (less than five seconds) are observed at some intersections at the scenario with construction traffic. It is noted that while there would be road network performance changes at the Victoria Road / Robert Street intersection, these changes would be due to performance effects and would not directly result from the proposal.

Compared to existing conditions, there would be a substantial decrease in demand flow at intersections along City West Link and Victoria Road. This is due to the progressive opening of WestConnex stages, where a considerable proportion of traffic that currently travels on City West Link and Victoria Road is forecast to shift onto WestConnex by 2023.



# Figure 6-5 The Bays tunnel launch and support site intersection performance (Without this proposal vs with this proposal (2024))

#### Parking

No impacts to parking or property access are anticipated as a result of the proposal.

Some construction worker parking would be provided at the site, although it would not meet the expected full demand based on indicative workforce numbers. The Construction Traffic Management Framework (Appendix D) sets out the approach to managing construction worker parking for the project. As the majority of roads in the vicinity of The Bays tunnel launch and support site are currently time-restricted for non-residents, a shuttle bus service to transfer construction workers to and from major transport interchanges would be considered.

### 6.7 Pyrmont Station construction sites

#### 6.7.1 Existing environment

The Pyrmont Station construction sites would consist of two sites (Pyrmont Station western construction site and Pyrmont Station eastern construction site) bound by Pyrmont Bridge Road, Union Street and Pyrmont Street.

The Pyrmont Station construction sites and the surrounding transport network are shown in Figure 6-6.



#### Figure 6-6 Pyrmont Station construction sites transport network

#### Active transport network

Footpaths are provided along the majority of roads in the vicinity of the Pyrmont Station construction sites, with the exception of the Western Distributor and Darling Drive. Signalised crossings are provided at most intersections. A zebra crossing is provided across Union Street at the Pyrmont Bridge Road and Union Street intersection.

Pedestrian activity at Pyrmont and Ultimo is high as the surrounding land use is primarily residential, commercial, educational and retail. At Pyrmont, areas of high pedestrian activity with signposted speed limit of 40 kilometres per hour, include the Pyrmont Bay light rail stop, Harbourside shopping centre, Pyrmont Bridge and The Star Sydney. Being a night-time precinct, there are also a number of licensed or entertainment venues close to the site which can lead to a pedestrian presence in the evening and night-time periods.

The cycle network surrounding the Pyrmont Station construction sites is shown in Figure 6-6 and consists of an off-road shared path along Union Street and the Pyrmont Bridge, a moderate difficulty on-road route along Miller Street, a moderate difficulty on-road route along Darling Drive north of the Convention light rail stop and an off-road shared path along Darling Drive south of the Convention light rail stop. These cycling facilities provide connectivity between the ANZAC Bridge, Pyrmont, Sydney CBD and the wider cycling network.

#### Public transport network

A summary of the public transport services around the Pyrmont Station construction sites is provided in Table 6-11 and shown on Figure 6-6.

Public transport mode	Description
Train	No train line or stations
Light Rail	• L1 Dulwich Hill Line with stops at the nearby Convention Centre, Pyrmont Bay, The Star Sydney, John Street Square, Fish Market and Wentworth Park
Bus	<ul> <li>31 bus routes (including 10 NightRide bus routes)</li> <li>Nearby bus stops on Harris Street, and Miller Street</li> <li>Major bus corridor along George Street and Broadway</li> </ul>
Ferry	• F4 Pyrmont Bay service operating from Pyrmont Bay wharf (300 metres east of the sites) provides services between Pyrmont Bay and Circular Quay

#### Table 6-11 Pyrmont Station construction sites existing public transport services

#### Road traffic volume and patterns

Darling Drive / Pyrmont Bridge Road / Bridge Road is a collector road that connects Ultimo to Camperdown via Pyrmont and provides connections to major arterial roads and motorways including Parramatta Road and the Western Distributor. Near the sites during the morning peak hour, the peak direction on Pyrmont Bridge Road is eastbound with volumes of about 1,270 vehicles. During the evening peak hour, the peak direction is also eastbound with a lower volume of about 760 vehicles.

Harris Street is a collector road that connects Pyrmont to Ultimo at George Street / Broadway and exhibits a northbound morning and evening peak direction. Near its intersection with Pyrmont Bridge Road, peak hour volumes on Harris Street are up to 470 vehicles. Further south, near its intersection with Fig Street / Western Distributor, peak hour volumes on Harris Street are up to 910 vehicles.

Pyrmont Street is a local road that carries volumes ranging from 150 to 490 vehicles per hour in each direction and exhibits a southbound morning and evening peak direction.

Union Street / Miller Street is a local road that carries traffic volumes ranging between 40 and 160 vehicles per hour in each direction during peak periods.

The existing traffic volumes on the surrounding road network are provided in Table 6-12.

Table 6-12 Pyrmont Station	construction site	es existing traffic	volumes by	direction	(2021)
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Road	Direction	Morning peak hour volume (vehicles per hour)	Evening peak hour volume (vehicles per hour)
Pyrmont Bridge Road east of	Eastbound	1,270	760
Bank Street	Westbound	380	530
Harris Street north of Pyrmont	Northbound	470	350
Bridge Road	Southbound	210	270
Harris Street north of Fig Street /	Northbound	600	520
Western Distributor	Southbound	910	780
Pyrmont Street north of Pyrmont	Northbound	200	150
Bridge Road	Southbound	290	490
Union Street west of Edward	Eastbound	40	120
Street	Westbound	50	160
Darling Drive east of Murray	Northbound	310	280
Street	Southbound	210	170

Source: Traffic surveys, Thursday 25 March 2021

#### Intersection performance

Modelled existing intersection performance (using the Level of Service) during the morning and evening peak hours for key intersections in the vicinity of Pyrmont Station construction sites is shown in Table 6-13. Details of existing queue lengths for these intersections are provided in Technical Paper 1 (Transport and traffic).

Modelled intersection performance indicates that the following intersections perform poorly under existing conditions at Level of Service E or F:

- Pyrmont Bridge Road / Bank Street during the morning and evening peak hour
- Harris Street / Fig Street / Western Distributor during the morning peak hour.

The poor performance of the Pyrmont Bridge Road / Bank Street intersection during the morning peak hour is due to high traffic volumes on the northern and southern approaches. The poor performance of the Pyrmont Bridge Road / Bank Street intersection during the evening peak hour is due to downstream queuing from the Western Distributor onto the westbound/northbound on ramp and Bank Street. This traffic congestion and queueing spill back onto Bank Street prevents vehicles from Pyrmont Bridge Road turning left-into (western approach) and right into (eastern approach) the Western Distributor on ramp, and is reflected in the poor performance of the Pyrmont Bridge Road / Bank Street.

High traffic volumes on all approaches to the Harris Street / Fig Street / Western Distributor intersection results in its poor performance during the morning peak hour.

Table 6-13 Modelled	peak hour existing	intersection	performance – P	vrmont Station	construction sites	(2021)
	peak nour existing		periornance i	ynnone Station	construction sites	

Intersection	Peak hour	Demand Flow (vehicles per hour)	Average delay (seconds per vehicle)	Level of Service <sup>1</sup>
Dumment Dridge Dead and Deals Street	Morning	2,760	67	E
Pyrmont Bridge Road and Bank Street	Evening	2,836	>100	F
Pyrmont Bridge Road and Harris	Morning	1,671	25	В
Street	Evening	1,556	36	С
Pyrmont Bridge Road and Pyrmont	Morning	1,456	17	В
Street	Evening	1,445	23	В
Darling Drive, Union Street and Murray	Morning	911	24	В
Street	Evening	820	29	С
Darling Drive and Harbourside Access	Morning	471	4	А
Road	Evening	440	2	А
Union Streat and Edward Streat	Morning	284	16	В
Union Street and Edward Street	Evening	445	18	В
Union Streat and Durmant Streat	Morning	531	11	А
omon street and Pyrmont street	Evening	734	17	В
Lieuwie Stweet and Allen Stweet	Morning	1,488	27	В
nams street and Allen Street	Evening	1,354	29	С
Harris Street, Fig Street and Western	Morning	3,421	60	E
Distributer	Evening	2,939	45	D

Note 1: The Level of Service stated for traffic controlled intersections is an average across all vehicle movements, while the Level of Service stated for priority controlled movements is the worst performing movement.

#### On-street parking, loading, servicing and pick-up arrangements

Outside of clearway restrictions, on-street parking is generally provided on roads surrounding the sites, including Harris Street, Pyrmont Street, Union Street, Miller Street and Edward Street and is generally ticketed and time-restricted on all days. On-street parking is not provided on Pyrmont Bridge Road or Darling Drive.

Other on-street parking arrangements include loading zones at various times at multiple locations surrounding the site. This includes loading zones on Pyrmont Street, Miller Street, Union Street and Harris Street. In addition, there are several mail zones located on Harris Street. A taxi zone is located on the eastern side of Harris Street, south of William Henry Street adjacent to the Powerhouse Museum as well as on the western side of Darling Drive near the Convention Centre light rail stop.

#### 6.7.2 Potential impacts

#### Vehicle movement forecast and routes

The anticipated vehicle (light and heavy) one way movements at the Pyrmont Station construction sites over a typical day is provided in Figure 6-7, Figure 6-8 and Figure 6-9.

Roads forming the primary haul routes to and from the Pyrmont Station construction sites would include Western Distributor, Pyrmont Bridge Road, Darling Drive, Union Street, Harris Street and Pyrmont Street (refer to Figure 6-10). Primary site access would be left-in and left-out via Pyrmont Bridge Road. Site access will also be required left-in and left-out via the Union Street frontage to the eastern construction site.

The majority of vehicle movements at Pyrmont would likely be restricted to between 7 am and 10 pm due to proximity of night-time sensitive receivers. Infrequent heavy vehicles may, however, be required during the night-time at Pyrmont to support concrete delivery during cavern lining pours for safety reasons. The arrival and departure pattern of construction vehicles aims to minimise the impact of the proposal during the peak network periods.



# Figure 6-7 Indicative hourly light vehicle movements (arrival and departure) at the Pyrmont Station construction sites over a typical day

Note - Movement means a one way movement. A vehicle entering then leaving the work site represents 2 movements.



Figure 6-8 Indicative hourly heavy vehicle movements (arrival and departure) at the Pyrmont Station western construction site over a typical day

Note - Movement means a one way movement. A vehicle entering then leaving the work site represents 2 movements.



Figure 6-9 Indicative hourly heavy vehicle movements (arrival and departure) at the Pyrmont Station eastern construction site over a typical day



#### Figure 6-10 Pyrmont Station construction sites primary haul route

#### Active transport network

The construction sites are anticipated to result in the following impacts to the active transport network:

- Footpaths on the southern side of Union Street, between Pyrmont Street and Pyrmont Bridge Road, would be diverted during construction to allow for safe site access and the loading and unloading of vehicles. Safe pedestrian access would be maintained via a detour to the northern footpath
- The footpath on the northern side of Union Street would be maintained throughout construction
- Temporary footpath closures at all construction site frontages would be required at different times during construction.

Should a section of pedestrian footpath be required to be closed, pedestrians would be informed of the diversion and safely directed to nearby crossing facilities. Potential impacts would be managed through the development of Construction Traffic Management Plan/s as outlined within the Construction Traffic Management Framework (Appendix D). As a result, impacts to the pedestrian network would be minimal.

The cycleway on the northern side of Union Street would remain operational at all times.

#### Public transport network

No impacts to the light rail or ferry networks are anticipated.

No impacts are anticipated on the operation of bus stops except for the bus stop on Pyrmont Bridge Road, adjacent to the Pyrmont Station western construction site. This bus stop is not currently used by any public transport bus services. As such, this stop would be temporarily decommissioned as part of the proposal, in consultation with Transport for NSW.

There is potential for a minor temporary increase in travel time for buses on Harris Street and Miller Street due to additional construction vehicles on the road network.

#### Road network performance

Potential impacts to road network performance would be minimised through the implementation of the Construction Traffic Management Framework and mitigation measures identified in Section 6.10. This includes reducing vehicle movements in network peak periods and mandating a range of safety features to reduce the risk of interactions with road users including pedestrians and cyclists.

Changes in level of service for intersections under the '2024 without this proposal' (without construction vehicles) and '2024 with this proposal' (with construction vehicles) scenarios are shown in Figure 6-11 for the morning and evening peak hours.

Modelled intersection performance with construction traffic indicates that the following intersections would experience a deterioration in Level of Service, however, would still operate with spare capacity:

- Pyrmont Bridge Road / Harris Street during the morning and evening peak hour From Level of Service B to C
- Union Street / Pyrmont Street during the morning peak hour From Level of Service A to B.

All other intersections forming part of the construction vehicle route would perform at the same Level of Service compared to the scenario without construction traffic.

The poor forecast performance of the Pyrmont Bridge Road / Bank Street intersection during the morning peak hour is due to high traffic volumes on the northern and southern approaches, which further increase in the future compared to the existing conditions. The poor performance of the Pyrmont Bridge Road / Bank Street intersection during the evening peak hour is due to downstream queuing from the Western Distributor onto the westbound/northbound on-ramp and Bank Street as also observed in the existing conditions. This traffic congestion and queueing spill back onto Bank Street prevents vehicles from Pyrmont Bridge Road turning left-in (western approach) and right-in (eastern approach) to the Western Distributor on-ramp, and is reflected in the poor performance of the Pyrmont Bridge Road / Bank Street.





#### Parking and property access

On-street parking spaces and a loading zone would be temporarily removed along both sides of Union Street, between Edward Street and Pyrmont Bridge Road, to allow for safe site entry and loading and unloading of vehicles while maintaining two-way traffic flow along Union Street.

The combined loss of on-street parking spaces would have minor impacts to the road network given the demolition of commercial properties that currently generate parking demand and the availability of parking on other local roads nearby. Opportunities to mitigate impacts to on-street car parking would be explored in consultation with the City of Sydney during ongoing design development and construction planning.

At the Pyrmont station construction sites, construction workers would be encouraged to use the extensive existing public transport options or existing commercial car parking facilities. The Construction Traffic Management Framework (Appendix D) sets out the approach to managing construction worker parking for the project.

There would be no impacts to private property access.

### 6.8 Hunter Street Station (Sydney CBD) construction site

#### 6.8.1 Existing environment

The Hunter Street Station (Sydney CBD) construction sites would consist of two sites. The Hunter Street Station (Sydney CBD) western construction site is bounded by George and Hunter Streets and Hunter Street Station (Sydney CBD) eastern construction site by Hunter, O'Connell and Bligh Streets.

The Hunter Street Station (Sydney CBD) construction sites and the surrounding transport network are shown in Figure 6-12.



Figure 6-12 Hunter Street Station construction site transport network

#### Active transport network

The pedestrian network surrounding the Hunter Street Station (Sydney CBD) construction sites is well developed. Footpaths are provided along both sides of all roads and controlled crossings are provided at all signalised intersections.

Pedestrian volumes are typically high throughout the day as the adjacent land uses are primarily commercial, retail and hospitality. All roads near the sites are signposted areas of high pedestrian activity, with signposted speed limit of 40 kilometres per hour.

Underground walkways provide pedestrian access between Wynyard Station, George Street and Pitt Street. The underground walkway is one of six possible pedestrian accesses to Wynyard Station concourse and is used by about 10 per cent of pedestrians (Arup, 2014).

The cycle network surrounding the Hunter Street Station (Sydney CBD) construction sites is shown in Figure 6-12 and consists of on-road and off-road cycle routes. An off-road cycle path is provided on the eastern side of Kent Street between the Western Distributor on-ramp and Liverpool Street and provides north-south connectivity to the wider cycling network at Pyrmont Bridge and the Sydney Harbour Bridge. A shared path is provided on the eastern side of Macquarie Street, between north of Albert Street and Bent Street, and connects to the shared path on the Cahill Expressway. In July 2020, a cycleway was opened on the western side of Pitt Street which provides north-south connectivity between Circular Quay and King Street.

O-ring and U-rail bicycle parking facilities are located throughout the Sydney CBD, including on Hunter Street, Margaret Street, Jamison Street and Kent Street.

#### Public transport network

A summary of the public transport services around the Hunter Street Station (Sydney CBD) construction site is provided in Table 6-14 and shown on Figure 6-12.

Public transport mode	Description
Train	<ul> <li>Wynyard Station, Circular Quay Station and Martin Place Station are in close proximity to the site</li> <li>T2 Inner West &amp; Leppington Line, the T3 Bankstown Line and the T8 Airport &amp; South Line, provide direct connections to Leppington, Liverpool, Parramatta, Strathfield, Bankstown, Sydenham, Campbelltown and Sydney Domestic and International Airport</li> <li>T1 North Shore &amp; Western Line, the T9 Northern Line and CCN Central Coast &amp; Newcastle Line, provide direct connections to Penrith, Richmond, Blacktown, Parramatta, Strathfield, Berowra, Hornsby, Epping, Chatswood, North Sydney, Gosford and Newcastle</li> <li>T4 Eastern Suburbs &amp; Illawarra Line and South Coast Line, provide direct connections to Bondi Junction, Sydenham, Sutherland, Waterfall, Wollongong and Kiama</li> </ul>
Light Rail	<ul> <li>L2 Randwick Line and L3 Kingsford Line light rail services operate along George Street and provide connections between the Sydney CBD, Surry Hills, Moore Park, Kingsford and Randwick</li> <li>Bridge Street and Wynyard light rail stops are located in close proximity to the site</li> </ul>
Sydney Metro	<ul> <li>Chatswood to Sydenham component of Sydney Metro City &amp; Southwest is currently planned to commence operation in 2024, including Barangaroo and Martin Place metro stations. Construction of the Chatswood to Sydenham component of Sydney Metro City &amp; Southwest would coincide with the proposal construction period</li> </ul>
Bus	<ul> <li>A substantial number of buses serve the Sydney CBD. Near the sites, bus stops along York Street, Carrington Street, Clarence Street, Kent Street, Bridge Street, Phillip Street and Macquarie Street are served by 76 bus routes which connect the Sydney CBD to multiple locations across Greater Sydney</li> <li>A bus interchange is located along York Street and Carrington Street near Wynyard Station</li> </ul>
Ferry	<ul> <li>Circular Quay is located 500 metres north of the site serviced by the F1 Manly, F2 Taronga Zoo, F3 Parramatta River, F4 Pyrmont Bay, F5 Neutral Bay, F6 Mosman Bay, F7 Double Bay, F8 Cockatoo Island and F9 Watsons Bay ferry services operate to and from Circular Quay providing connections between Sydney CBD and the Eastern Suburbs, Northern Beaches and Western Sydney</li> <li>Barangaroo Wharf is located 850 metres west of the site and is serviced by the F3 Parramatta River and F4 Pyrmont Bay service</li> </ul>

#### Road traffic volume and patterns

Grosvenor Street / Bridge Street is the main two-way east-west connector road near the sites that facilitates connectivity between the Western Distributor, Cahill Expressway / Eastern Distributor and local roads in the Sydney CBD. Bridge Street experiences a westbound morning peak direction and eastbound evening peak direction with traffic volumes between 320 and 790 vehicles in each direction. Hunter Street, Margaret Street and Bent Street are also two-way roads that travel in the east – west direction and carry traffic volumes of up to 570 vehicles in each direction. Two-way east-west traffic movement via the Hunter Street – George Street – Margaret Street 'dogleg' is still possible following the introduction of light rail operations along George Street.

Macquarie Street is the main two-way north-south connector road near the sites that provides access between the Cahill Expressway / Eastern Distributor and Sydney CBD. Macquarie Street carries traffic volumes of between 880 and 1,300 vehicles in each direction during the peak hour.

The road network near the sites is also served by one-way north-south local roads, including Clarence Street, York Street, George Street, Pitt Street, O'Connell Street and Bligh Street / Castlereagh Street. These roads carry lower volumes of traffic of up to 680 vehicles per hour. While traffic is not permitted on George Street south of Hunter Street to facilitate L2 and L3 light rail services, taxis and loading and unloading vehicles are permitted.

The existing traffic volumes on the surrounding road network are provided in Table 6-15.

Road	Direction	Morning peak hour volume (vehicles per hour)	Evening peak hour volume (vehicles per hour)
Grosvenor Street east of	Eastbound	610	610
Harrington Street	Westbound	270	560
Bridge Street west of Macquarie	Eastbound	460	790
Street	Westbound	730	320
Margaret Street east of Clarence	Eastbound	170	160
Street	Westbound	480	280
Hunter Street west of Macquarie	Eastbound	370	350
Street	Westbound	570	310
O'Connell Street north of Hunter	Northbound	-	-
Street <sup>1</sup>	Southbound	90	70
Bent Street west of Macquarie	Eastbound	320	460
Street	Westbound	570	430
Macquarie Street north of Bent	Northbound	980	880
Street	Southbound	880	1,300
George Street north of Margaret	Northbound	110	90
Street <sup>2</sup>	Southbound	-	-
Clarence Street north of Margaret	Northbound	370	680
Street <sup>2</sup>	Southbound	-	-

#### Table 6-15 Hunter Street Station (Sydney CBD) construction sites existing traffic volumes by direction (2021)

Note 1: As this road is one-way, no northbound traffic travels along this road Note 2: As this road is one-way, no southbound traffic travels along this road Source: Traffic surveys, Thursday 25 March 2021

#### Intersection performance

Modelled intersection performance during the morning and evening peak hours for key intersections in the vicinity of Hunter Street Station (Sydney CBD) construction sites is shown in Table 6-16.

Modelled intersection performance indicates that all intersections perform at Level of Service D or better during the morning and evening peak hour. The intersection of Margaret Street / Clarence Street is approaching capacity and experiences queues that extend past adjacent intersections.

Table 6-16 Modelled peak hour existing intersection performance – Hunter Street Station (Sydney CBD) construction sites (2021)

Intersection	Peak hour	Demand Flow (vehicles per hour)	Average delay (seconds per vehicle)	Level of Service <sup>1</sup>
Macquarie Street and Bridge	Morning	2,176	26	В
Street	Evening	2,655	25	В
Macquarie Street, Bent Street	Morning	3,383	29	С
and Shakespeare Place	Evening	3,875	32	С
Macquarie Street and Hunter	Morning	2,213	31	С
Street	Evening	2,073	23	В
Hunter Street and Elizabeth	Morning	1,936	26	В
Street	Evening	1,843	22	В
Hunter Street and Castlereagh	Morning	1,191	11	A
Street	Evening	900	9	A
Hunter Street, Pitt Street and	Morning	1,016	21	В
O'Connell Street	Evening	753	22	В
Pont Streat and Dhillin Streat	Morning	1,349	26	В
Bent Street and Phillip Street	Evening	1,729	30	С
Pont Streat and Plich Streat	Morning	643	9	A
Bent Street and Bilgh Street	Evening	726	9	А
Hunter Street, George Street	Morning	526	20	В
and Margaret Street	Evening	427	27	В
Margaret Street and York	Morning	1,578	14	A
Street	Evening	1,227	20	В
Margaret Street and Clarence	Morning	939	41	С
Street	Evening	1,165	51	D
Clearance Street and Jamison	Morning	645	12	A
Street	Evening	1,013	12	A

Note 1: The Level of Service stated for traffic controlled intersections is an average across all vehicle movements, while the Level of Service stated for priority controlled movements is the worst performing movement.

#### On-street parking, loading, servicing and pick-up arrangements

On-street parking in the Sydney CBD consists of paid time-restricted parking on most streets near the Hunter Street Station (Sydney CBD) construction sites. This includes Grosvenor Street / Bridge Street, Margaret Street, Hunter Street, Bent Street, Phillip Street and Macquarie Street. Near the sites, parking is not permitted on Clarence Street, York Street or George Street.

Loading zones are also provided on most roads near the site, with ticketed loading zones provided on streets including Grosvenor Street / Bridge Street, Jamison Street, Lang Street, Bond Street, Spring Street, Kent Street, Clarence Street, Bligh Street and De Mestre Place. Un-ticketed loading zones are also located on Hunter Street.

Taxi zones are provided at multiple locations including Bridge Street, Hunter Street, O'Connell Street and Phillip Street. In addition, there are several mail zones and 'No Stopping Australia Post Vehicles Excepted' zones located on Phillip Street, Bridge Street, O'Connell Street, George Street and Pitt Street.

#### 6.8.2 Potential impacts

#### Vehicle movement forecast and routes

The anticipated vehicle (light and heavy) one way movements at Hunter Street Station (Sydney CBD) construction sites over a typical day are provided in Figure 6-13 to Figure 6-15.

About 50 per cent of inbound construction traffic would enter each construction site by the Cahill Expressway, with the remaining 50 per cent of vehicles entering each construction site via Bridge Street. Vehicles would then arrive westbound on Hunter Street and enter the site with the assistance of pedestrian and temporary traffic management. Primary site access would be left-in, left-out via O'Connell Street and left-in, right-out via Hunter Street.

Outbound vehicles would exit the construction sites via Hunter Street. Under the preferred route shown in Figure 6-16, construction vehicles would exit eastbound onto Hunter Street. This preferred route would avoid construction vehicles crossing George Street and increasing congestion around Wynyard Station and Clarence Street. This route would require a right turn onto Hunter Street assisted by traffic controllers. Sydney Metro is investigating options to facilitate this turn by potentially considering the reallocation of road space on the western part of Hunter Street (between Pitt Street and George Street) to cease through traffic between Hunter Street and Margaret Street. These investigations will be undertaken in consultation with relevant stakeholders such as Transport for NSW and City of Sydney.

From Hunter Street, vehicles would turn left onto Macquarie Street, about 50 per cent of vehicles would turn on to the Cahill Expressway and the remaining 50 per cent of vehicles would continue along Bridge Street.

Under the alternative route, vehicles would exit westbound onto Hunter Street and then right onto George Street as shown in Figure 6-17. There would be an interface with the light rail, however this is not foreseen to be a concern as this move is already under control of traffic signals at this location. Vehicle arrival and departure would also be managed to reduce the likelihood of conflicts between trucks and light rail. The alternative route assumes that:

- All outbound traffic from the western site would travel via the Hunter Street George Street Margaret Street 'dogleg' via Clarence Street
- All traffic from the eastern site would use Macquarie Street, with about 50 per cent of vehicles turning on to the Cahill Expressway and the remaining 50 per cent of vehicles continuing along Bridge Street.

Construction vehicles would access and egress the Hunter Street Station (Sydney CBD) construction sites 24 hours a day during excavation, and during standard hours for enabling work, demolition and shaft excavation. The arrival and departure pattern of construction vehicles aims to minimise the impact of construction activity during the network peak periods.



# Figure 6-13 Indicative hourly light vehicle movements (arrival and departure) at the Hunter Street Station construction sites over a typical day

Note: Movement means a one way movement. A truck entering and then leaving a work site represents two movements



Figure 6-14 Indicative hourly heavy vehicle movements (arrival and departure) at the Hunter Street Station western construction site over a typical day

Note: Movement means a one way movement. A truck entering and then leaving a work site represents two movements



Figure 6-15 Indicative hourly heavy vehicle movements (arrival and departure) at the Hunter Street Station eastern construction site over a typical day

Note: Movement means a one way movement. A truck entering and then leaving a work site represents two movements



Figure 6-16 Hunter Street Station construction site primary haul route (Preferred route)



Figure 6-17 Hunter Street Station construction site primary haul route (Alternative route)

#### Active transport network

The Hunter Street Station western construction site is located above the existing underground walkway between Wynyard Station and Pitt Street. This underground pedestrian walkway would be temporarily closed for the proposal, and future underground pedestrian access would be provided from the Hunter Street (Sydney CBD) station to Wynyard, following the completion of the Sydney Metro West project. All five other possible pedestrian accesses to Wynyard Station concourse would remain open. Pedestrians using the tunnel would be diverted to the Wynyard surface entries on George Street and would instead access the surface pedestrian network to travel to their destination. As a result, it is anticipated that the affected pedestrians may experience an increase in travel journey times, as they would have to utilise the signalised pedestrian crossings at Margaret Street / Carrington Street, Margaret Street / George Street, George Street / Hunter Street and Hunter Street / Pitt Street. While some increase in overcrowding along the footpaths would result, impacts to travel times would be minor as these alternative intersections are signalised.

While footpaths and cycleways would remain open during construction, temporary diversions would be required at times during construction and oversized deliveries. These deliveries would be anticipated to require either night-time or weekend road closures to minimise impacts to traffic. Temporary diversions would be required for the duration of the closure if required to facilitate safe loading/unloading. Impacts would result from both the preferred and alternative routes and would be managed would be managed through the development of Construction Traffic Management Plan/s as outlined within the Construction Traffic Management Framework (Appendix D of this Environmental Impact Statement). This would be consistent between the alternative and proposed routes.

The permanent closure of De Mestre Place would reduce vehicle movements on George Street and improve pedestrian flows in this area.

#### Public transport network

Impacts to buses would be limited to a potential minor increase in travel time due to the additional construction vehicles on the road network. No impacts are anticipated on the operation of bus stops.

No interface with the light rail network would be required as a result of the preferred route. Under the alternative route, construction vehicles would interface with the light rail network at the George Street/Margaret Street and George Street/Hunter Street intersections. At this intersection, outbound construction vehicles would be required to cross the light rail line. Impacts to the light rail network are not foreseen as this move is already under control of traffic signals at these locations. No impacts to the rail or ferry networks are anticipated during construction.

#### Road network performance

Potential impacts to road network performance would be minimised through the implementation of the Construction Traffic Management Framework (Appendix D) and mitigation measures identified in Section 6.10. This includes reducing vehicle movements in network peak periods.

Changes in level of service for intersections under the '2025 without this proposal' (without construction vehicles) and '2025 with this proposal' (with construction vehicles) scenarios are shown in Figure 6-18 (preferred route) and Figure 6-19 (alternative route) for the morning and evening peak hours.

Modelled intersection performance with the preferred route construction traffic indicates that the following intersections would experience a deterioration in Level of Service, however, would still operate with spare capacity:

- Macquarie Street / Hunter Street during the morning peak hour From Level of Service B to C
- Bent Street / Philip Street during the morning peak hour From Level of Service B to C.

All other intersections forming part of the construction vehicle route would perform at the same Level of Service compared to the scenario without construction traffic. The intersection of Hunter Street / Elizabeth Street during the evening peak hour (scenario with construction traffic) shows a minor improvement in average delay. Minor improvements would result from construction-related traffic leading to additional queuing being experienced at adjacent intersections, reducing the flow of vehicles into this intersection.

Modelled intersection performance with the alternative route construction traffic indicates that the following intersections would experience a deterioration in Level of Service, however, would still operate with spare capacity:

- Hunter Street / Castlereagh Street during the morning peak hour From Level of Service B to C
- Hunter Street / George Street / Margaret Street during the evening peak hour From Level of Service B to C

 All other intersections forming part of the construction vehicle route would perform at the same Level of Service compared to the scenario without construction traffic. The intersection of Hunter Street / Elizabeth Street during the evening peak hour (scenario with construction traffic) shows a minor improvement in average delay. Minor improvements would result from construction-related traffic leading to additional queuing being experienced at adjacent intersections, reducing the flow of vehicles into this intersection.

The closure of De Mestre Place to traffic is not anticipated to result in any changes to loading zones, as use of these loading zones would not be required following demolition of buildings.

The forecast volume of heavy vehicle arrivals into the Sydney CBD would not result in queuing or circulation of vehicles on streets on approach to the construction sites. Management of heavy vehicle arrivals and departures would be managed through the development of Construction Traffic Management Plan/s as outlined within the Construction Traffic Management Framework (Appendix D).



Figure 6-18 Hunter Street Station construction sites intersection performance (Without this proposal vs with the proposal (2025)) (Preferred route)



# Figure 6-19 Hunter Street Station construction sites intersection performance (Without this proposal vs with the proposal (2025)) (Alternative route)

#### Parking and property access

On-street parking spaces and loading zones would be temporarily removed for the duration of this proposal, including the following:

- Parking spaces on the southern side of Hunter Street adjacent to the Hunter Street western construction site
- Parking spaces on the eastern side of O'Connell Street adjacent to the Hunter Street eastern construction site
- Extension of the duration of the existing restrictions for the parking lane on the northern side of Hunter Street between Pitt Street and Bligh Street, to include a morning peak clearway in addition to the existing evening peak clearway.

Removal of additional car spaces may be required to accommodate heavy vehicle queuing. Opportunities to mitigate impacts to on-street car parking would be explored in consultation with the City of Sydney during ongoing design development and construction planning.

The following sections of Hunter Street would be temporarily closed during oversize deliveries outside of standard construction hours:

- Hunter Street between George Street and Pitt Street Full closure
- O'Connell Street Full closure.

Oversize deliveries would be required on an occasional basis to deliver or remove major items of plant or equipment from site, including but not limited to roadheaders, cranes, site sheds, tunnel boring machines and mechanised formwork. These deliveries would be anticipated to require either night-time or weekend road closures to minimise impacts to traffic. Additional parking zones immediately adjacent to the construction sites would be temporarily suspended for the duration of the closure if required to facilitate safe loading/unloading. Pedestrian access (and vehicular access wherever possible) to properties would be maintained.

At Hunter Street Station construction sites, construction workers would be encouraged to use the extensive existing public transport options or existing commercial car parking facilities. The Construction Traffic Management Framework (Appendix D) sets out the approach to managing construction worker parking for the project.

# 6.9 Cumulative construction impacts

Potential cumulative impacts were considered for assessment based on the likely interactions of this proposal with other projects that met the adopted screening criteria. The approach to assessment and the other projects considered are described further in Appendix G (Cumulative impacts assessment methodology).

Projects which have been considered for the cumulative construction traffic assessment are those which fall within the construction footprint of this proposal, as well as construction vehicle routes that use roads near this proposal's construction sites.

However, assessment of potential cumulative construction traffic impacts has not been carried out where publicly available information for projects near a construction site is not available. Where the cumulative number of construction vehicles generated near a construction site would be low, no significant increase to cumulative traffic impacts would occur as a result of this proposal.

Due to the separation of haulage routes between each proposal construction site, there are not expected to be any cumulative traffic impacts of this proposal as a result of concurrent activities at:

- Pyrmont Station construction site
- Hunter Street Station (Sydney CBD) construction site.

The Sydney Metro West Concept and major civil construction work for Sydney Metro West between Westmead and The Bays (Stage 1 of the planning approval process) were approved on 11 March 2021. As part of this work, The Bays tunnel launch and support site would initially be occupied by the Contractor undertaking construction work (tunnelling westbound) under the existing approval. Work at The Bays tunnel launch and support site would occur concurrently with the approved tunnelling work westwards from The Bays to Sydney Olympic Park, for a period of about six months.

Further, The Bays tunnel launch and support site would have the potential to have cumulative impacts with the approved Western Harbour Tunnel and Warringah Freeway Upgrade. This concurrent tunnelling has the potential to have cumulative impacts on the transport and traffic network.

The number of additional cumulative construction vehicle movements at The Bays Station tunnel launch and support site is shown in Table 6-17. Movement means a one-way movement. A vehicle entering and then leaving a construction worksite represents two movements.

		Morning peak hour		Evening peak hour	
Project	Construction site	Light vehicle	Heavy vehicle	Light vehicle	Heavy vehicle
Major civil construction work between The Bays and Sydney CBD (this proposal)	The Bays tunnel launch and support site	10	2	28	2
Major civil construction work between Westmead and The Bays	The Bays Station construction site	2	8	60	8
Western Harbour Tunnel and Warringah Freeway Upgrade	Rozelle Rail Yards construction support site	45	14	30	14
	Victoria Road construction support site	41	37	71	37
	White Bay construction support site	40	63	140	63

#### Table 6-17 Number of cumulative construction vehicle movements at The Bays tunnel launch and support site

Changes in level of service for intersections under the '2024 with this proposal' (without cumulative construction vehicles) and '2024 with cumulative construction' (with cumulative construction vehicles) scenarios are shown in Figure 6-20 for the morning and evening peak hours.

Modelled intersection performance with cumulative construction traffic indicates that the following intersections would experience a deterioration in Level of Service:

- Victoria Road / A4-City West Link Road during the evening peak hour From Level of Service B to C
- A4-City West Link Road / James Craig Road during the evening peak hour From Level of Service A to B
- City West Link / A4-City West Link Road during the evening peak hour From Level of Service A to B
- City West Link / Catherine Street during the evening peak hour From Level of Service C to D.



# Figure 6-20 The Bays tunnel launch and support site cumulative intersection performance (without cumulative construction vehicles)

The WestConnex M4-M5 Link will comprise a new multi-lane road link between the M4 East Motorway at Haberfield and the New M5 Motorway at St Peters. The project will also include an interchange at Lilyfield and Rozelle (the Rozelle interchange) and a tunnel connection between Anzac Bridge and Victoria Road, east of Iron Cove Bridge (the Iron Cove Link).

All construction work on the mainline tunnels for the M4-M5 Link will be completed by the end of 2022. Cumulative traffic impacts would be expected during the demobilisation, rehabilitation, testing and commissioning phase however given the relative low number of construction vehicles during these phases, cumulative impacts are anticipated to be minimal.

Given that the construction vehicle routes for this project do not directly interface with the proposal's construction vehicle routes, cumulative construction impacts at the Pyrmont Station construction sites are anticipated to be minimal.

There would be potential consecutive cumulative construction impacts associated with the presence of construction vehicles for the Sydney Metro City & Southwest project around the Hunter Street Station (Sydney CBD) construction sites. Construction vehicles associated with both the Sydney Metro City & Southwest project and this proposal would be subject to traffic management measures to minimise potential impacts. While there is potential for cumulative construction traffic impacts with the Sydney Metro – Martin Place Over Station Development, the cumulative number of construction vehicles generated near the Hunter Street Station (Sydney CBD) construction sites would be low.

# 6.10 Mitigation and management measures

The Construction Environmental Management Framework (Appendix C) describes the approach to environmental management, monitoring and reporting during construction. Specifically, it lists the requirements to be addressed by the construction contractor in developing the Construction Environmental Management Plans, sub-plans, and other supporting documentation for each specific environmental aspect.

The approach to transport and traffic management during the construction phase, including the process for the development of all Traffic Management Plans, is outlined in the Construction Traffic Management Framework (Appendix D). The Construction Traffic Management Framework provides the overall strategy and approach for construction traffic management for Sydney Metro West, and an outline of the traffic management requirements and processes that will be common to each of the proposed construction sites. It establishes the traffic management processes (including the use of directional signage and variable message signs), emergency services consultation requirements for access impacts and acceptable criteria to be considered and followed in safely managing roads and footpaths adjacent to construction sites and interactions with other road users.

The environmental management approach for the project is detailed in Chapter 23 (Synthesis of the Environmental Impact Statement). Under these broad frameworks, a series of performance outcomes have been developed to define the minimum environmental standards that would be achieved during construction of the proposal (see Section 6.10.1), and mitigation measures that would be implemented during construction to manage potential identified impacts (see Section 6.10.2).

#### 6.10.1 Performance outcomes

Construction performance outcomes were developed for the proposal as part of the Concept approval. Performance outcomes for the proposal identify measurable, performance-based standards for environmental management. Identified performance outcomes in relation to transport and traffic for construction of the proposal include:

- Construction traffic and transport impacts on special events are minimised
- Safe routes for pedestrians and cyclists are provided around construction sites
- Safe access to properties is maintained
- Road occupancy is minimised, particularly in the Parramatta and Sydney CBDs
- Changes to the travel paths of road users, including bus routes, are minimised
- Affected emergency services and public transport operators are provided early communication on changes in traffic conditions
- Loss of on-street parking and loading zones is minimised
- Heavy vehicle routes are developed in consultation with Sydney Coordination Office and relevant parts of Transport for NSW
- The use of local roads by heavy vehicles is minimised
- Safe and controlled access and egress is provided to and from construction sites.

Chapter 23 (Synthesis of the Environmental Impact Statement) describes how the proposal addresses these performance outcomes. The design of the proposal has included a focus on minimising the need for construction work to impact on the existing public transport network and avoiding direct impacts to major roads where possible. The proposal would include measures to maintain pedestrian cyclist and motorist safety around construction sites, including safe access to properties.

#### 6.10.2 Mitigation measures

Specific mitigation measures that would be implemented to address potential transport and traffic impacts are listed in Table 6-18.

Reference	Impact	Mitigation measure	Applicable location(s)
TT1	Changes to the network	The community would be notified in advance of proposed road and pedestrian network changes through appropriate forms of community liaison.	All
TT2	Traffic incidents	In the event of a traffic related incident, coordination would be carried out with Transport for NSW.	All
TT3	Emergency vehicles access	Access to properties for emergency vehicles would be provided at all times.	All

#### Table 6-18 Mitigation measures - Transport and traffic

Reference	Impact	Mitigation measure	Applicable location(s)
TT4	Road safety	Vehicle access to and from construction sites would be managed to maintain pedestrian, cyclist and motorist safety. Depending on the location, this may require manual supervision, physical barriers, temporary traffic signals and modifications to existing signals or, on occasions, police presence.	All
TT5	Road safety	<ul> <li>Additional enhancements for pedestrian, cyclist and motorist safety near the construction sites would be implemented during construction. This would include measures such as:</li> <li>Assessing the suitability of construction haulage routes through sensitive land use areas with respect to road safety</li> <li>Deployment of speed awareness signs in conjunction with variable message signs near construction sites to provide alerts to drivers</li> <li>Providing community education and awareness about sharing the road safely with heavy vehicles</li> <li>Specific construction driver training to understand route constraints, safety and environmental considerations such as sharing the road safely with other road users and limiting the use of compression braking</li> <li>Road safety audits will be carried out on Traffic Control Plans in line with the requirements of the Construction Traffic Management Framework, and identified road safety risks will be removed or reduced so far as is reasonably practicable</li> <li>Requiring technology and equipment to improve vehicle safety, eliminate heavy vehicle blind spots, and monitor vehicle location and driver behaviour.</li> </ul>	
TT6	Road safety	All trucks would enter and exit construction sites in a forward direction, where feasible and reasonable.	All
TT7	Congestion	Construction site traffic would be managed to minimise movements during peak periods.	All
TT8	Congestion	Construction site traffic would be managed to minimise vehicle movements through school zones during pick up and drop off times.	All
TT9	Loss of parking	<ul> <li>Construction sites would be managed to minimise the number of construction workers parking on surrounding streets by:</li> <li>Encouraging workers to use public or active transport</li> <li>Encouraging ride sharing</li> <li>Provision of alternative parking locations and shuttle bus transfers where feasible and reasonable.</li> </ul>	All
TT10	Change of bus stop locations	Any temporary closure or relocation of bus stops would be carried out in consultation with Transport for NSW, the relevant local council and bus operators. Wayfinding and customer information would be provided to notify customers of relocated bus stops.	All
TT11	Taxi relocation	Any relocation of taxi ranks would be carried out in consultation with Transport for NSW, the relevant local council and taxi operators. Wayfinding and customer information would be provided to notify customers of relocated taxi ranks.	Hunter Street Station (Sydney CBD) construction sites
TT12	Property access	Access to existing properties and buildings not required or demolished by the proposal would be maintained in consultation with property owners.	All

Reference	Impact	Mitigation measure	Applicable location(s)
TT13	Construction vehicle impacts	Adjustments to site access arrangements and the local road network would be explored during detailed design to minimise conflicts with heavy vehicle movements.	Pyrmont Station construction sites Hunter Street Station (Sydney CBD) construction sites
TT14	Cumulative construction traffic impacts	Co-ordination of traffic management arrangements between major construction projects would occur in consultation with Transport for NSW.	The Bays tunnel launch and support site Hunter Street Station construction sites
TT15	Impacts on special events	<ul> <li>During major special events, impacts to the transport and traffic network would be reduced by (as necessary):</li> <li>Minimising the level of construction activity, and if necessary, ceasing all construction activity</li> <li>Maintaining appropriate access to all areas within the event precinct</li> <li>Erection of hoardings, site fencing and gates at key locations within the construction site boundary to permit pedestrian movements adjacent to the construction site and separate pedestrians from construction vehicles</li> <li>Scheduling deliveries to the construction site outside of event periods.</li> </ul>	Pyrmont Station construction sites Hunter Street Station (Sydney CBD) construction sites
ТТ16	Mitigating light rail and bus precinct impacts	In consultation with Transport for NSW and the City of Sydney, options will be considered to mitigate light rail and bus precinct impacts. This would include consideration of road space reallocation on the western part of Hunter Street to manage through traffic into Hunter Street from George Street / Margaret Street.	Hunter Street Station (Sydney CBD) construction sites

### 6.10.3 Interactions between mitigation measures

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of transport and traffic.

Chapter 6 | Transport and traffic

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