

## 12 Traffic, transport and access

This chapter provides a summary of the traffic, transport and access assessment undertaken for the Project. A full copy of the assessment report is provided as **Technical Report 3 – Traffic, transport and access**.

### 12.1 Introduction

**Table 12-1** sets out the SEARs relevant to traffic, transport and access and identifies where the requirements have been addressed in this chapter.

**Table 12-1 SEARs**

Secretary's environmental assessment requirements	Where addressed in this EIS
<b>Transport and traffic</b>	
Construction transport and traffic (vehicle, pedestrian and cyclists) impacts, including, but not necessarily limited to:	
a. a considered approach to access route identification and scheduling of construction vehicle movements, including deliveries	<b>Section 12.4.1</b>
b. indicative daily number, frequency and size of construction related vehicles (passenger, commercial and heavy vehicles, including spoil management movements)	<b>Section 12.4.1</b>
c. construction worker parking	<b>Section 12.4.1</b>
d. the nature of existing traffic (types and number of movements) on construction access routes	<b>Section 12.3.4 and Section 12.4.1</b>
e. access constraints and impacts on pedestrians and cyclists	<b>Section 12.4.1</b>
f. the need to close, divert or otherwise reconfigure elements of the road, pedestrian and cycle network during construction and the duration of these changes	<b>Section 12.4.1</b>
g. temporary and permanent impacts to street parking, including to residents and businesses.	<b>Section 12.4.1</b>
Operational transport impacts (and model where appropriate), including:	
a. property and business access and on-street parking	<b>Section 12.4.2</b>
b. impacts on cyclists, pedestrian access and safety.	<b>Section 12.4.2</b>

### 12.2 Method of assessment

#### 12.2.1 Assessment methodology

A qualitative assessment was undertaken to identify potential impacts on road, public transport and active transport networks during construction and operation of the Project. The methodology for the assessment included:

- an overview of the existing environment around Redfern Station, including observations during AM, midday and PM weekday peak periods of train passenger travel behaviours, public transport interchange facilities, access facilities to the station, active transport links, parking and taxi facilities and the surrounding road network. Existing traffic volumes collated from SCATs data and traffic surveys undertaken to inform the design of the Project were also reviewed and summarised
- review of the Project and design parameters
- trip generation forecasts for construction vehicles, and a qualitative assessment of the likely impacts during construction

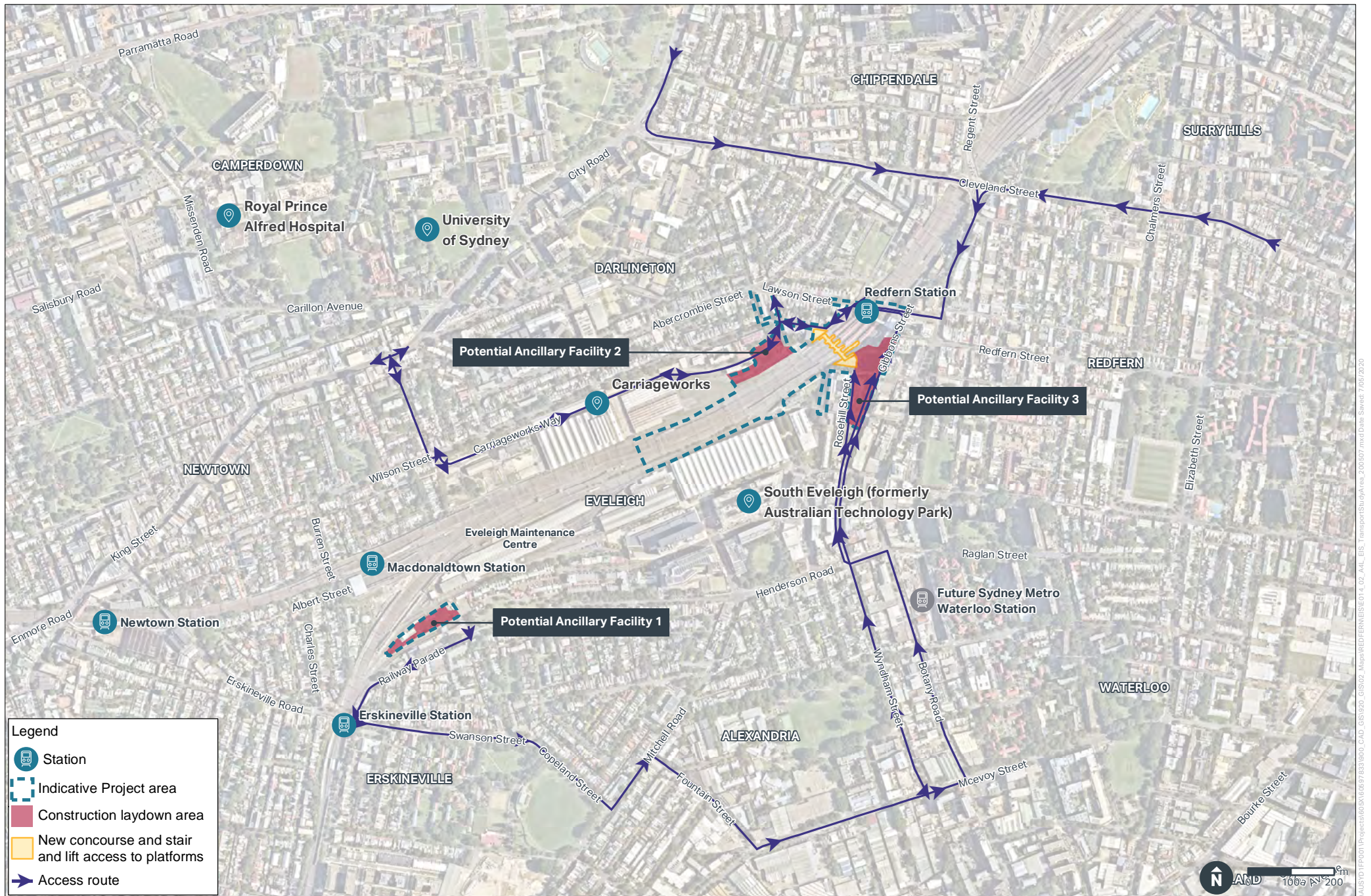
- an assessment of the likely impacts on road users including drivers, pedestrians (including customers such as those with access requirements for disability, carers with prams or people with luggage); cyclists; public transport; parking; pick up/drop off facilities; property access, emergency services; delivery vehicles and garbage truck access within the Project area during construction and operation (refer **Figure 12-1**)
- recommendations for mitigation measures to alleviate the identified transport, traffic and access impacts associated with construction and operation of the Project.

Construction and operation of the Project would generate additional vehicle trips in the surrounding road network that includes Gibbons Street, Lawson Street, Little Eveleigh Street, the Marian Street/Cornwallis Street/Rosehill Street loop, Ivy Lane, Ivy Street and Wilson Street. However, the volume of these additional trips would be very low in proportion to the surrounding road network, and as such, traffic surveys and traffic modelling were not undertaken for the Project.

### **12.2.2 Study area**

The study area for this assessment covers Redfern Station, Little Eveleigh Street, Ivy Street, the Marian Street/Cornwallis Street/Rosehill Street loop and associated transport interchange facilities on Lawson Street and on Gibbons Street (refer **Figure 12-1**).





**FIGURE 12-1: TRAFFIC, TRANSPORT AND ACCESS STUDY AREA**



## 12.3 Existing environment

The suburb of Redfern is located about three kilometres south of the Sydney central business district, within the City of Sydney LGA. Redfern Station is a major transport hub providing Redfern and surrounding employment and educational precincts key links and connections to Sydney's public transport network.

The land use surrounding Redfern Station consists of residential areas (low to high density) and mixed-use areas, including educational facilities, parks and community facilities.

Redfern Station and its associated service infrastructure and facilities is described in **Chapter 3** of this EIS.

### 12.3.1 Train passenger travel demand

Rail station entries and exits counts published by TfNSW in its Open Data portal reveal Redfern Station was the sixth busiest station on the Sydney Trains network in 2018, with approximately 62,300 entries and exits per average weekday.

Historical patronage for Redfern Station between 2004 and 2018 shows trips have notably increased in 2017 and 2018. The increase in frequency of passengers is seen as contributing to its high ranking in terms of patronage in the Sydney Trains network, as well as a response to meet the level of demand.

### 12.3.2 Accessibility and facilities

The majority of the station facilities are located on the concourse level, with the island platforms located below. The platforms are accessed either by stairs or by escalators to underground Platforms 11 and 12, and a lift providing access to Platforms 6 and 7. Equitable access at Redfern Station is limited.

An online survey undertaken by TfNSW in 2019 identified that the primary mode of access to and from Redfern Station was by walking (84%), followed by cycling (14%). During the off-peak period (i.e. periods outside of standard peak hours being 7am - 9am and 4pm - 6:30pm), there was an increase in the proportion of rail customers accessing the station via kiss and ride (ride share or car pool).

A map showing the location of Redfern Station and associated facilities is provided in **Figure 12-2**.

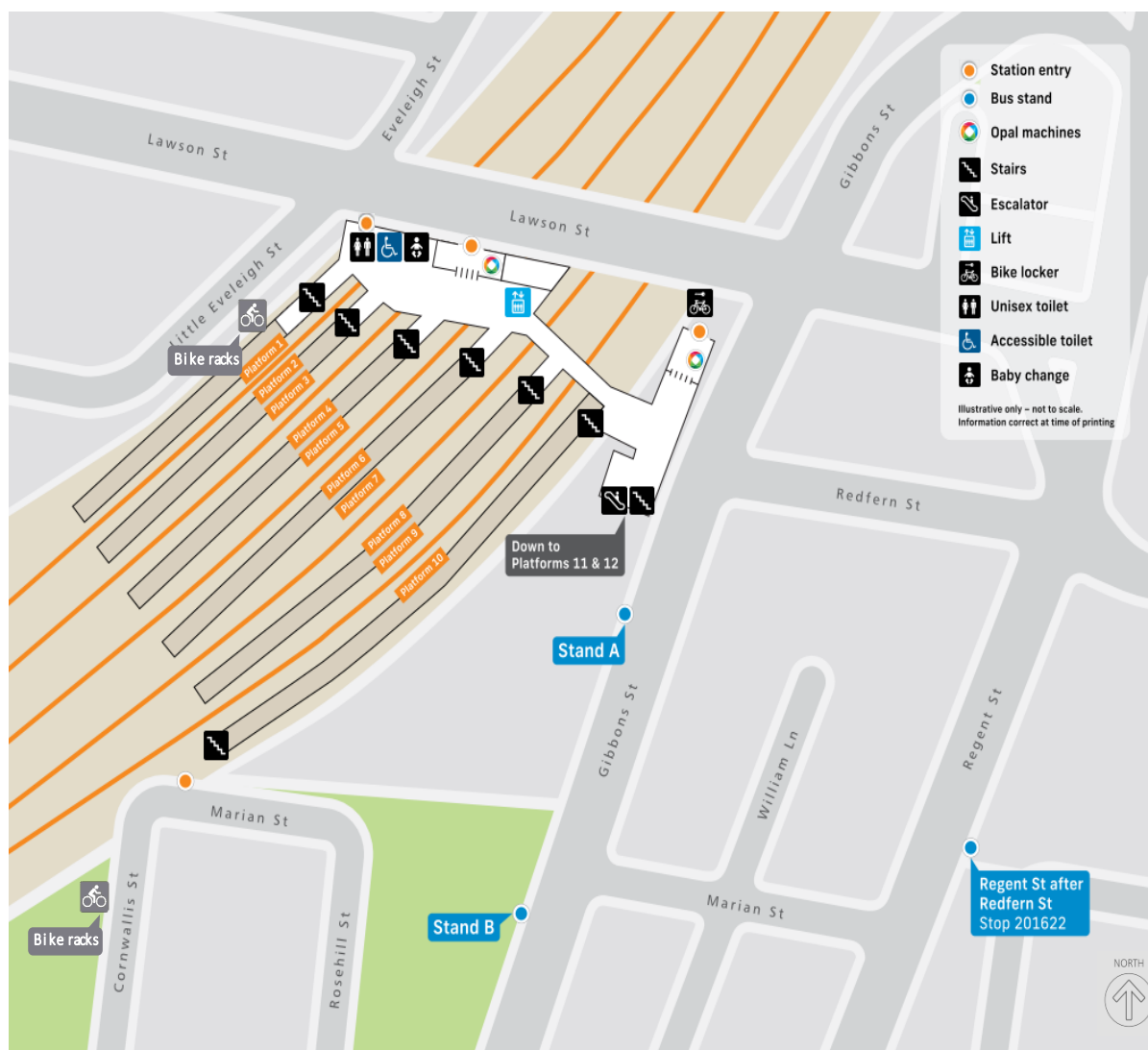


Figure 12-2 Current Redfern Station facilities (TfNSW, 2020, modified by AECOM)

### 12.3.3 Surrounding traffic and transport facilities

Table 12-2 provides a summary of the traffic and transport facilities surrounding the Redfern Station Precinct.

Table 12-2 Traffic and transport facilities within the Study area

Surrounding facilities	Description
<b>Pedestrian</b>	<ul style="list-style-type: none"> <li>access to Redfern Station is provided from four station entrances located at Lawson Street, corner of Gibbons Street and Lawson Street, Marian Street and the corner of Little Eveleigh Street and Lawson Street</li> <li>stair access to Platforms 1 to 12</li> <li>escalator access to Platforms 11 and 12</li> <li>lift access to Platforms 6 and 7</li> <li>footpaths along streets surrounding the station link to the station entrances</li> </ul>

Surrounding facilities	Description
	<ul style="list-style-type: none"> <li>pedestrian crossings facilities to Redfern Station from Lawson Street, corner of Gibbons Street and Lawson Street, Marian Street and corner of Little Eveleigh street and Lawson Street.</li> </ul>
<b>Bus services</b>	<ul style="list-style-type: none"> <li>two bus stops (Stand A and Stand B) located along Gibbons Street within walking distance to the station; stand A provides seating and shelter, while Stand B provides a bench</li> <li>eight bus routes service the two bus stops (301, 302, 303, 308, 309, 309X, N11 and N20) primarily operated by the State Transit Authority</li> <li>stand B also caters for temporary bus services and some charter services</li> <li>on Little Eveleigh Street, a designated No Parking zone with buses excepted for a 15-minute limit, is used by shuttle buses operated by nearby organisations, including the University of Sydney, Royal Prince Alfred Hospital and Tribal Warrior.</li> </ul>
<b>Cycling facilities</b>	<ul style="list-style-type: none"> <li>mix of on-street and off-street cycle routes within 800 metres of Redfern Station <b>Figure 12-3)</b></li> <li>study area is well connected to the Sydney Bike Network with a regional cycle route passing along Lawson Street</li> <li>an off-road shared path along Gibbons Street to Marian Street, and links with shared paths in Eveleigh</li> <li>a shared traffic lane on Little Eveleigh Street, is provided in the westbound direction, and a cycle route is provided in the eastbound direction. This route links with Newtown and Ashfield and is provided with wayfinding</li> <li>bicycle storage spaces including a bicycle locker (32 spaces) at the corner of Lawson Street and Gibbons Street, and 17 bicycle hoops on Little Eveleigh Street (providing 34 spaces)</li> <li>in addition, three bicycle hoops are provided on Cornwallis Street (providing six spaces) and informal bicycle spaces are observed on the shared path on Gibbons Street and Marian Street, although no formal bicycle parking spaces are provided.</li> </ul>
<b>Commuter parking facilities</b>	<ul style="list-style-type: none"> <li>no commuter parking facilities available around Redfern Station</li> <li>there is time-restricted on-street parking in surrounding streets, including Gibbons Street, Cornwallis Street, Marian Street, Rosehill Street, and on Little Eveleigh Street primarily used by residential, retail and commercial establishments as well as other local attractors in the Eveleigh area.</li> </ul>
<b>Kiss and ride facilities</b>	<ul style="list-style-type: none"> <li>no formal kiss and ride zone in the study area</li> <li>short-term parking areas and No Parking/No Stopping zones on Gibbons Street, Little Eveleigh Street and Marian Street are at times used as informal kiss and ride areas.</li> </ul>
<b>Taxi facilities</b>	<ul style="list-style-type: none"> <li>a taxi rank with about three spaces on Gibbons Street.</li> </ul>



**Figure 12-3** Cycle routes in the study area (CoS, 2020)

### 12.3.4 Road network and performance

Key roads in the study area include Gibbons Street, Lawson Street, Little Eveleigh Street and the Cornwallis Street, Marian Street, Rosehill Street loop (refer **Figure 12-1**).

Little Eveleigh Street and the Marian Street/Cornwallis Street/Rosehill Street loop are local roads that provide local access to driveways, properties and car parking. Site observations undertaken showed that traffic volumes are low with a good network performance and minimal delays and queuing. Traffic observed generally consist of light vehicles. High pedestrian volumes can also be observed along these roads, with pedestrians often observed walking along the road carriageways and crossing the road outside designated pedestrian crossings.

Gibbons Street and Lawson Street are regional roads and carry a large number of light and heavy vehicles during the network peak hours. Site observations showed that delays and queueing were evident, however, network performance did not appear to be at capacity or at unacceptable levels. Gibbons Street is an approved B-Double route so vehicles up to 26 metres in length are expected to use the route.

#### Gibbons Street

Gibbons Street is a regional road with a north-south alignment. It is a one-way road in the northbound direction with four traffic lanes. The kerbside lanes are generally used for parking and also cater for interchange facilities for Redfern Station (bus zones and taxi zone). During peak periods, clearway restrictions apply for the eastern kerbside lane.

SCATS for the 6 March 2019 indicates that average weekday traffic volumes are in the region of 26,000 vehicles per day at the intersection of Gibbons Street with Wyndham Street and Boundary Street, with a peak hour flow of between 1,700 – 1,800 vehicles in the AM and PM peak hour.

### **Lawson Street**

Lawson Street is a local road aligned in an east-west direction along the northern boundary of the Redfern Station. The road generally provides one traffic lane and kerbside parking in each direction, with kerbside parking prohibited on the overpass bridge immediately north of Redfern Station. The station entrances on this street have been identified as a high pedestrian activity area, with a speed limit of 40 kilometres per hour. There is a refuge island in front of one of the station entrances for pedestrians to use when crossing the road. The traffic lights at the intersection with Gibbons Street also provides pedestrian crossing facilities.

Traffic surveys undertaken by Austraffic on the 10 March 2020 indicates that average weekday traffic volumes are in the region of 7,700 vehicles per day, with a peak hour flow of 665 in the PM peak hour at its intersection with Little Eveleigh Street.

### **Little Eveleigh Street**

Little Eveleigh Street is a local road to the west of the railway corridor. It has one-way traffic flow from the intersection with Lawson Street through to Ivy Lane. The configuration of Little Eveleigh Street in the travel direction is comprised of kerbside parking spaces to the left (restricted to one hour parking with the exception of permit holders), a shared cycle path and traffic lane, as well as a contraflow cycle path heading back to Lawson Street.

Traffic surveys undertaken by Austraffic on the 10 March 2020 indicates that average weekday traffic volumes are in the region of 681 vehicles per day.

### **Cornwallis Street/Marian Street/Rosehill Street**

The Cornwallis Street/Marian Street/Rosehill Street forms a one-way loop road located to the south and east of Redfern Station. This loop is accessed from Gibbons Street near its intersection with Boundary Street, and links to the station entrance at the southern end of Platform 10 at Marian Street. Key features of the loop include:

- **Rosehill Street**
  - parking lane on each side of the one-way road (restricted to two hour parking limit with the exemption of permit holders)
  - a travel lane in the centre
- **Cornwallis Street**
  - kerbside parking lane to the west (restricted to two hour parking limit with the exemption of permit holders)
  - travel lane on the east heading in the direction of travel
  - footpaths on both sides of the road
- **Marian Street**
  - driveways accessing the car park north of the Gibbons Street Reserve used by Sydney Trains staff and basement off-street parking area of 1 Marian Street (The Watertower Building)
  - designated as a shared zone fronting the station entrance
  - parking lane on each side of the one-way road (restricted to two hour parking limit with the exemption of permit holders).

Traffic surveys undertaken by Austraffic on the 10 March 2020 indicates that average weekday traffic volumes are in the region of 486 vehicles, with a peak hour flow of 64 in the AM peak hour.



### **Ivy Lane**

Ivy Lane is a local road located to the west of the Redfern Station. It is aligned in a north-south direction and connects to Little Eveleigh Street to the south and Lawson Street to the north. The road has one-way northbound traffic flow from its intersection with Little Eveleigh Street through to Lawson Street. It provides local access to driveways and properties and generally would carry local traffic accessing Little Eveleigh Street.

Traffic surveys undertaken by Austraffic on the 10 March 2020 indicates that average weekday traffic volumes are in the region of 600 vehicles, with a peak hour flow of 59 in the PM peak hour.

### **Ivy Street**

Ivy Street is a local road running to the west of the Redfern Station. It is located west of Ivy Lane and has one-way southbound traffic flow south of Abercrombie Street, from Lawson Street through to Wilson Street. North of Abercrombie Street, it is one-way northbound and becomes a two-way north of Lander Street. South of Abercrombie Street, Ivy Street provides local access to driveways, properties and on-street parking, linking to Wilson Street in the south.

Traffic surveys undertaken by Austraffic on the 10 March 2020 indicates that average weekday traffic volumes are in the region of 10 vehicles per day.

### **Wilson Street**

Wilson Street is local collector road generally aligned in an east-west direction, to the west of Redfern Station. It is a two-way road between Ivy Street and Burren Street/Brocks Lane and is one way eastbound, west of Burren Street/Brocks Lane. The road generally provides one traffic lane and kerbside parking in each direction. Near the station, the road is sign-posted with a speed limit of 50 kilometres per hour and caters for on-road cycling.

Traffic survey data for Wilson Street is not available, however from undertaking site observations, it was observed that traffic volumes along Wilson Street are relatively low due to it being a local, residential street.

## **12.4 Impact assessment**

### **12.4.1 Construction**

Potential impacts from construction of the Project to traffic, transport and access are described below. Identified impacts would be experienced at various times throughout the construction phase, as works progress and depending on the activity being undertaken. The indicative construction program and working hours are described in **Section 5.2.7 of Chapter 5** of this EIS.

### **Pedestrians**

The Project is expected to cause temporary disruptions to the existing pedestrian facilities surrounding the station, particularly for pedestrian access to the station when construction works for the station entrances, platforms and surrounding footpaths are being undertaken. Impacts to pedestrian access, especially for those with disabilities or with a visual impairment and for customers in a wheelchair would include:

- pedestrian diversions along Gibbons Street to the eastern side of the road as a result of the proposed footpath upgrade at Gibbons Street associated with the new kiss and ride facility
- pedestrian diversions to the southern side of Lawson Street associated with the proposed kiss and ride at this location; existing pedestrian facilities such as the pedestrian refuge on Lawson Street would also be utilised
- a partial road closure of Little Eveleigh Street for construction of the shared zone, resulting in limited space for pedestrians to pass through, and the requirement for pedestrian diversions. It is anticipated that pedestrian access would be maintained throughout construction with diverted pedestrian movement along Ivy Street, potentially to the opposite side of the road, due to the footpath upgrade on the eastern side of Ivy Street. Access for Little Eveleigh Street residents would be maintained at all times

- longer travel distance for pedestrians accessing or egressing from Platform 10 at Marian street. This is due to footpath widening and extending the shared zone on Marian Street to include part of Rosehill Street. As such, customers may need to be diverted to use Gibbons Street to travel between Redfern Station and the signposted Eveleigh precinct
- increased risk of collision to pedestrian and vehicle and potential loss of footpath access within the vicinity of the ancillary facilities from increased numbers of light and heavy vehicles at these locations
- increased travel times due to required diversions between Gibbons Street and Rosehill Street/Marian Street for pedestrians as a result of ancillary facility potentially requiring the occupation of these footpaths.

### Public transport

The construction of the Project would require temporary periodic closure of the railway corridor, which would affect train movements. As part of routine operations, track possessions are scheduled periodically by Sydney Trains to undertake maintenance and upgrade activities within the rail corridor. It is anticipated that around 20 scheduled weekend track possession periods would be utilised to undertake a number of construction activities, with two additional (non-scheduled) track possession periods proposed. While this would be mitigated using the existing practice of providing replacement bus services to transport train customers', additional travel times could be anticipated due to extra buses on the road network. This is in line with typical travel time adjustments that are required during routine track possession periods undertaken on the Sydney Trains network.

During times when train services would continue to run at Redfern Station, construction work would temporarily reduce the amount of space available for train customer movement on the station platforms, particularly in areas where construction of the lift areas and stairway landings is occurring. The reduced space on the platform may increase customer congestion and reduce the amount of standing/waiting and passageway areas. There may also be space constraints for customers disembarking from trains, where the reduced platform spaces may increase passenger congestion upon egress, particularly during morning peak periods.

Platform 1 is used by Sydney Trains staff to access train operations and maintenance sites to the south west. Staff access to these areas would be impacted by the Project's construction, in particular works on Platform 1. Access for Sydney Trains staff would be maintained by a well signposted new access path to these sites.

The existing shuttle bus zone on Little Eveleigh Street would be relocated to the eastern end of Lawson Street, near Little Eveleigh Street. Customers requiring access to the relocated shuttle bus zone would be required to travel about the same distance as to the existing bus stop, with a requirement to cross Little Eveleigh Street, which has low traffic volumes. As such, the impacts to customers utilising this bus zone are expected to be minor.

Bus services along Gibbons Street would continue to operate during construction activities, however they may experience minor delays due to temporary traffic diversions, construction vehicle movement towards the ancillary facility, the Rosehill Street area and other temporary relocations, such as those relating to construction of the proposed kiss and ride facility adjacent to the existing bus zone. Other bus services in the vicinity of the station are not expected to be affected.

### Cyclists

Construction activities associated with converting Little Eveleigh Street into a shared zone would require removal of the cycle route running along the street, potentially requiring diversion via Ivy Street from Wilson Street to Lawson Street during construction.

Construction Ancillary Facility 2 would also require vehicular access via Little Eveleigh Street (refer **Figure 12-1**). The associated increase in light and heavy vehicle movements would potentially impact amenity and safety for cyclists using Little Eveleigh Street in a westbound direction.

Bicycle parking spaces on Little Eveleigh Street would be replaced during construction and additional spaces would be installed, resulting in a total of approximately 60 bicycle parking spaces. Bicycle parking spaces may not be available during these works.

In addition, the existing shared zone on Marian Street would be extended to include part of Rosehill Street, with footpath widening and pavement works proposed at this location. These construction works would potentially require cycle route diversion between Cornwallis Street and Rosehill Street via Boundary Street or Henderson Road to the south. Construction Ancillary Facility 3, located within Gibbons Reserve (refer **Figure 12-1**), may also require the temporary removal of the cycle route in the eastbound direction currently in use at this location (refer **Figure 12-3**). Cycle way diversions would be required for cyclists to travel between Rosehill Street and Gibbons Street

### Kiss and ride

Informal pick-up and drop-off activity was observed at the existing shared zone on Marian Street, on Little Eveleigh Street and on Lawson Street. On Marian Street, construction of the Project would impact the informal pick-up and drop-off activity observed in this area with construction vehicles moving around the area, and intermittent road closure to allow for deliveries and movement of equipment.

Informal pick-up/drop-off activity undertaken on Little Eveleigh Street would also cease during the partial road closure and construction activities required for the creation of a shared zone.

Construction works for new kiss and ride facilities on Lawson Street and Gibbons Street would occur concurrently with the footpath upgrade works at these locations. Partial lane closures would be required for these works along with temporary pedestrian and cyclist diversions.

### Taxi

The operation of the taxi rank on Gibbons Street is unlikely to be impacted during the construction of the Project.

### Parking

**Table 12-3** provides a summary of the potential impacts to parking surrounding Redfern Station during construction of the Project.

As described in **Chapter 5** of this EIS, construction workers would be encouraged to travel to the site utilising public transport. If this is not practicable, workers would be encouraged to carpool. Under the Sustainability Management Plan, a Green Travel initiative would be implemented. A workers' reward scheme would be instigated for those who adhere to the initiative.

Workers would be required to park a pre-determined distance away from the station and/or within pre-defined areas, including within construction ancillary facility areas, and the potential additional parking area within the current Sydney Trains car park on the north side of the rail corridor. This is in order to minimise impacts to local residents, businesses and station customers.

**Table 12-3 Potential impacts to parking in the Study area**

Location	Potential parking impacts
Gibbons Street	Construction of the new kiss and ride facility on Gibbons Street would require the permanent removal of about three existing restricted car parking spaces. In the context of the existing street parking available along Gibbons Street and other roads in the vicinity, this impact would be minor. The proposal to upgrade the existing footpath along Gibbons Street may also restrict access to a number of on-street car parking spaces, due to footpath diversion requirements as well as construction activities. There is existing on-street parking available within 400 metres of this location, primarily along Rosehill Street, Cornwallis Street, Regent Street, Garden Street and Boundary Street.



Location	Potential parking impacts
Lawson Street	<p>Up to four time-restricted (two-hour limit) street parking spaces would become unavailable due to construction works along Lawson Street, before the permanent removal of three parking spaces to accommodate the proposed kiss and ride facility. These parking spaces are typically used by staff and visitors to nearby commercial establishments, as well as residents. These users would need to park further away which may increase the walking distance typically associated with using these car parking spaces.</p> <p>There is existing on-street parking available within 400 metres of this location including on the section of Ivy Street outside of the Project area, Louis Street, Caroline Street, Abercrombie Street and Hugo Street.</p>
Little Eveleigh Street	<p>Access to Construction Ancillary Facility 2 would be from either Carriageworks (subject to approval with the operator of Carriageworks) and/or Little Eveleigh Street.</p> <p>Parking along Little Eveleigh Street would be unavailable when works for establishment of the shared zone commences. These works would require the permanent removal of 20 parking spaces from Little Eveleigh Street (including 18 resident/restricted parking spaces, one accessible parking space and one car share scheme parking space). The same number of spaces would be relocated to the new car park proposed as part of the Project within the existing railway corridor land at the western end of Little Eveleigh Street. The new car park would be constructed prior to the removal of the parking spaces on Little Eveleigh Street.</p> <p>It is noted that the location of the new car park is within the Redfern North Eveleigh precinct. Planning for the urban renewal of this precinct is underway, and the car park location may therefore be an interim measure. In the event that the car park would be affected by this process, any proposed reconfiguration or relocation of the offset parking arrangements would be undertaken in consultation with relevant stakeholders, and in a manner which ensures that the principle of offset parking is provided in perpetuity, and remains within reasonable walking distance of Little Eveleigh Street.</p>
Marian Street/Cornwallis Street/Rosehill Street loop	<p>During construction, some street parking along Marian Street, Cornwallis Street and Rosehill Street would be intermittently unavailable, before the permanent removal of about 16 parking spaces in the location of the shared zone extension, including five unrestricted parking spaces, and eleven restricted parking spaces (signed two-hour restricted/permit holders unrestricted). A car share scheme parking space would also be relocated to a new location further south along Rosehill Street (refer <b>Figure 12-1</b>). The final location of the relocated space would be determined in consultation with City of Sydney Council as part of the detailed design process.</p> <p>Construction vehicles would need to access construction Ancillary Facility 3 using Rosehill Street, and then Marian Street and Cornwallis Street on egress. The required traffic control to allow this may include restricting additional on-street parking on at least one side of Rosehill Street for intermittent periods.</p> <p>There is existing on-street parking available within 400 metres of these lost parking spaces, primarily along Rosehill Street and Cornwallis Street (outside of the Project area), Gibbons Street, Regent Street, Garden Street and Boundary Street.</p>

Location	Potential parking impacts
Ivy Street	The existing on-street parking spaces along Ivy Street may be temporarily unavailable to accommodate construction activities in this area (i.e. footpath widening). During these times, users would need to use alternate parking spaces in other surrounding streets, which would potentially entail longer walking/travel distances to and from cars. There is existing on-street parking available within 400 metres of these parking spaces including on the section of Ivy Street outside of the Project area, Wilson Street, Lawson Street, Abercrombie Street and Lander Street.
Sydney Trains staff car park	<p>The existing Sydney Trains car park on Marian Street would form part of Ancillary Facility 3 for the Project, and be used for a site office compound and an administration centre for the Project, including car parking facilities for construction staff.</p> <p>This would require relocation of the existing car park on Marian Street (currently utilised by Sydney Trains staff). Alternative parking arrangements would be required for these vehicles, and Sydney Trains vehicles would be required to park at the staff car park off the western end of Little Eveleigh Street.</p>

## Traffic

The Project would generate only a marginal number of additional traffic movements (about 20 heavy vehicle movements and up to 40 light vehicle movements per day) during peak construction periods. Heavy vehicles would likely be either small, medium or heavy rigid vehicles between 6.4 metres and 12.5 metres in length. The frequency of these vehicle movements would be as required and would depend on the construction stage and activity being undertaken, with most of these movements anticipated during the concourse construction, the works along Little Eveleigh Street and Marian Street, and also for spoil movement.

Heavy vehicles would generally follow established heavy vehicle routes to access the construction ancillary facilities, and only use local roads where required to complete the trip. Key regional access routes to the construction areas include Cleveland Street, Regent Street, Wyndham Street/Gibbons Street and Lawson Street. Locally, Little Eveleigh Street and the Marian Street/Cornwallis Street/Rosehill Street loop would be used to access Construction Ancillary Facility 2 and Construction Ancillary Facility 3. The access route for Construction Ancillary Facility 1 would include Wyndham Street, Botany Road, McEvoy Street, Fountain Street, Mitchell Road, Copeland Street/Swanson Street and Railway Parade (refer **Figure 12-1**).

Traffic modelling has not been undertaken to assess the impact to intersection or network performance as a result of the expected peak volume of construction vehicles (20 heavy vehicles and 40 light vehicles per day). Traffic volume increases of this nature would create negligible traffic impacts on the key local and regional access routes, given that this traffic from the Project would result in a small percentage increase in traffic volumes for these key routes.

The arterial road network generally has higher operating capacity and is more resilient than local roads. Where possible, the vehicle movements would follow the arterial road network, which generally has a higher operating capacity than local roads. Further, construction traffic would largely be generated outside of the network peak periods and distributed throughout the working day.

However, the local roads that would be used to access the construction sites and construction ancillary facilities would generally have lower operating capacity, but also lower background traffic volumes. Potential traffic impacts could include higher safety risks associated with pedestrian, cyclist or vehicle interaction with construction traffic rather than impacts to network performance. Local access for residences would be maintained at all times. In particular, along Little Eveleigh Street and the Marian Street/Cornwallis Street/Rosehill Street loop, partial road closures and diversions for through traffic would be required during specific phases of construction to complete the works. In this instance, access for through traffic would be prohibited for the duration of the closure, and drivers attempting to use Little Eveleigh Street would be diverted along Lawson Street. Drivers accessing the Marian Street/Cornwallis Street/Rosehill Street loop would be for local access as there is no through

route so diversions would not apply here. The impacts to travel time of these drivers are not expected to be significant as these roads generally provide local access rather than a key through route for general traffic, and there is a convenient diversion route along Lawson Street for through traffic. Furthermore, network performance as a result of any diversions and road closures is not expected to deteriorate due to the low number of construction vehicle volumes expected, and also as road closures and construction vehicle movements in general would be planned to occur outside of peak hours where possible.

A construction traffic management plan would be prepared during detailed design in coordination with the construction contractor. All vehicle movements associated with the Project would be scheduled to arrive and depart to a fixed operating schedule to avoid impacts to the road network. This may include queueing/possible reverse manoeuvres at the ancillary areas and work sites and the stacking of heavy vehicles awaiting delivery slots etc. As a worst case assessment, if all 60 vehicle trips were generated in a single hour, it would result in an additional vehicle trip every minute. These additional trips would also likely be distributed across the network at the various work sites and ancillary facilities, further reducing the density of the additional traffic volumes.

### Property access

**Table 12-4** provides a summary of the potential impacts to property access as a result of the Project.

It is noted that emergency services, delivery vehicles and waste collection vehicles access to Little Eveleigh Street and the Marian Street/Cornwallis Street/Rosehill Street areas would be maintained for emergency, delivery and waste collection vehicles during the Project's construction period. Minor impacts to waste collection efficiency may result from the need to relocate waste bins to areas that are easily accessible by the waste collection services.

**Table 12-4 Impacts to property access**

Location	Potential property impacts
Gibbons Street	Footpath upgrade works in this location may temporarily impact pedestrian access to/from Gibbons Street Reserve from Redfern Station through the requirement to put pedestrian diversions in place, which may also increase travel times. The portion of the reserve that would be used as an ancillary facility would be unavailable to the public also.
Lawson Street	Footpath upgrades required for the proposed kiss and ride and bus zone at this location would impact pedestrian access along this section of Lawson Street as pedestrian diversions would be required. Pedestrian access would be maintained however, and where required construction hoarding would be erected for pedestrian safety. Construction works would also impact vehicular access to existing parking areas, as three restricted car parking spaces would become unavailable before being permanently removed as part of these works (to accommodate the kiss and ride and bus zone).
Little Eveleigh Street	<p>During construction, access for local vehicles, pedestrians and cyclists would be maintained, however some diversions for through vehicles and space restrictions would be required, and delays would be experienced. These impacts would be experienced over the majority of the construction period, however closures and diversions would be limited to shorter time periods as required within this overall timeframe.</p> <p>Access to driveways would be maintained throughout the Project. However, in some instances access to individual properties may be temporarily impacted. These impacts would be discussed and coordinated with individual residents to minimise the impacts as far as possible.</p>



Location	Potential property impacts
Marian Street/Cornwallis Street/Rosehill Street	During construction, access would be maintained for local traffic, pedestrians and cyclists, however some diversions may be required, and space may be constrained. Some delays may be experienced by pedestrians and with construction vehicles and machinery operating on the street as well as vehicles accessing properties along these streets, particularly 1 Marian Street (The Watertower Building). These could also extend to vehicular access to other properties serviced by Marian Street/Cornwallis Street/Rosehill Street, particularly those on the northern side of Margaret Street.
Ivy Street	Property access would be maintained during construction, however, temporarily impacts may be experienced during times where diversions are required. This may result in longer walking distances as a result of parking diversions for residence.

#### 12.4.2 Operation

Potential impacts from operation of the Project to traffic, transport and access are described below.

##### Future demand

Based on pedestrian forecasts, it is estimated that approximately 100,000 pedestrians would use the new concourse each day by 2036, including exit/entry, transfers and cross corridor usage.

Forecasted patronage for Redfern Station in 2024 determined that a total of 31,480 individuals are expected to enter, transfer and exit during peak hours of 8am to 9am and 5pm to 6pm.

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

##### Pedestrians

The Project would improve the customer experience overall within the Redfern Station precinct, primarily by improving accessibility of the station and surrounds. **Table 12-5** outlines the positive impacts (benefits) that would be introduced.

**Table 12-5 Operational benefits for pedestrians**

Within Redfern Station	Surrounding Redfern Station
<ul style="list-style-type: none"> <li>• installation of six new lifts to provide an accessible path of travel to Platforms 1 to 10 and across the railway line</li> <li>• improvements to the accessibility of the station for persons with a disability, including wheelchair users and people with a visual impairment</li> <li>• additional stair access to the south of the platforms, potentially reducing walk distance for a number of customers, crowding at stairs and platform clearance times</li> <li>• upgraded platform levels and surfaces</li> <li>• new station entrances at Marian Street and Little Eveleigh Street</li> <li>• upgraded footpaths and pavement resurfacing</li> <li>• upgraded wayfinding signage.</li> </ul>	<ul style="list-style-type: none"> <li>• walking distances mostly decreased and accessibility to active transport modes improved as a result of new entrances at Little Eveleigh Street and Marian Street</li> <li>• improved customer experience in the new shared zone areas, including improved paths, reduced traffic speeds and improved pedestrian safety along with enhanced walkability</li> <li>• improved pedestrian safety and connectivity with Abercrombie Street and surrounding areas from footpath widening works within Ivy Street</li> <li>• improved safety for passengers alighting vehicles from the kiss and ride facilities and associated footpath upgrades</li> <li>• provision of a cross corridor route, with security features such as lighting, CCTV cameras and emergency equipment.</li> </ul>

During operation of the Project approximately 3,300 and 6,770 pedestrians are anticipated to utilise Little Eveleigh Street and Marian Street respectively during a typical AM peak hour. The shared zones would be designed to provide adequate capacity for these volumes.

### **Public transport**

The Project would bring about the following impacts:

- a positive impact for a number of train customers with special access requirements, who would be able to access all above ground platforms at Redfern Station under the Project
- ease of congestion for customers waiting on platforms, through enabling customers to be more evenly distributed. The Project would potentially divert about 50 per cent of the current customer load on the existing Lawson Street entrances to the new entrance on Little Eveleigh Street, and the upgraded entrance on Marian Street
- a more direct route for shuttle buses using the relocated bus zone on Lawson Street. The relocation of this bus zone would not significantly increase pedestrian walking distance (due to its proposed proximity to the existing bus zone), There would be a reduced turnaround time for buses (when compared to pulling into Little Eveleigh Street at the current bus zone)
- shorter walking distances between the platforms and the bus stop on Gibbons Street, via the new entrance at Marian Street.

Overall, the negative operational impacts of the Project on public transport operations are limited, with mostly positive impacts, generally associated with customer amenity, convenience and safety, offering a better customer experience.

### **Cyclists**

Cyclists and cycle routes around Redfern Station would be impacted in the following ways during the operation of the Project:

- the existing Gibbons Street/Marian Street cycle route would not be adversely affected; however, this cycle route would be enhanced by the expanded share zone along Marian Street
- there would be potentially higher cyclist/pedestrian interactions on Marian Street due to the higher pedestrian volumes associated with the new station entrance
- about 20 additional bicycle parking spaces would be provided at the new Marian Street station entrance, creating a positive impact for cyclists
- there would be a higher risk of cyclist and pedestrian interaction along Little Eveleigh Street, due to the increased pedestrian volumes associated with the new station entrance and shared zone
- additional bicycle spaces would be installed on Little Eveleigh Street, providing a total of 60 bicycle parking spaces at this location, creating a positive impact for cyclists.

### **Kiss and ride**

The introduction of formalised kiss and ride facilities on Lawson Street and Gibbons Street presents a positive impact on the overall operation of the station, as it allows the opportunity for additional modal access to the station.

### **Taxi**

The operation of the Project would have no direct impact on taxi operations, including on the existing taxi rank on Gibbons Street. Taxi customers interchanging to/from train services would gain benefits from the introduction of a kiss and ride facility (which taxis can access) and improved pedestrian facilities along the western side of Gibbons Street.

### **Parking**

Operation of the Project would result in the following impacts to parking:

- Relocation of about 20 parking spaces to a new car park at the western end of Little Eveleigh Street. The parking spaces would be replaced like for like. The relocation of existing on-street parking spaces along Little Eveleigh Street would require the users of these on-street spaces to

walk longer distances to the new car park in some cases, however as the replacement parking is like for like, the impact is expected to be minor

- It is noted that the location of the new car park is within the Redfern North Eveleigh precinct. Planning for the urban renewal of this precinct is underway and the car park location may be an interim measure. In the event that the car park would be affected by this process, any proposed reconfiguration or relocation of the offset parking arrangements would be undertaken in consultation with relevant stakeholders, and in a manner which ensures that the principle of offset parking is provided in perpetuity, and remains within reasonable walking distance of Little Eveleigh Street
- The permanent removal of about 16 car parking spaces as a result of the upgrade of Marian Street/Cornwallis Street/Rosehill Street, including five unrestricted parking spaces and 11 time-restricted spaces. The loss of time-restricted and resident parking spaces would put additional pressure on the surrounding car parking supply, and inconvenience local residents who may need to park further away from their residence. However, this would not likely have an impact on parking amenity as these are likely to be occupied by commuter or all-day parking given their proximity to the station. The existing car share scheme parking space would be relocated to a new location further south along Rosehill Street. In addition, formal loading arrangements would not be provided within the new formalised shared zone areas
- The new kiss and ride and bus zone provided on Lawson Street, near the intersection of Little Eveleigh Street, would require removal of three existing parking spaces. Additionally, three restricted car parking spaces would also require removal on Gibbons Street. The permanent removal of these parking spaces may put additional pressure on the surrounding car parking supply.

### Traffic

Operation of the Project is not anticipated to generate significant traffic volumes, and therefore traffic flows around Redfern Station are not expected to be impacted. A reduction in the speed limit to 10 kilometres per hour within the shared zone areas is not anticipated to affect the traffic flow characteristics of the area, which already experience slow operating speeds.

Ongoing maintenance would be required for key operational components and may generate a limited number of additional vehicles accessing the station. Maintenance would be undertaken by Sydney Trains and City of Sydney Council in line with standard maintenance policies.

### Property access

There would be no permanent impacts to property or business access during operation of the Project, other than to 125-127 Little Eveleigh Street, which would be required for the new station entrance. This building is owned by TfNSW and would require relocation of the current tenant in mid-late 2020.

The new shared zone areas at Little Eveleigh Street and Marian Street/Cornwallis Street/Rosehill Street would maintain the existing property access arrangements, including access to off-street vehicle parking (relocated) and space for waste collection and deliveries.

## 12.5 Management and mitigation

### 12.5.1 Overview

A CEMF (**Appendix D** of the EIS) 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 CEMP, sub-plans, and other supporting documentation for each specific environmental aspect.

A Construction Traffic Management Sub-Plan would be developed for the Project in line with Section 6.1 of the CEMF.

This chapter includes a compilation of the performance outcomes as well as mitigation measures, including those that would be included in the Construction Traffic Management Sub-Plan.



### 12.5.2 Performance outcomes

The performance outcomes for the Project in relation to traffic, transport and access are as follows:

- safe and efficient access routes are provided for pedestrians, cyclists and road users, including buses
- maintain access for all customers to Redfern Station, while the station is operational
- access to residences and commercial properties is maintained
- access for emergency vehicles, waste management services and deliveries is maintained
- the local community, relevant authorities and other proponents undertaking concurrent work close to the Project are consulted to minimise disruptions to road, active transport and public transport users
- the local community and relevant authorities are consulted regarding upcoming Project construction activities to minimise disruptions to road, active transport and public transport users the Project provides convenient, safe and direct access for customers to the station during operation.

The Project would be designed, constructed and operated to achieve these performance outcomes.

### 12.5.3 Mitigation measures

A list of mitigation measures to be implemented during the Project and which are designed to meet the performance outcomes are provided in **Table 12-6**.

**Table 12-6 Mitigation measures**

ID	Mitigation measure	Applicable location(s)
<b>Construction</b>		
T1	Relocation of bus stops would be carried out by TfNSW in consultation with the City of Sydney, University of Sydney, Royal Prince Alfred Hospital, bus operators and other relevant authorities. Wayfinding and customer information would be provided to notify customers of relocated bus stops.	Little Eveleigh Street and Lawson Street
T2	The new offset parking facilities on Little Eveleigh Street would be constructed prior to the removal of parking, to accommodate parking spaces displaced to facilitate construction activities	Little Eveleigh Street
T3	Road Safety Audits would be carried out to address vehicular access and egress, and pedestrian, cyclist and public transport safety. Road Occupancy Licenses (or equivalent) for temporary road/lane closures would be obtained where required. The audit location would be outlined in the Construction Traffic Management Sub-Plan.	The Project area
T4	Appropriate signage and line marking would be provided to guide pedestrians and cyclists past construction sites and on the surrounding network to allow access to be maintained. Appropriate access measures would further be developed to guide customers with access requirements for disability, including wheelchair users and people with a visual impairment.	The Project area
T5	Community consultation would be carried out and notifications would be issued in advance for any proposed road and pedestrian network changes through appropriate channels and forms of communication.	The Project area
T6	Access to existing properties and buildings would be maintained, where possible, in consultation with property and business owners.	The Project area

ID	Mitigation measure	Applicable location(s)
T7	Construction sites would be managed to minimise construction worker parking on surrounding streets. Workers would be encouraged to use public or active transport and ride share with the implementation of a Green Travel Plan initiative. A workers' reward scheme would be implemented for those who adhere to the initiative.	The Project area
T8	Construction site traffic would be managed to minimise traffic impacts during the peak periods through scheduling construction vehicle movements outside the peak hours. Where possible, group deliveries would be restricted.	The Project area
<b>Operation</b>		
T9	Enhancement of pedestrian and cycle infrastructure at the Station would be further investigated in consultation with relevant authorities, including TfNSW and the City of Sydney.	The Project area
T10	Carry out pre-parking surveys and post-parking surveys and provide the data to City of Sydney. The surveys are to demonstrate that pressures on parking within the Project area and surrounds are managed in accordance with predicted future supply and demand.	The Project area

Overall, the Project is expected to cause temporary impacts to the existing pedestrian, cycle, public transport and surrounding road networks during construction. The implementation of the mitigation measures above would reduce these impacts, however there would still be potential for construction impacts from the Project to contribute to cumulative impacts with other surrounding projects.

Operation of the Project would result in some permanent changes within and surrounding the station, including several benefits to the customer experience. The residual impacts of the Project during operation include:

- the relocation of 20 car parking spaces from Little Eveleigh Street to a new car parking area
- the loss of about 16 car parking spaces (as a result of the Marian Street/Cornwallis Street/Rosehill Street shared zone upgrade)
- the loss of about three car parking spaces on Lawson Street, and the loss of about three car parking spaces on Gibbons Street (as a result of the new kiss and rides and bus zone)
- introduction of a shared zone on Little Eveleigh Street and upgrade to the shared zone on Marian Street/Cornwallis Street/Rosehill Street, including an associated reduction in the speed limit of the shared zones to 10 kilometres per hour, and potentially higher pedestrian/cyclist interactions
- permanent use of 125-127 Little Eveleigh Street (for the new station entrance).

These residual impacts have the potential to contribute to cumulative impacts with other projects in the vicinity. Cumulative impacts are addressed in **Chapter 23** of this EIS.