Western Sydney University

Bankstown City Campus

SEARs (SSD 9831) - Transport Management and Accessibility Plan

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Response to Submissions

Summary of key updates since previous version (August 2019)

The exhibition for the State Significant Development Application (SSDA) ended on December 4, 2019. Submissions were received in response to the exhibition from Government Agencies: Transport for New South Wales (TfNSW); Roads and Maritime Services (RMS); Department of Planning, Industry and Environment (DPIE); and Canterbury Bankstown Council (Council). Submissions were also received by the public and local businesses.

The Transport Management and Accessibility Plan (TMAP) has since been updated to incorporate changes made in response to these submissions. A consolidated register of responses to submissions relating to traffic and transport is included in **Appendix D**.

Below is a summary of the matters addressed in this version of the TMAP that have been updated or included as additions when compared to the previous iteration of the TMAP exhibited in 2019.

Matter	Reference
Revised swept paths for medium rigid vehicles (MRVs)/kerb conflict at The Appian Way and the basement entry. Splays have been adjusted to resolve conflict.	Appendix A
Additional analysis, commentary and swept paths to justify the adequacy and operational performance of the drop-off facility on The Appian Way.	Section 5.2.1 / Appendix A
Revised swept paths of basement driveway. The driveway design now accommodates simultaneous truck entry and egress movements and a central median to house a card reader. It also now permits driving on the left side of the ramp.	Appendix A
Revised swept paths of the Library laneway. Splays and overhead clearance heights have been adjusted to permit simultaneous entry and exit of two MRVs.	Appendix A
Further justification of the car parking provision.	Section 5.2 / Section 5.5.1
Further justification of the bicycle parking provision.	Section 5.7
Additional analysis of the anticipated impact of WSU BCC on the surrounding pedestrian network.	Section 5.8
Additional traffic modelling.	Section 5.2.3
Assessment of all potential access options for heavy vehicles during construction works.	Appendix C

In addition, the SSDA design has undergone significant updates which have been incorporated throughout this version of the TMAP. These changes include updates to the:

- Number of car parking spaces;
- Number of bike parking spaces;
- General layout and circulation of the basement;
- Number of end of trip facilities (showers/lockers);Loading arrangements; and
- Splays on Rickard Road.

1 Introduction

This Transport Management and Accessibility Plan (TMAP) has been prepared by Arup in support of the State Significant Development Application (SSDA) for the Western Sydney University (WSU) Bankstown City Campus (BCC) (SSD 9831). This TMAP supersedes the TMAP submitted with the SSDA in September 2019, incorporating feedback from the exhibition period.

The project is a transformative project for the Bankstown Central Business District (CBD) and from a transport and traffic perspective, responds to a modal shift and changing travel demands resulting from improvements in public transport access and general CBD improvements as part of the Bankstown Complete Streets project.

The Bankstown Complete Streets project was adopted by Canterbury-Bankstown Council (Council) on October 22, 2019. This project has been considered during the development of this TMAP and is described in more detail in Section 2.8.3.

1.1 Project overview

The Western Sydney University Bankstown Campus (the project) is a key component of the Western Sydney University's 'Western Growth Program' and presents an opportunity to contribute to the regeneration and activation in the Bankstown CBD. An overview of the development is presented in Figure 1.

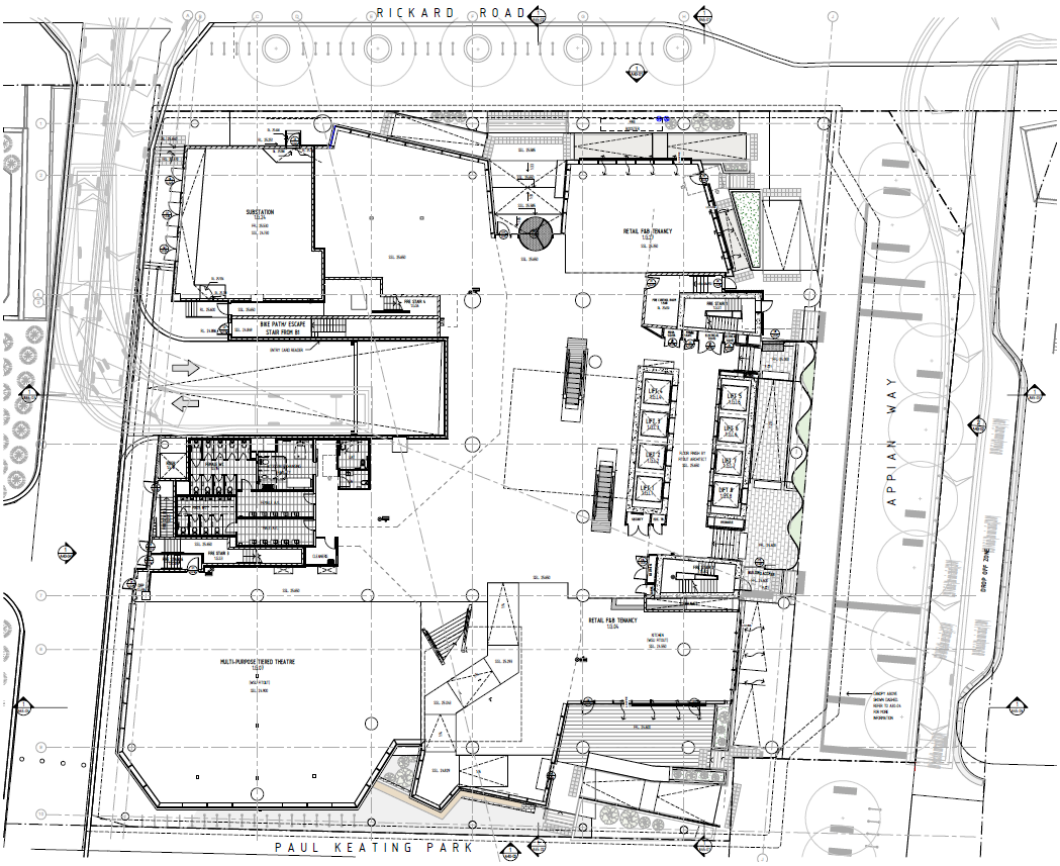


Figure 1 Proposed scope of works outline

The site includes 74 Rickard Road (being Lot 15 DP 1256167). In addition, public domain works are proposed to Rickard Road, 70 Rickard Road (being part Lot 7 DP 777510) and access is proposed via 80 Rickard Road (being Lot 12 DP 566924).

The site is located within the 'Civic Precinct' of the Bankstown CBD, situated on the southern side of Rickard Road, between the Bankstown Library & Knowledge Centre (to the west), and Bankstown Civic Tower (to the east). The site currently provides open lawn space and at-grade public parking, contiguous with Paul Keating Park and The Appian Way, to the south and east of the site.

The project, entailing a stand-alone vertical campus building, will facilitate relocation of teaching, research and staff facilities currently located at the WSU Bankstown Campus at Milperra. The academic program offered at the BCC will reflect its status as a flagship campus for WSU, in a region with culturally and linguistically diverse population, strong manufacturing industry and highly connected by public transport. The courses offered will encompass undergraduate and post graduate degrees by coursework and research, as well as Diploma offerings and English Language testing services through The College.

The academic facilities for staff workspaces, research and teaching will be supplemented by other facilities to create a comprehensive university experience for students and foster connections with local business, industry and community.

Facilities that will be incorporated into the Campus include basement parking, ground level retail spaces, a branch of the University Library, flexible conference and event spaces, facilities for student social engagement and administrative services, and large outdoor terraces.

1.2 Site location

The proposed site is in Bankstown City Centre, north of Bankstown Train Station and west of Bankstown Central Shopping Mall (see Figure 2). The existing use of the site is at-grade car park and green space. It is situated within the Canterbury-Bankstown Local Government Area (LGA) and is bounded by Bankstown Library and Knowledge Centre to the west, Bankstown Civic Tower to the east, Rickard Road to the north and Paul Keating Park to the south. It is well connected to the public transport network, with both a rail and bus interchange located within 400m of the site.

Figure 2 Proposed Bankstown City Campus Development location

1.3 Secretary's environmental assessment requirements

The NSW Department of Planning and Environment (DP&E) issued a list of the Secretary's Environmental Assessment Requirements (SEARs) that inform the Environmental Impact Statement (EIS).

Table 1 lists the SEARs that are required under 'Section 5 – Transport and Accessibility' along with reference to the appropriate section of the report where it is addressed.

Table 1 SEARs relevant to transport and accessibility

No.	SEARs - Transport and Accessibility	Reference
	Include a transport and accessibility impact assessment, which details, but not limited to the following:	-
1	Existing pedestrian and cycle movements within the vicinity of the subject site, particularly between the subject site and Bankstown Railway Station, future Metro Station and the two local bus interchanges and identify any public domain upgrade works required to cater for increased movement	Existing pedestrian and cycle network presented in section 2.3 and 2.4. Assessment of the future pedestrian and cycle demand and infrastructure is discussed in section 4.2, 4.3, 5.7 and 5.8.
2	Estimated total daily and peak hour trips generated by staff and students to be accommodated within the building, including vehicle movements, public transport, pedestrian and bicycle trips	Daily and peak hour trip numbers discussed in section 5.3 for all modes and in section 5.4 for peak periods.
3	The adequacy and capacity of existing public transport or any future public transport infrastructure within the vicinity of the site, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand of the proposed development	Discussed in section 5 for each of the different modes.
4	Measures to integrate the development with the existing/future public transport network	The proposed shared space improvements on the northern section of Appian Way, along with high priority improvements on the southern end (as outlined in the Bankstown Complete Streets project) will be key to integrating the BCC with the existing and future public transport network.
5	The impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for, and details of, upgrades or road improvement works, if required (traffic modelling is to be undertaken using SIDRA network modelling for current and future years)	Vehicle traffic impact is discussed in sections 4.1 and 5.2. Aside from realignment of The Appian Way / Rickard Road intersection, no capacity improvements were identified.
6	The identification of infrastructure required to ameliorate any impacts on traffic efficiency and road safety impacts associated with the proposed development, including details on improvements required to affected intersections	No traffic capacity improvements were identified.
7	Details of the origins of students, staff and visitors and public transport accessibility, including travel times from the origins	See section 5.1.
8	An assessment of the capacity of existing bus services and interchange facilities to accommodate anticipated student demand	See section 5.6.

No.	SEARs - Transport and Accessibility	Reference
9	Details of travel demand management measures to minimize the impact on general traffic and bus operations, including details of a location-specific sustainable travel plan (Green Travel Plan and specific Workplace Travel Plan) and the provision of facilities to increase the non-car mode share for travel to and from the site	See section 6.
10	The proposed walking and cycling access arrangements and connections to public transport services	See section 4.2, 4.3 and 4.6.
11	The proposed access arrangements, including car and bus pick-up/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks, including pedestrian crossings and refuges and speed control devices and zones	See section 4.1 for vehicle access, including pick-up and drop-off.
12	Proposed bicycle parking provision, including end-of-trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance	See section 5.7.
13	Proposed number of car parking spaces for staff and visitors and corresponding compliance with existing parking codes and justification for the level of car parking provided as part of the proposed development	See section 4.4 and 5.9.
14	Car parking arrangements for students accessing the campus outside of core teaching hours, particularly from 10pm to 6am	No parking is proposed to be provided for students. A security access plan will be developed detailed access arrangements outside of core teaching hours (e.g. 10pm to 6am).
15	An assessment of the cumulative on-street parking impacts of cars, staff parking and any other parking demands associated with the development	See parking assessment in section 5.9.
16	An assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures and personal safety in line with CPTED	The proposed improvements to the northern and southern section of The Appian Way will improve the safety of travel to and from the Metro Station and bus interchange.
17	Emergency vehicle access, service vehicle access, service vehicle parking, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times for the delivery of goods to any retail, commercial and educational facilities within the development)	See section 1.1 for servicing and emergency arrangements.
18	The preparation of a preliminary Construction Traffic and Pedestrian Management Plan to demonstrate the proposed management of the impact in relation to construction traffic addressing the following:	See **Appendix C** – preliminary Construction Pedestrian and Traffic Management Plan

No.	SEARs - Transport and Accessibility	Reference
	• assessment of cumulative impacts associated with other construction activities • an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity • measures proposed to mitigate any associated general traffic, public transport, pedestrian and cyclist impacts • details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process • details of anticipated peak hour and daily construction vehicle movements to and from the site • proposed haulage routes and location of work zones (if any) • details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle • details of temporary cycling and pedestrian access during construction.	

1.4 Consultation

Narelle Gonzales, the nominated contact at Roads and Maritime Services was contacted by telephone on July 4, 2019 to understand if a formal meeting was required prior to the submission of the SEARs application for the project. It was confirmed that no meeting was necessary prior to submission.

Ken Ho, the nominated contact at Transport for New South Wales (TfNSW) contacted by email on July 4, 2019 to understand if a formal meeting was required prior to the submission of the SEARs application for the project. A draft of the TMAP was forwarded for review. It was confirmed that no meeting was necessary prior to submission.

In July 2019, a TMAP was prepared to support a Planning Proposal for the site. During the preparation of this, feedback was received from Canterbury Bankstown Council. This preliminary feedback has been incorporated into this TMAP.

The exhibition for the State Significant Development Application (SSDA) ended on December 4, 2019. Submissions were received in response to the exhibition from Government Agencies; Transport for New South Wales (TfNSW), Roads and Maritime Services (RMS), Department of Planning, Industry and Environment (DPIE) and Canterbury Bankstown Council (Council). Submissions were also received by the public and local businesses.

The Transport Management and Accessibility Plan (TMAP) has since been updated to incorporate changes made in response to these submissions. A consolidated register of responses to submissions relating to traffic and transport is included in **Appendix D**.

2 Existing transport context

2.1 Road network

The state and regional/local road networks are described in the following sections. RMS are the roads authority for state and regional roads, while Council are typically the authority for local roads.

2.1.1 State road network

The state road network near the development is presented in Figure 3.

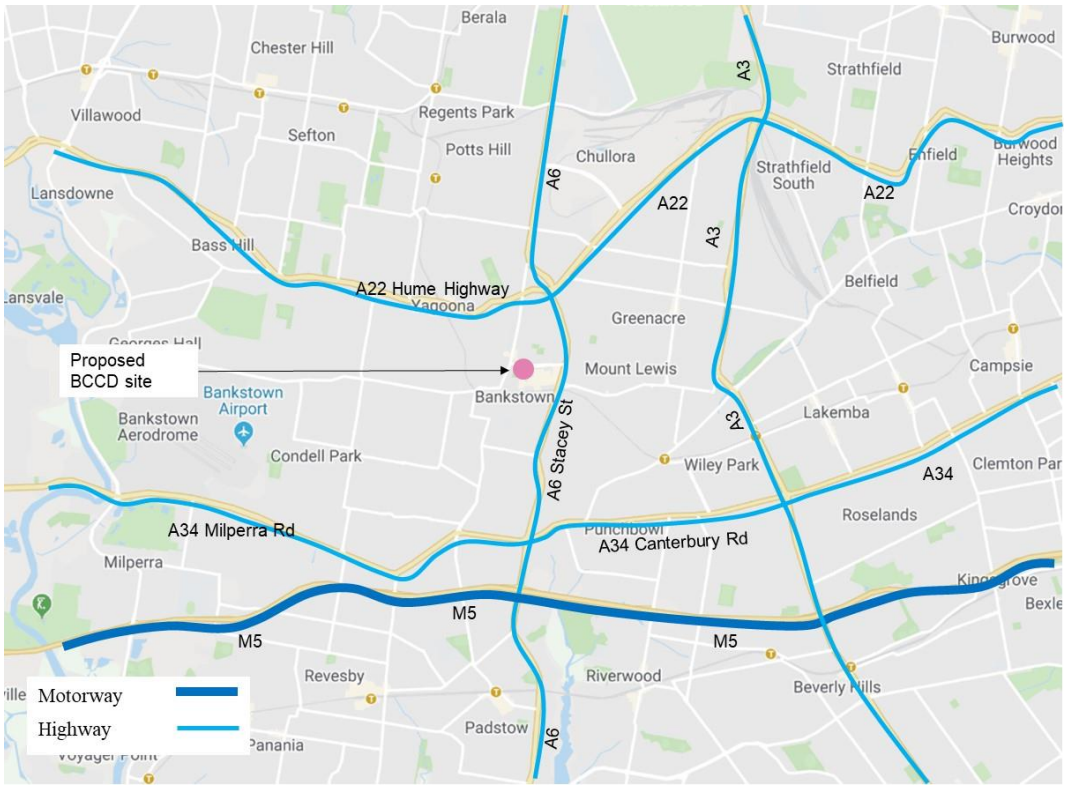


Figure 3 State Road Network

The key state roads are:

- **Stacey Street (A6)** running in a north-south direction which provides interchange opportunities with the Hume Highway to the north and M5 to the south. It directly serves Lidcombe and is also a key route to Parramatta.
- The **Hume Highway (A22)** runs east-west to the north of the site. To the east, it provides access to Sydney Inner West locations such as Enfield and Ashfield while to the west it provides access to Fairfield, Cabramatta and Liverpool.
- The **M5** runs east-west to the south of the site. It connects with the wider motorway network. This connectivity will be furthered by the new works being undertaken as part of WestConnex.

- **Canterbury Road/Milperra Road (A34)** runs parallel to the M5, south of the site. It provides access to areas such as Punchbowl and Marrickville to the east and Milperra, Moorebank and Liverpool to the west.

2.1.2 Regional and local road network

The key regional/local road network near the development is presented in Figure 4.

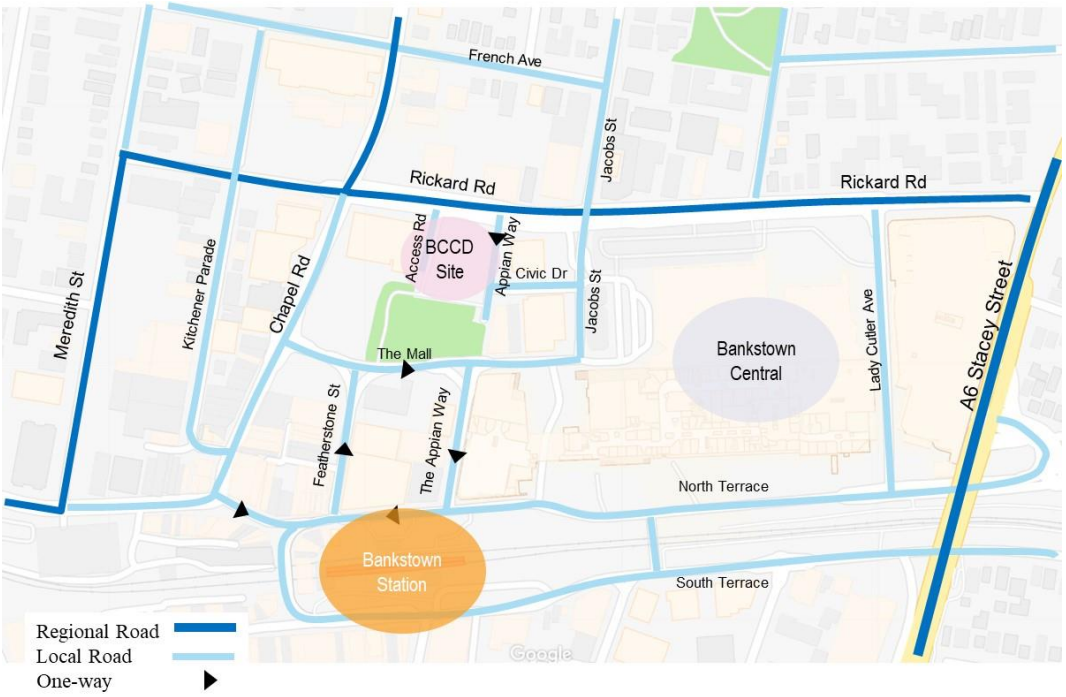


Figure 4 Regional and local road network

It consists of the following roads/streets

- **Rickard Road** runs in an east-west direction north of the site, between Stacey Street and Meredith Street. Typically, there are two traffic lanes in each direction, with additional turn lanes forming on approach to intersections.

  It has a key role in distributing traffic from the state network around Bankstown. There are a small number of developments accessed directly from Rickard Road, including Bankstown Central.

  Generally, access is restricted to left-in, left-out movements due to the central median. An existing driveway which provides access to the Bankstown Library and Knowledge Centre car park is proposed to be utilised by the development.

- **Chapel Road** runs in a north-south, west of the site. It connects with the Hume Highway to the north and Marion Street to the south.

  South of Rickard Road, there is typically one traffic lane in each direction with on-street parking. North of Rickard Road, on-street parking is also available at certain times of the day (generally outside of peak periods).

- **Jacobs Street** runs in a north-south direction, east of the site between the Mall and the Hume Highway (it does not, however, connect with the Hume Highway). South of Rickard Road, it provides access to Bankstown Central and is well utilised by buses accessing the interchange. It also provides access to the Council car park on a left-in, left-out arrangement.

  North of Rickard Road, Jacobs Street mainly serves residential lands, with unrestricted on-street parking available.

- **The Mall** runs in an east-west direction, south of the site. It is a traffic calmed street with raised pedestrian crossing at the intersections with Featherstone Street, The Appian Way and Jacobs Street.

  The road layout restricts westbound movements, with the section between Featherstone Street and The Appian Way one-way eastbound only. Short-term parking is in place along both sides of the Mall.

- **The Appian Way** runs north-south between Rickard Road and North Terrace, bounding the project site to the east. It is broken into three main segments which are:

  a) A one-way northern section providing access from Rickard Road to the Council car park. It is classed as a shared zone.
  b) A pedestrianised central section between Paul Keating Park and the ground floor retail units
  c) A one-way road southbound between the Mall and North Terrace, with parking and bus zones on both sides of the road.

  Any vehicles which access The Appian Way from Rickard Road must egress via Civic Drive onto Jacob Street.

- **Civic Drive** is a short street, running east-west between Jacob Street and The Appian Way. The driveway to the Civic Tower car park is located on Civic Drive. There is also a dedicated on-street loading zone (approximately 20m in length) just west of the driveway. A small number of short-term parking spaces (1P during normal working hours) are located on the southern side of Civic Drive. At the intersection with Jacob Street, vehicle movements are restricted to left-in, left-out movements.

- An **access road** running along the western boundary of the site in a north-south direction provides access to and egress from the Library and Knowledge Centre car park driveway. Vehicles movements are restricted to left-in, left-out at Rickard Road.

Figure 5 The Appian Way (looking south from Rickard Road)

Figure 6 Library access road (looking north from Library Plaza)

Figure 7 Rickard Road (looking west from The Appian Way)

Figure 8 Rickard Road (looking east)

2.2 Public transport

The public transport network in the local area consists of rail and buses. The Sydenham to Bankstown section of the T3 line (on which Bankstown Station sits) will be upgraded as part of the Sydney Metro works, with services operating from 2024. The conversion was approved in December 2018.

2.2.1 Bus network

Bankstown is serviced by many buses as it is a terminus for many services as well as being the main interchange station on the T3 line. It also provides for regional connectivity. A schematic of the bus routes within Bankstown town centre is presented in Figure 9.

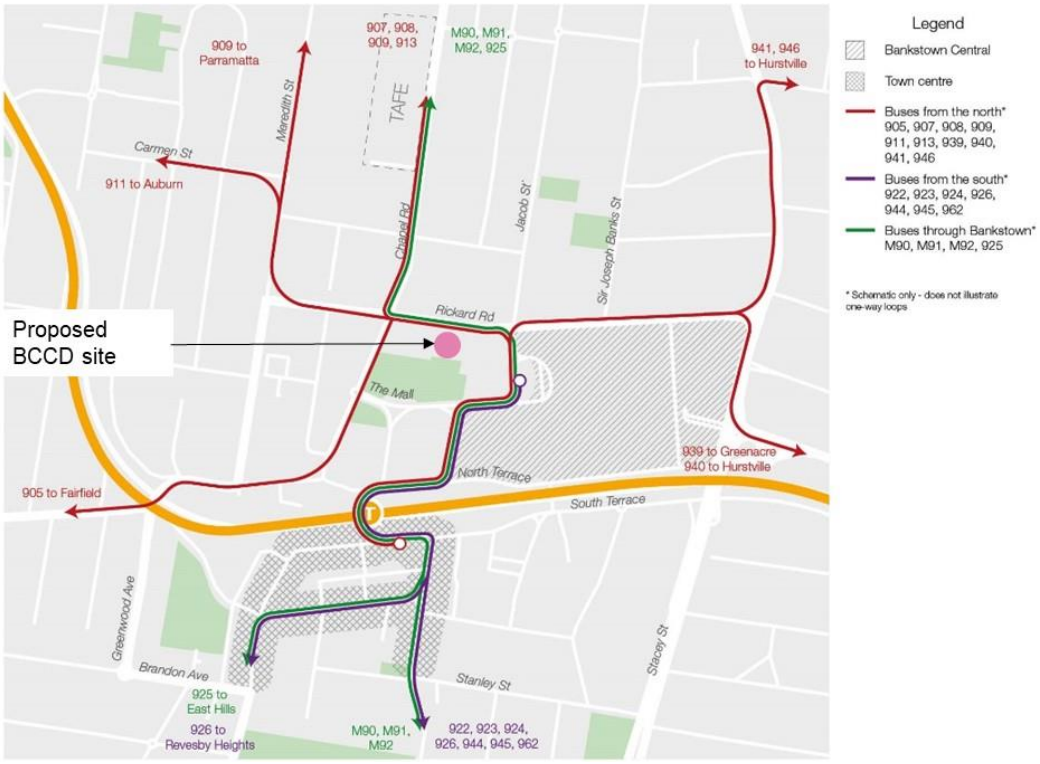


Figure 9 Schematic of Bankstown bus network

The bus interchange at Bankstown Central, to the east of the site, is served by 16 bus routes and connects Bankstown to surrounding centres and suburbs. With the exception of through routes, routes serving areas to the south typically start/terminate from Bankstown Central interchange, while routes serving areas to the north typically start/terminate at Bankstown Station.

It is anticipated that the most utilised bus stops by the future campus users will be

- The Mall (before Jacobs Street) – for users boarding northbound services and alighting services from the south;
- Rickard Road (opposite the Library) – for users alighting services from the north; and

- The Mall (at The Appian Way) – for users boarding southbound services. It may also be used by some passengers alighting from through routes from the north.

The existing bus stops and bus interchange are shown in Figure 10. The bus routes serving the area, along with the associated weekday and weekend frequencies are presented in Table 2.

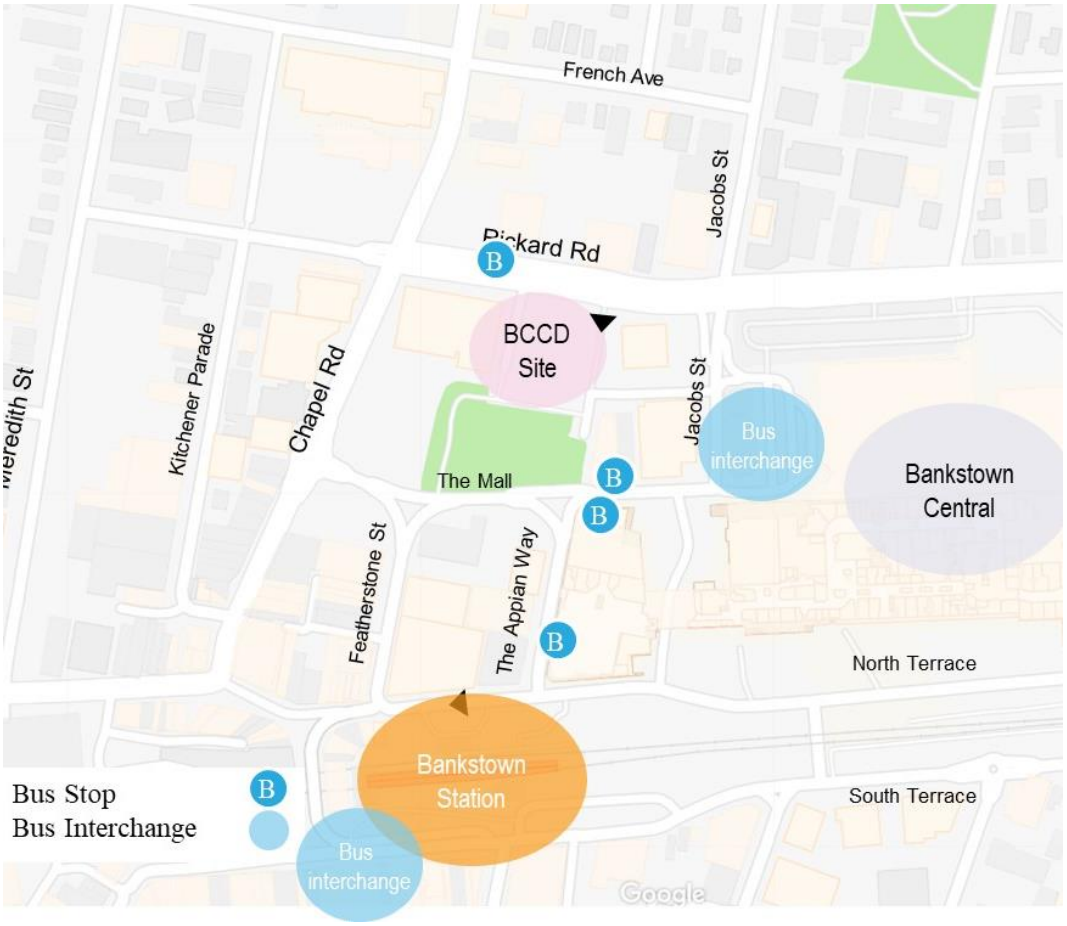


Figure 10 Existing bus stops and interchanges

Table 2 Bankstown bus frequency

Route number	Weekday	Weekday	Weekend
	Frequency (peak)	*Frequency (off-peak)*	*Frequency*
487	30 mins	30 mins	30 mins
905	15mins	30 mins	30mins
907	20 mins	30 mins	30 mins
908	Approx. 60 mins	Approx. 60 mins	Approx. 60 mins
909	Approx. 30 mins	Approx. 30 mins	30 mins – 60 mins
911	Approx. 30 mins	Approx. 30 mins	60 mins
913	Approx. 60 mins	Approx. 60 mins	None
922	60 mins	60 mins	60 mins
923	Approx. 30 mins	Approx. 30 mins	Approx. 60 mins
924	Approx. 30 mins	Approx. 30 mins	Approx. 60 mins
925	Approx. 30 mins	60 mins	60 mins
926	Approx. 35 mins	60 mins	60 mins
939	30 mins	30 mins	60 mins
940	30 mins	30 mins	60 mins
941	30 mins	30 mins	30 mins
944	30 mins	30 mins	60 mins
945	Approx. 15 mins	30 mins	30 mins – 60 mins
946	30 mins	30mins	60 mins
962	Approx. 30 mins	Approx. 30 mins	30 mins – 60 mins
M90	10 mins	Approx. 15 mins	20 mins
M91	10 mins	Approx. 20 mins	Approx. 20 mins
M92	10 mins	Approx. 15 mins	Approx. 20 mins

The M90 (Liverpool to Burwood), M91 (Parramatta to Hurstville) and M92 (Parramatta to Sutherland) are the most frequent bus routes serving Bankstown, with a bus every 10-minutes per direction at peak times.

2.2.2 Bus usage

Analysis of TfNSW bus occupancy data for a typical day[1] has been undertaken. The data categorises the occupancy of buses into the following three categories along any route:

- Many seats available;
- Few seats available; and
- Standing room only.

[1] Based on analysis of August 2016 data

Along routes towards Bankstown during the AM peak period, no capacity issues were noted with most services having ‘many seats available’.

For services departing Bankstown during the PM peak, only the M91 (towards Parramatta) was categorised as having ‘standing room only’, with all other services having ‘many seats’ or ‘few seats’ available.

2.2.3 Rail network

Bankstown Station is located on the T2 and T3 rail lines. The T3 line operates between the City and Liverpool or Lidcombe via Bankstown. The Sydenham to Bankstown section of the line will be upgraded as part of the Sydney Metro works, with services operating from 2024.

Sydney Metro services will operate between Bankstown and the City (and beyond to the Northwest) while services to and from Liverpool will continue to be serviced by Sydney Trains.

Sydney Metro will operate at a peak frequency of 15 trains per hour in both directions (1 every 4 minutes). This is in comparison to the existing peak frequency of approximately 8 trains per hour.

2.3 Pedestrian network

The main pedestrian network is presented in Figure 11. Footpaths are provided through the local area, with signalised crossings provided at major intersections.

Raised tables and zebra crossings are provided along the Mall at the intersections with Featherstone Street, The Appian Way and Jacobs Street.

In the future, the key pedestrian routes are expected to be in a north-south direction between the Campus (in the north) and Bankstown Station and future Metro station (to the south).

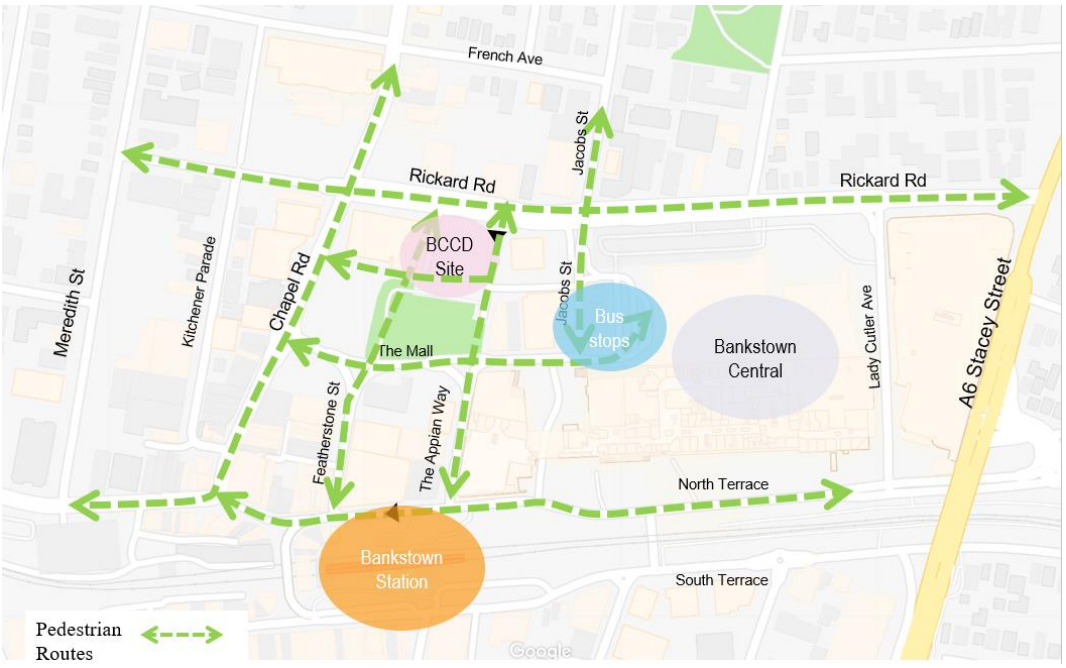


Figure 11 Pedestrian network

2.4 Cycle network

The cycle infrastructure to and throughout Bankstown is quite limited as shown in Figure 12. Cyclists travelling to and from the site will need to travel along existing roadways with traffic.

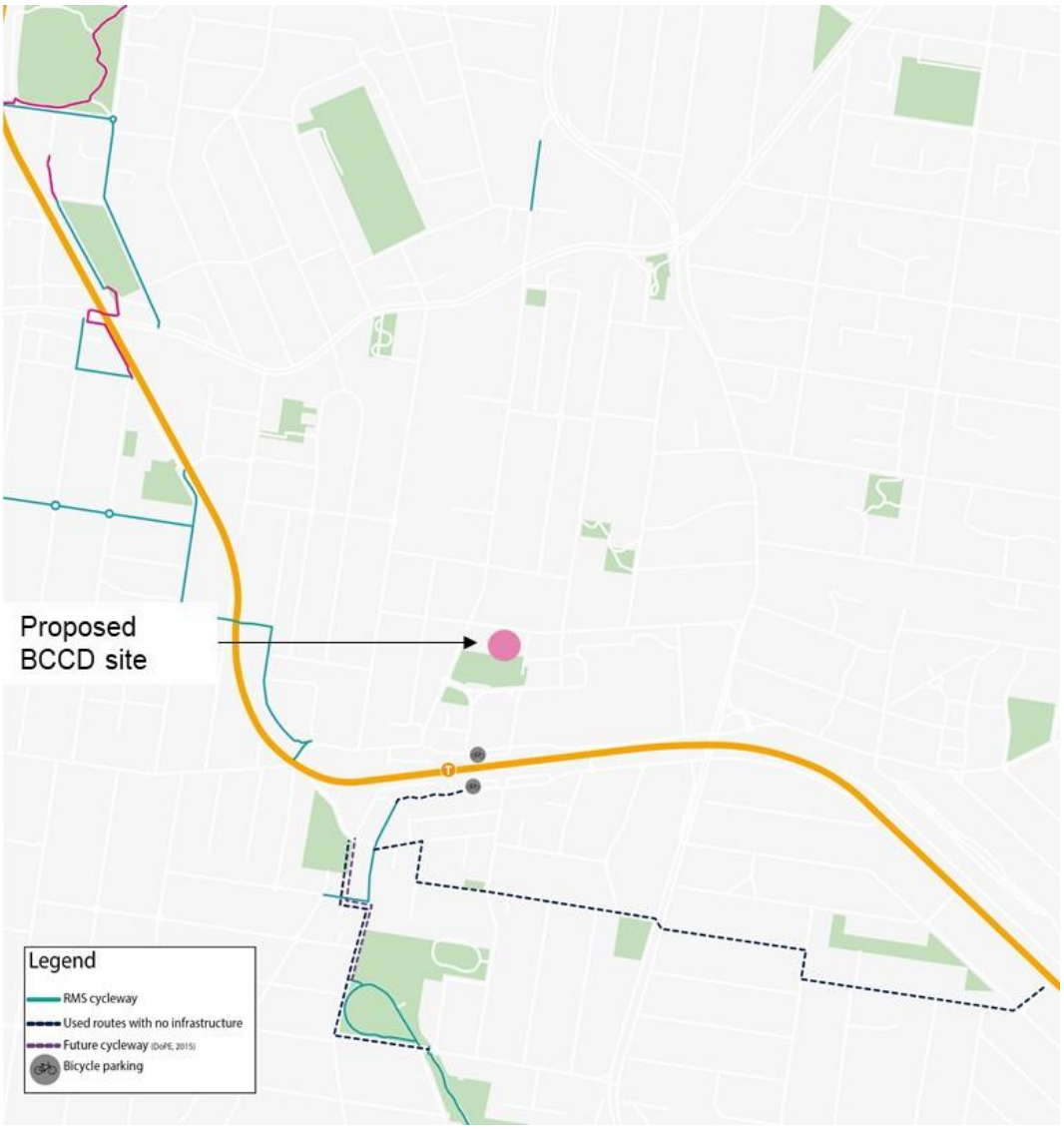


Figure 12 Existing cycling infrastructure

Analysis from the Bankstown Complete Streets project is presented in Figure 13. Surveys undertaken counted a total of 148 cyclists within the Bankstown CBD during the peak morning period, including 22 along Chapel Road and just 2 along Rickard Road.

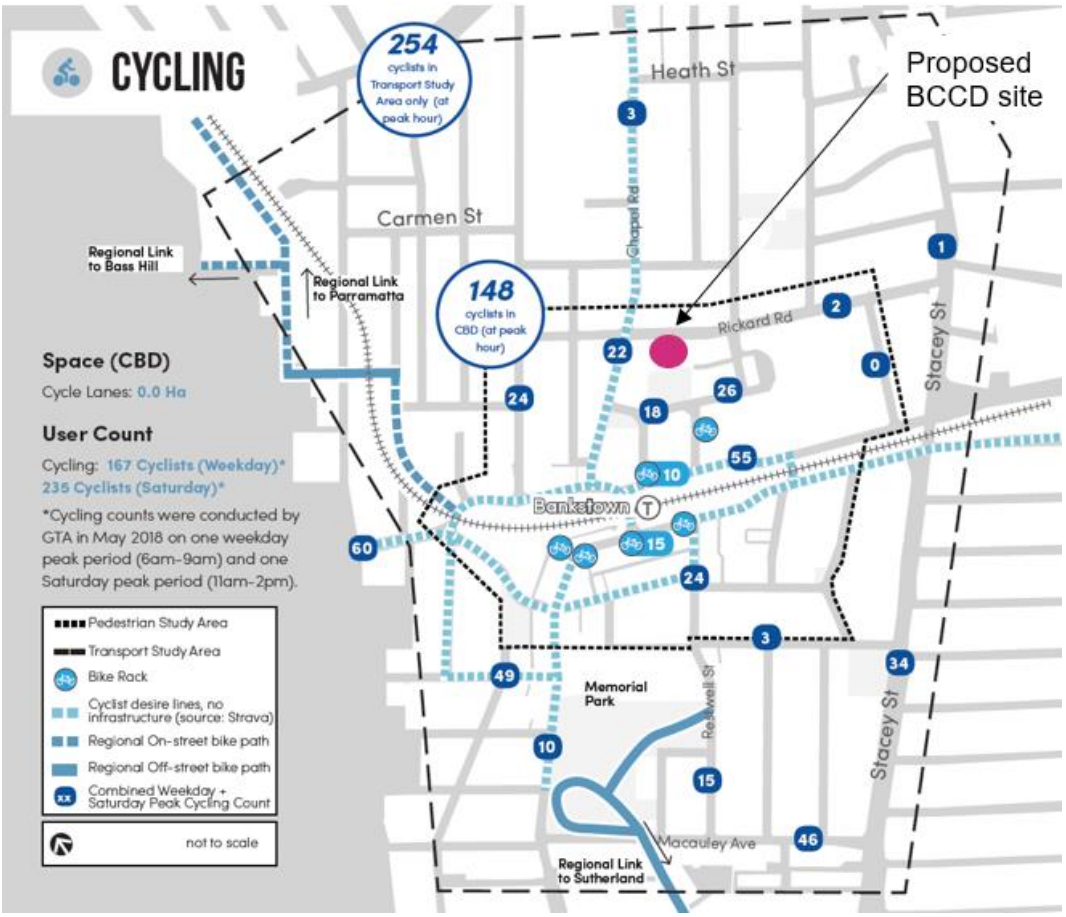


Figure 13 Bankstown Complete Streets Cycling Analysis

2.5 Travel characteristics

2016 Census data was used to gain an understanding of how people currently travel to work in the area surrounding the proposed site. The proposed site is located in ABS Destination Zone (DZN) 115710002, the boundary of which is defined in Figure 14.

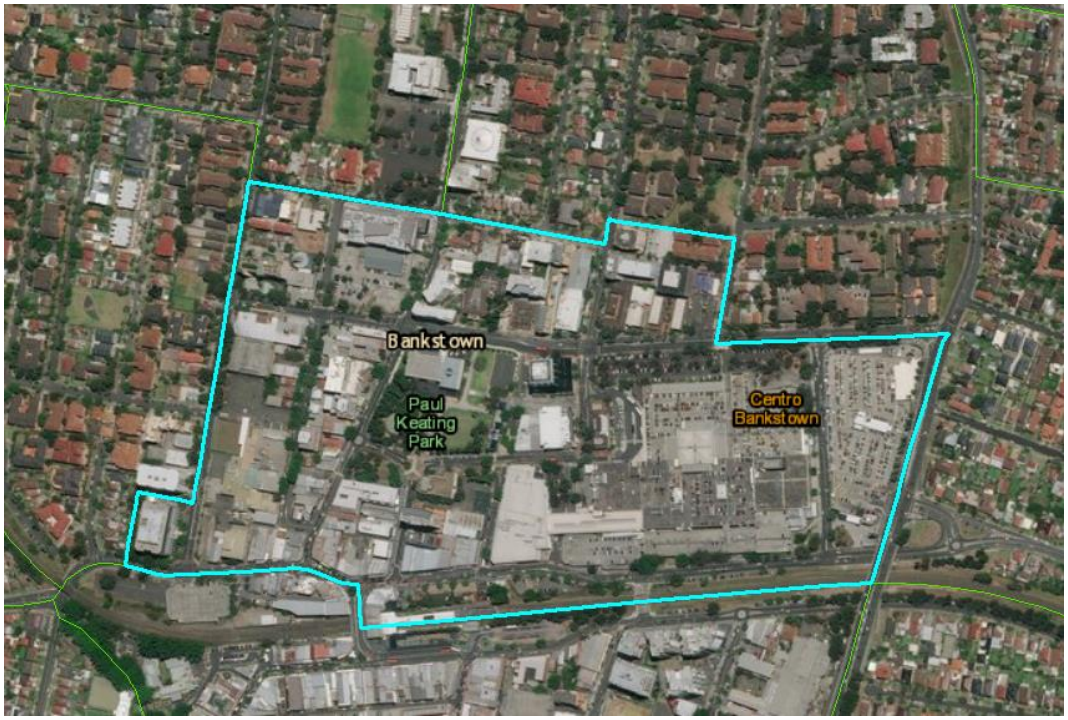


Figure 14 ABS DZN 115710002 boundary

The analysis indicates that approximately 5,000 people are employed within this DZN. The mode of travel to work is presented in Figure 15. The majority of workers commute by private vehicle (as a driver or passenger). Public transport accounted for approximately 15% of commuting trips, of which most are by train.

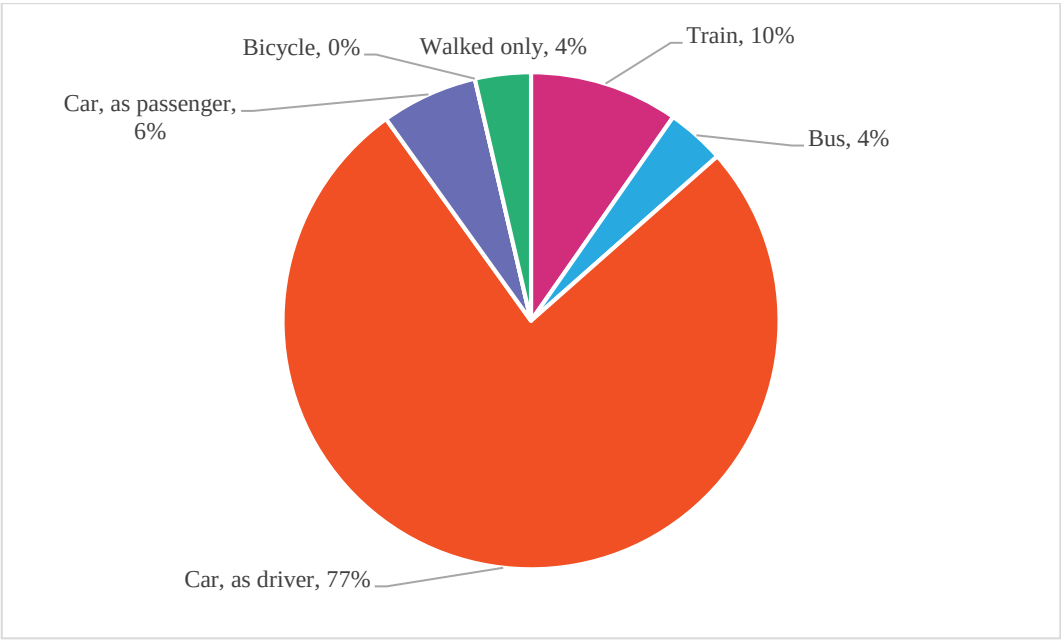


Figure 15 Existing travel to work mode share (DZN 115710002)

2.6 Traffic volumes

Traffic surveys were undertaken on Wednesday September 5, 2018 between 7am and 10am (AM), and between 4pm and 7pm (PM) at the following intersections:

- Rickard Road / Chapel Road; and
- Rickard Road / Jacobs Street.

Analysis of the surveys indicated that traffic volumes are approximately 13% greater in the PM peak hour when compared to the AM peak hour. Total traffic movements at the two intersections are summarised for the AM peak hour (8.30am – 9.30am) and PM peak hour (4.45pm – 5.45pm) in Figure 16 and Figure 17, respectively.

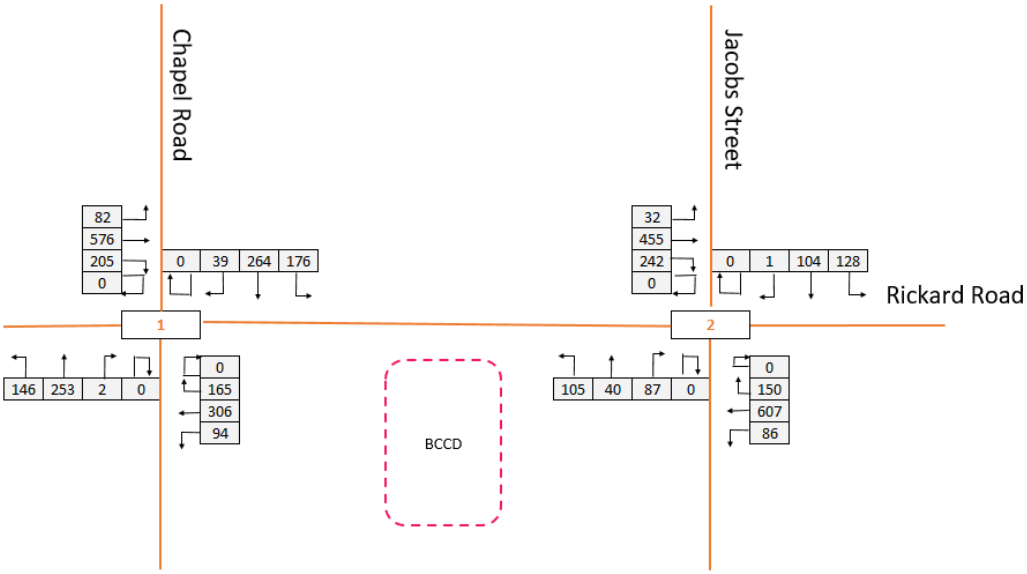


Figure 16 AM peak hour traffic movements

Key traffic movements during the AM peak hour are:

- Eastbound through movements along Rickard Road
- Right-turn movements from Rickard Road to Jacob Street (south)

No congestion or significant queuing was noted during the AM peak hour.

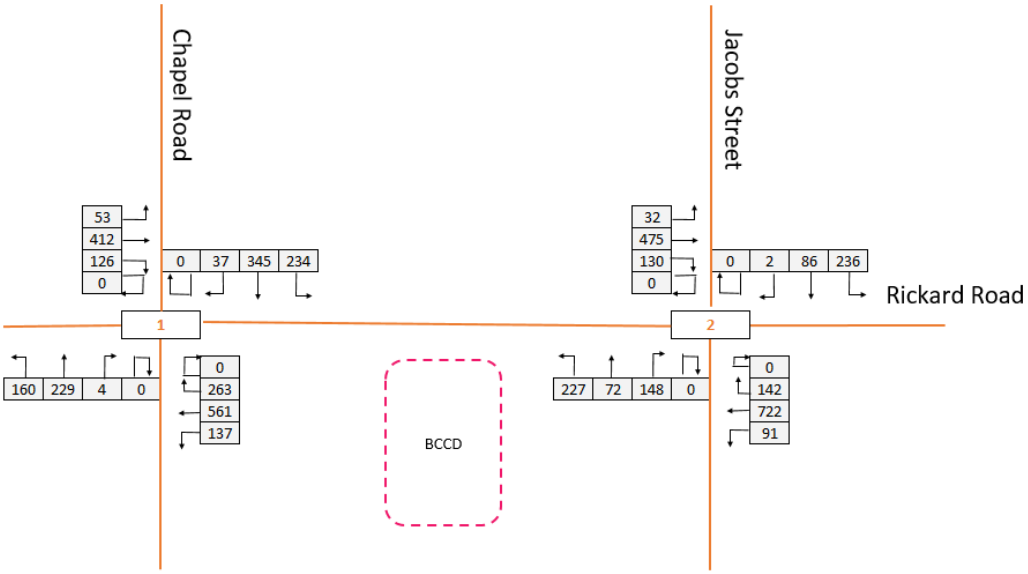


Figure 17 PM peak hour traffic movements

Key traffic movements during the PM peak hour are:

- Westbound through movements along Rickard Road
- Right-turn movements from Rickard Road to Chapel Road (north)
- Southbound movements along Chapel Road

Apart from some queuing along Chapel Road, no significant queuing was noted during the PM peak hour.

To understand the level of activity, spot counts were also undertaken at the following locations on Wednesday September 5, 2018. Table 3 includes the observed traffic counts at both locations. Conservatively, a factor of 4 has been applied to spot counts to estimate the 1-hour volumes at these locations.

- Laneway off Rickard Road (providing access to Bankstown Library car park);
- The Appian Way off Rickard Road (providing access to the at-grade car park and Bankstown Civic Tower car park).
- Civic Drive off Jacobs Street (providing access to the at-grade car park and Bankstown Civic Tower car park).

Table 3 Driveway spot traffic surveys

Driveway Location	**Observed 15-minute count**		**Factored 1-hour count***	
	In	**Out**	**In**	**Out**
Laneway off Rickard Road	3	1	12	4
The Appian Way off Rickard Road	18	N/A	72	N/A
Civic Drive off Jacobs Street	21	3	84	12

2.7 Parking

There is a large quantity of both on-street and off-street parking within the Bankstown CBD. Based on analysis in the Bankstown Complete Streets project, it is estimated that there is to be the following quantum of parking within Bankstown following the adopted street enhancements:

- 530 on-street parking spaces (see Figure 18)
- 1,666 off-street Council parking spaces (see Figure 20)
- 5,000+ private off-street parking spaces (i.e. Bankstown Central and Sports Club)

There are 43 spaces in the at-grade car park (within the boundary of the proposed site) along with 18 spaces along The Appian Way to the east of the site. Figure 19 indicates that the existing supply of car parking at the site is greater than the demand.

Figure 18 Bankstown on-street parking

Figure 19 Bankstown current off-street parking supply and demand

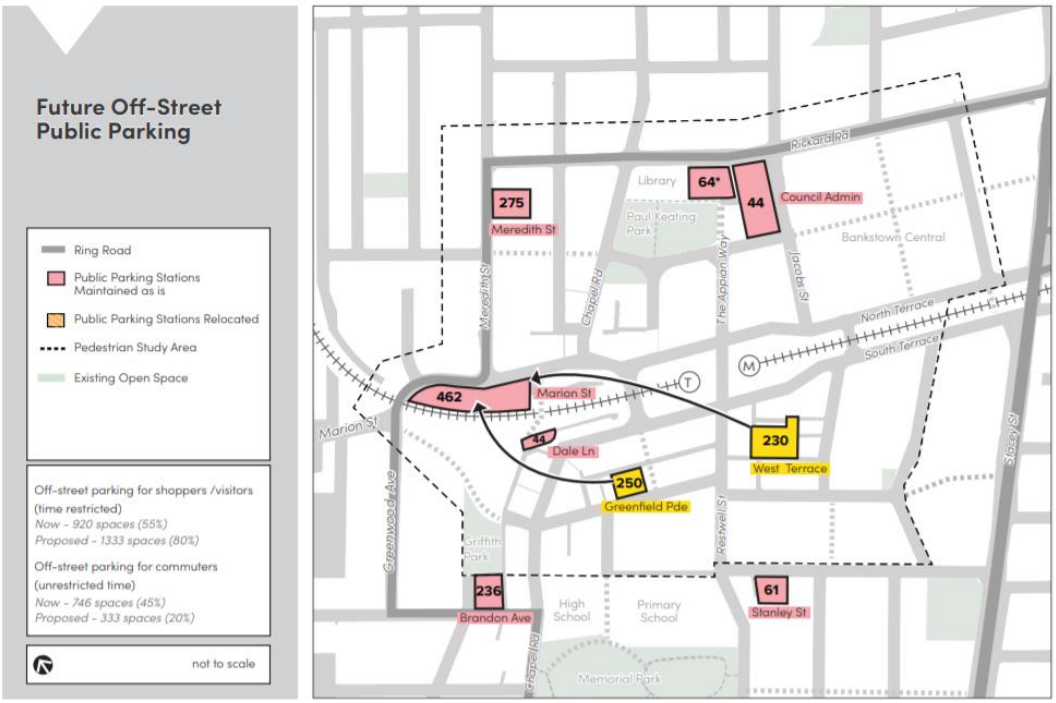


Figure 20 Bankstown future off-street parking

2.8 Other planned initiatives

2.8.1 Sydney Metro

Sydney Metro City and Southwest (Metro) is planned to open in 2024. Metro will convert the Bankstown rail line, between Bankstown and Sydenham, to a high frequency driverless, single-deck Metro service, increasing the frequency of trains on the line to 15 per hour in each direction. Bankstown will be the terminus for the new Metro line and an interchange point with Sydney Trains services between Bankstown and Liverpool and Lidcombe. The project was approved in December 2018.

Transport for NSW (TfNSW) is expected to increase bus service levels for routes linking Bankstown with suburbs to the west and north, to provide an alternative to private car for those train customers wishing to access Metro at Bankstown rather than their local station.

Current planning for the combined Sydney Trains and Sydney Metro City and Southwest Metro station at Bankstown will include a new Metro station entrance opposite The Appian Way. The Appian Way will be one of the main pedestrian routes between the WSU site and the transport interchange.

The Traffic, Transport and Access report (Aecom, 2017) which was submitted as part of the EIS for the project forecasts a reduction in the amount of ‘park and ride’ occurring at the station as shown in Figure 21, with large increases in travel by walk and bus.

Travel Mode to the Station	Entry			Exit			Mode Share 2016	Mode Share 2026
	2016	2026	Change	2016	2026	Change		
Walking	4,444	6,041	+1,597	4,621	6,041	+1,420	49.4%	50.8%
Cycling	13	18	+5	13	18	+5	0.1%	0.2%
Park and Ride	1,361	754	-607	1,415	754	-661	15.1%	6.3%
Kiss and Ride	1,724	1,751	+27	1,792	1,751	-41	19.2%	14.7%
Bus	1,451	3,337	+1,886	1,509	3,337	+1,828	16.1%	28.0%
Total	8,993	11,900		9,350	11,900		100.0%	100.0%

Figure 21 Current and future volumes of travel to/from Bankstown Station

Source: Sydney Metro City and Southwest Sydenham to Bankstown EIS - Traffic, Transport and Access Report, Table 8.14 (Aecom, 2017)

The report found the following with regard to parking provision at the station and on surrounding streets:

'With the reduction in demand of 607 passengers expected to drive to the station by 2026, there is sufficient spare capacity at Bankstown Station, assuming population growth and intensification do not provide a further demand for these spaces.'

2.8.2 Rapid Bus Routes

TfNSW announced a network of rapid bus routes which will connect major metropolitan centres in Sydney. *Sydney's Bus Future* (TfNSW, 2013) revealed 11 new high frequency bus routes with services at least as often as every 10 minutes. One of these routes is planned to go through Bankstown, connecting Rouse Hill and Hurstville via the T-way, Parramatta and Bankstown.

The report also details 20 suburban routes as the second tier in the cross-regional network. These routes have services every 15 minutes, and every 10 minutes during peak periods. There are three suburban routes planned for Bankstown, two new and one existing route that is to be converted to a suburban route. They are:

- Miranda-Bankstown via Sutherland and Menai
- Bankstown – Blacktown via Fairfield and Wetherill Park
- Liverpool-Burwood via Bankstown

These routes are shown in context of the broader Sydney strategy in Figure 22.

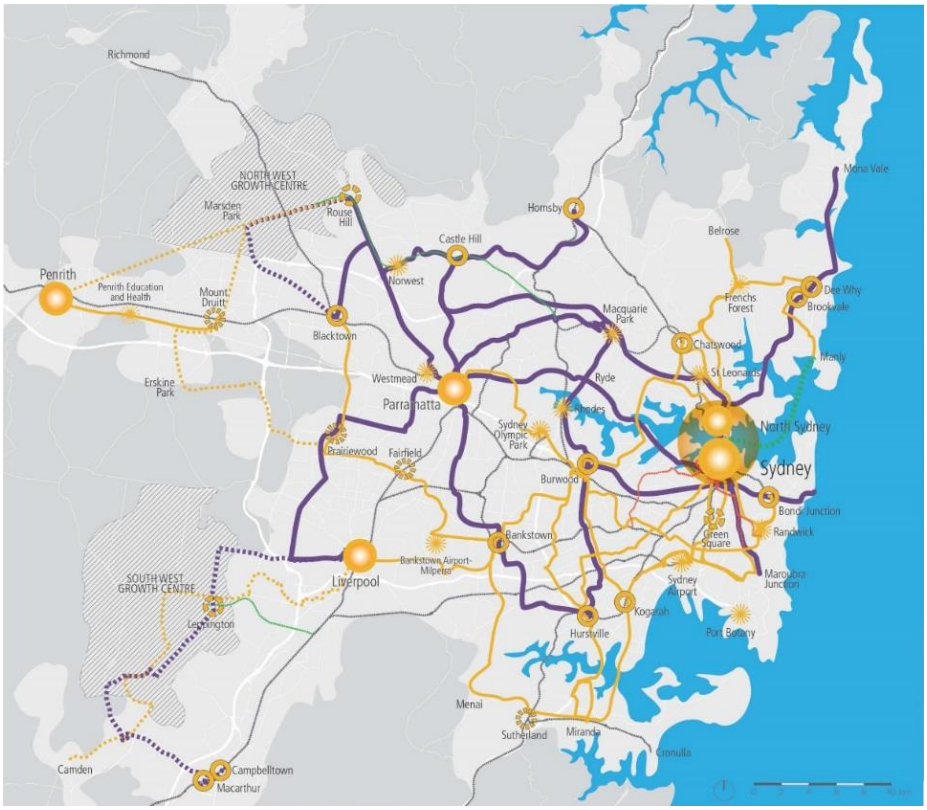


Figure 22 Sydney's Bus Future overview

2.8.3 Bankstown Complete Streets Project

The Bankstown Complete Streets project has been developed in response to growing traffic congestion issues and looks to promote active transport and public transport as a way to move large volumes of people (mass transit) safely to and within the CBD.

It is about balancing the various needs of the people who use these streets, making sure they are inviting places that entice people to enjoy spending time in the town centre and support local businesses.

Key outcomes for the project include:

- Vision and design principles to guide transport and street improvements in Bankstown;
- Traffic network and intersection improvements to improve flow and safety;
- Strategies to optimise parking including demand management, supply capacity, location, restrictions and smart technologies;
- Concept designs for street upgrades to enhance pedestrian safety and amenity; and
- Other recommendations to improve transport and the public domain.

The Bankstown Complete Streets project was adopted by Canterbury-Bankstown Council on October 22, 2019, following public consultation. Figure 23 shows concept designs for a north-south activity spine which incorporates new shared

zones along The Appian Way (north and south segments). This will create a strong link between the BCC and the train / metro station.

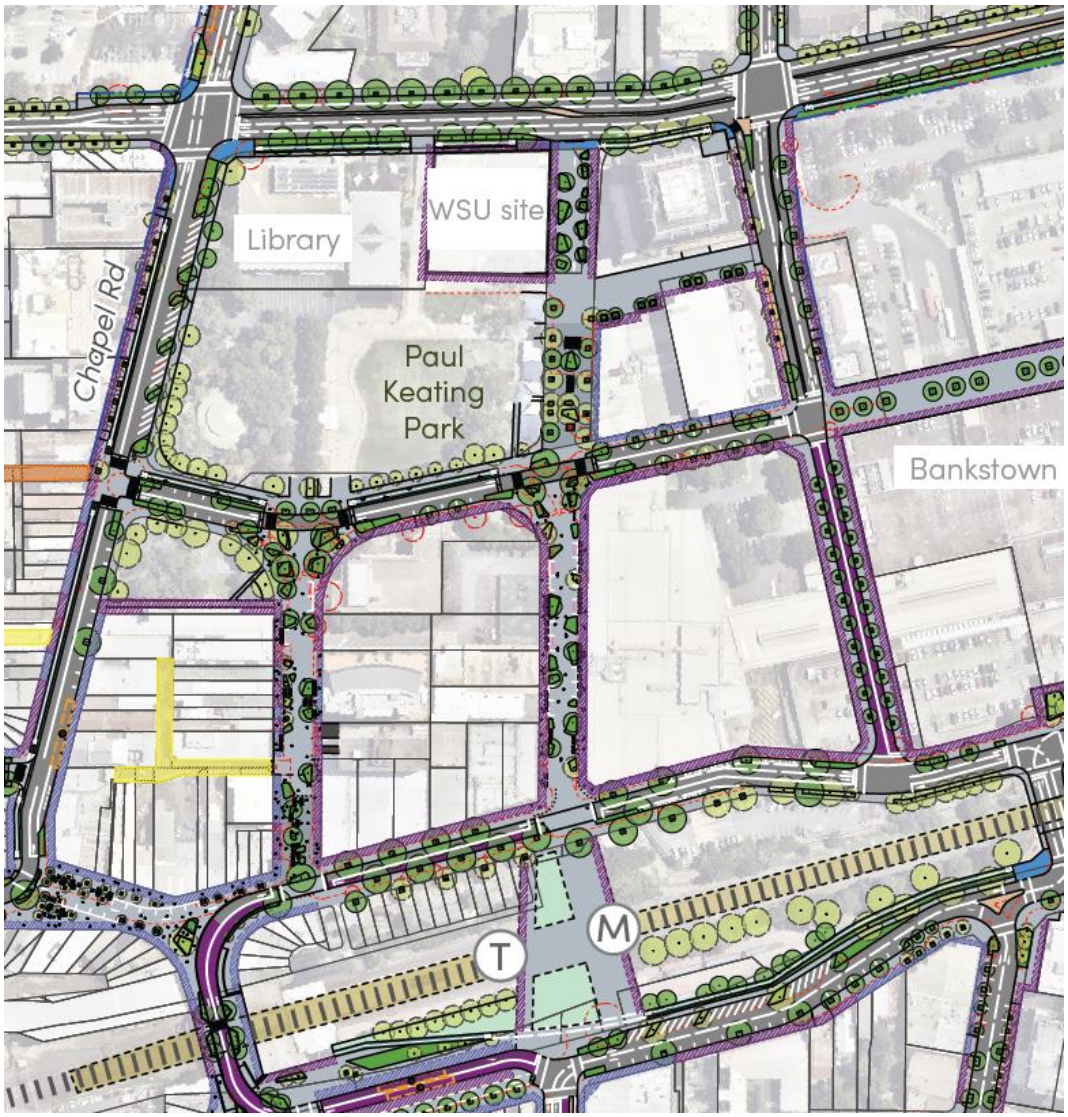


Figure 23 Bankstown Complete Streets Masterplan

Other proposed changes to the pedestrian and bike network are presented in Figure 24 and Figure 25.

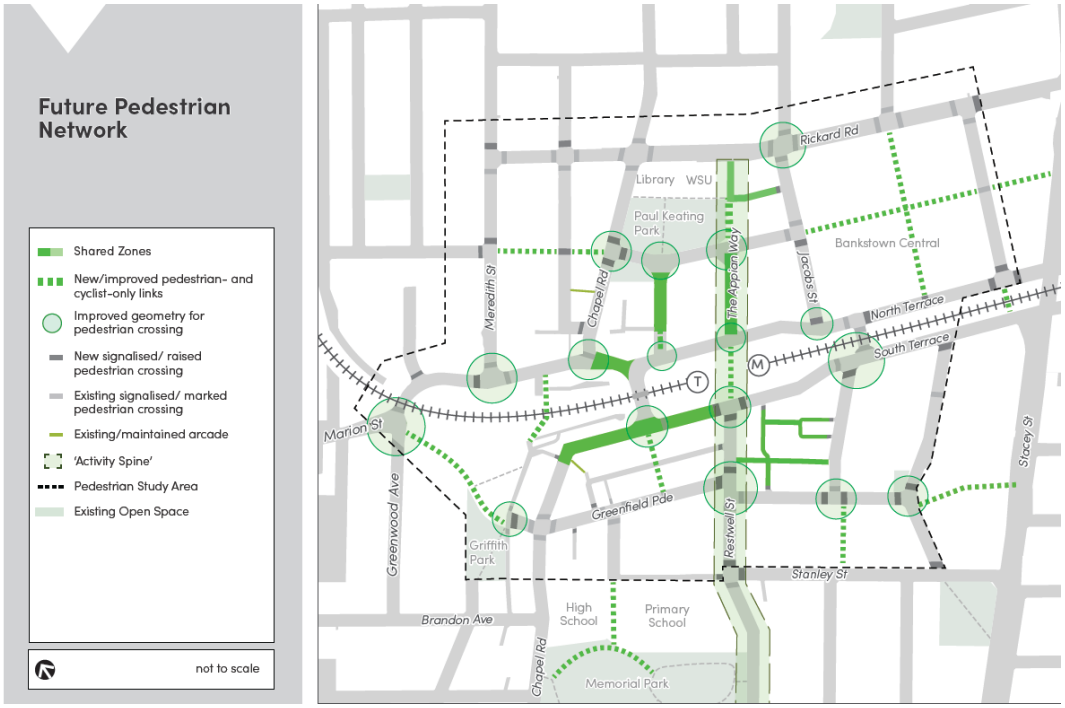


Figure 24 Bankstown Complete Streets - Future Pedestrian Network

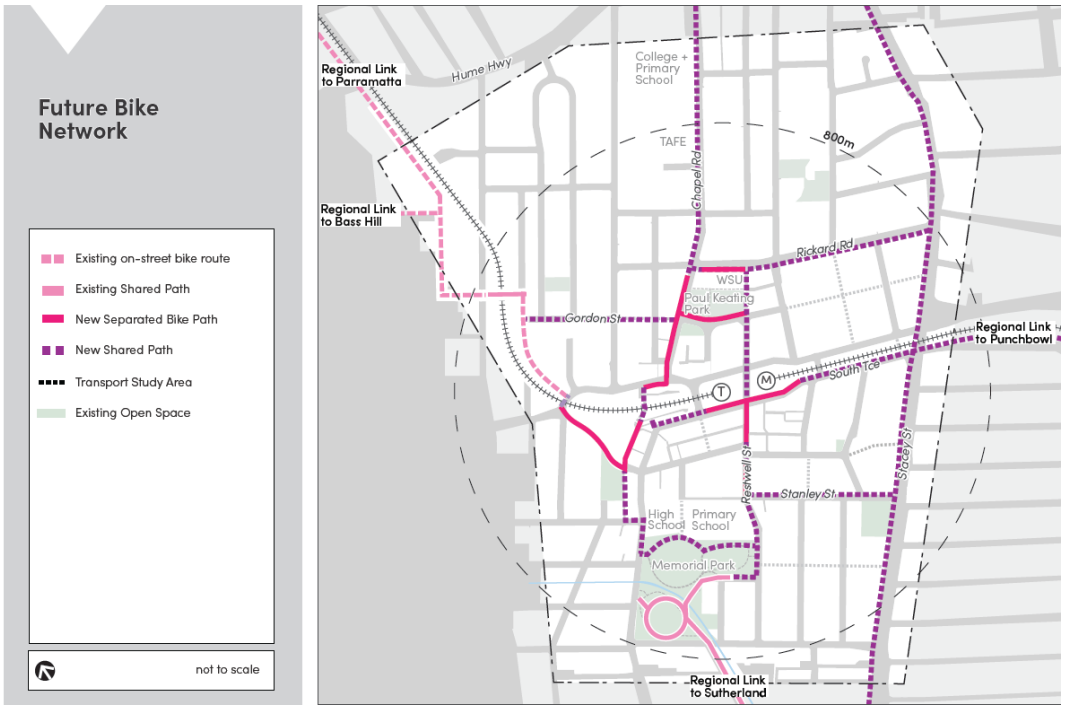


Figure 25 Bankstown Complete Streets - Future Bike Network

3 Proposed Development

The proposed BCC development will have a GFA of approximately 29,254 m^2. The building will have 18 levels above ground (19 storey) with two basement levels. A site plan of the BCC is presented in Figure 26.

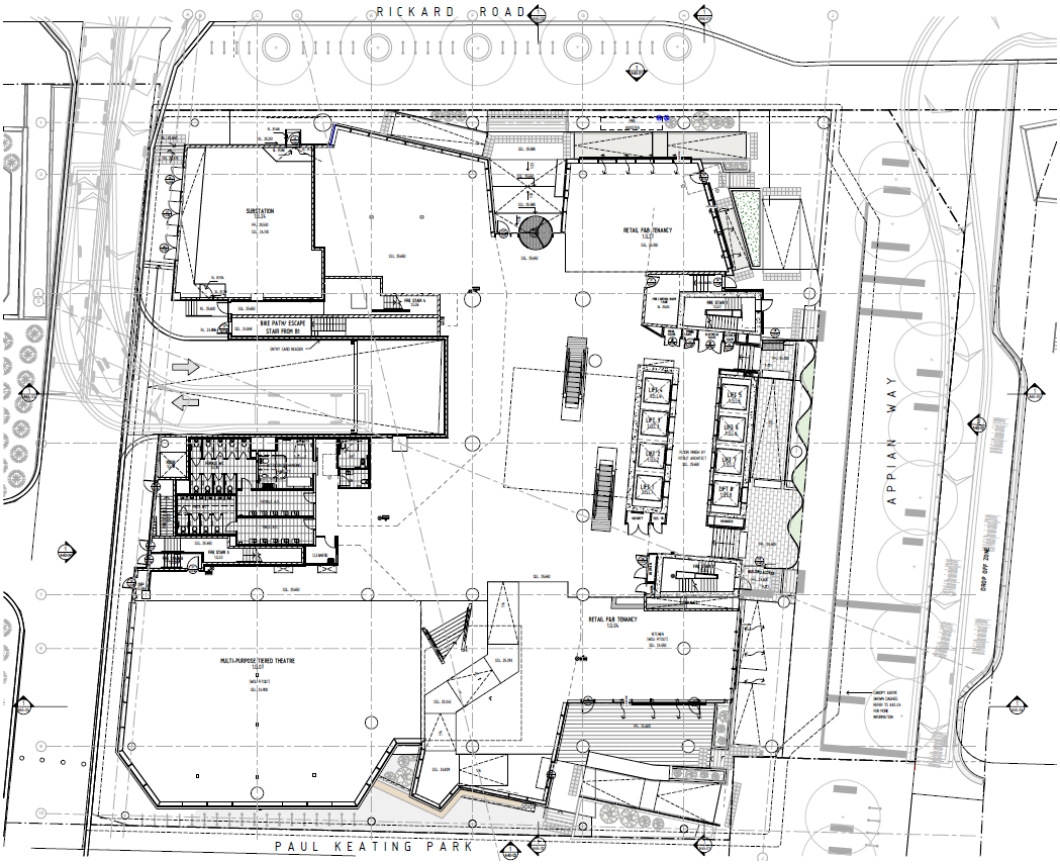


Figure 26 BCC Site Plan

The primary use of the building will be for University / Education space uses (accommodating the relocation of WSU from their Milperra campus). The campus will also have ancillary retail.

In terms of transport features of the campus, the key elements of the proposal are:

- A new driveway ramp to a basement car park located along the existing Library access road;
- A two-level basement car park with a loading dock with provision for approximately 87 new car parking spaces (including 4 DDA bays);
- A new drop-off and pick-up zone along The Appian Way with capacity to accommodate three vehicles;
- A loading dock within the basement with provision for a MRV sized vehicle and a SRV sized vehicle;
- The loss of 43 existing parking spaces (on the site) and 16 spaces along The Appian Way;

- Converting The Appian Way to a shared zone, with the following modifications:
    - Relocation of driveway on Rickard Road to the east
    - Provision of a set-down area for drop-off and pick-up
    - Associated pavements and realignment works
- Widening of the footpath and public domain improvements along Rickard Road, enabling the provision of a future shared path. The Bankstown Complete Streets project identifies the southern side of Rickard Road as a future cycle route;
- End of trip facilities and bike parking (56 secure and 6 visitor bike parking spaces within the basement and approximately 98 within the public domain);

It is estimated that there will be around 2,000 students and 650 University / Education space staff at any one time, allowing for varying lecture times, external meetings, sick leave and holiday leave.

Early site preparation works will be subject to a separate development application and assessed by Canterbury Bankstown Council. Early works will include:

- Erection of site hoardings;
- Demolition, including tree removal;
- Bulk excavation;
- Shoring, including temporary anchors;
- Disconnection and/or diversion of services; and
- A new lay-back along Rickard Road leading into Appian Way.

The proposed new layback between Rickard Road and The Apian Way will be constructed within the early works package so as to allow the safe manoeuvring of construction traffic into the site

4 Transport Assessment

4.1 Vehicle access

4.1.1 Basement access road

Vehicles are proposed to enter and exit the site using the existing access driveway off Rickard Road along the western boundary of the site. This driveway is currently used to access the Bankstown Library underground car park which was observed to have relatively low volumes of traffic during peak periods. Minor modifications at the footpath crossover are proposed to allow a vehicle to enter while another is waiting to exit (see Figure 27)

The access driveway is approximately 80m east of Chapel Road and approximately 130m west of Jacobs Street. Access to the BCC basement car park is provided approximately 20m south of the intersection with Rickard Road.

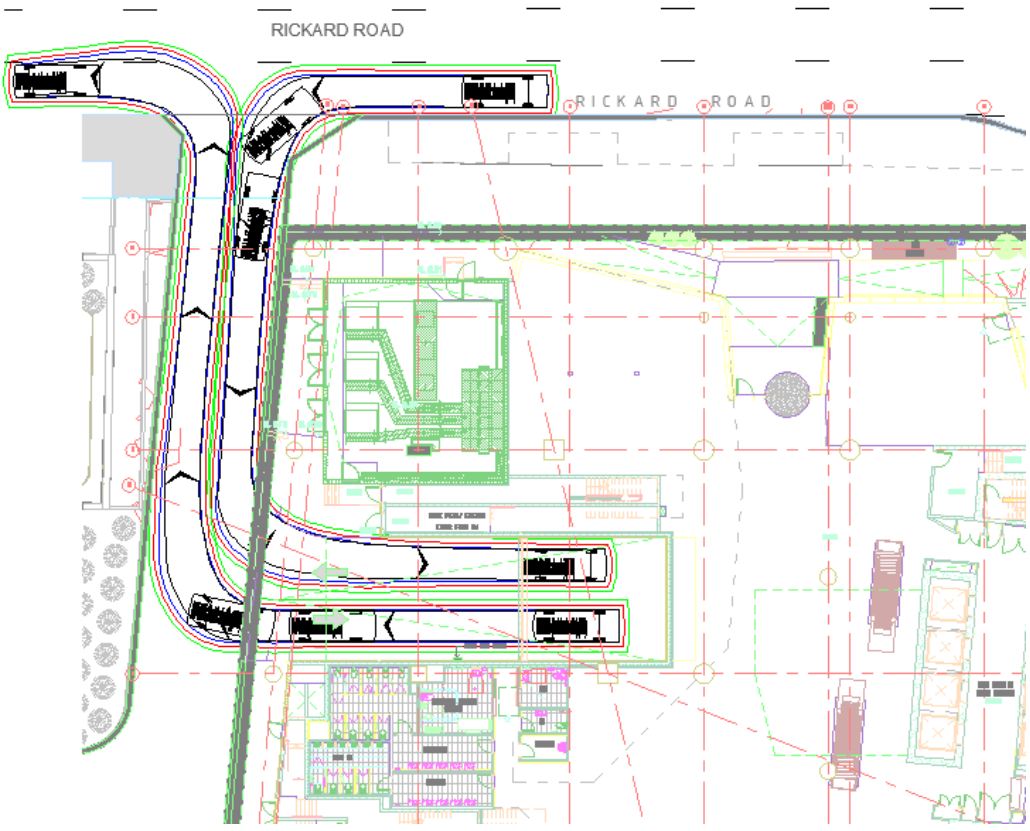


Figure 27 Access route to BCC basement car park

Figure 3.2 of AS2890.1 sets the minimum Stopping Sight Distance (SSD) for the western access road. An unobstructed visibility splay of 65m is required to the edge of Rickard Road so that vehicles can safely exit onto Rickard Road.

The visibility splay is presented in Figure 28, achieving the minimum requirements on the basis that the new tree canopies along Rickard Road do not obscure the driver's vision.

A swept path analysis of vehicles turning at the footpath crossover (at Rickard Road) and the basement driveway is provided in **Appendix A**.

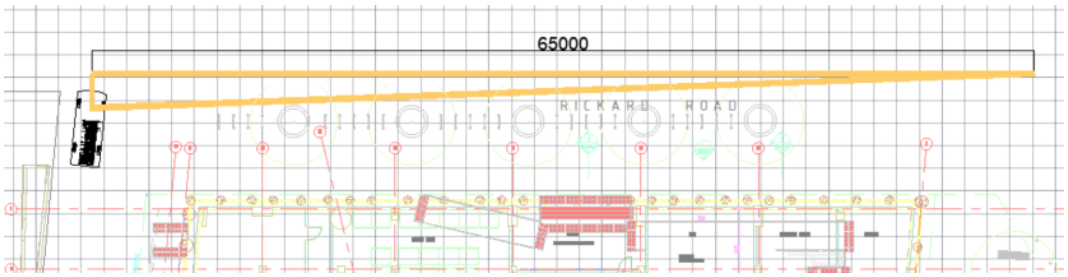


Figure 28 Western access road visibility splay

4.1.2 The Appian Way

The Appian Way, which runs along the eastern boundary of the site, will continue to provide access to the Bankstown Civic Tower car park in a one-way direction. The intention is for The Appian Way to be a shared zone, with drop-off and pick-up facilitated on the eastern side of the road (see Figure 29).

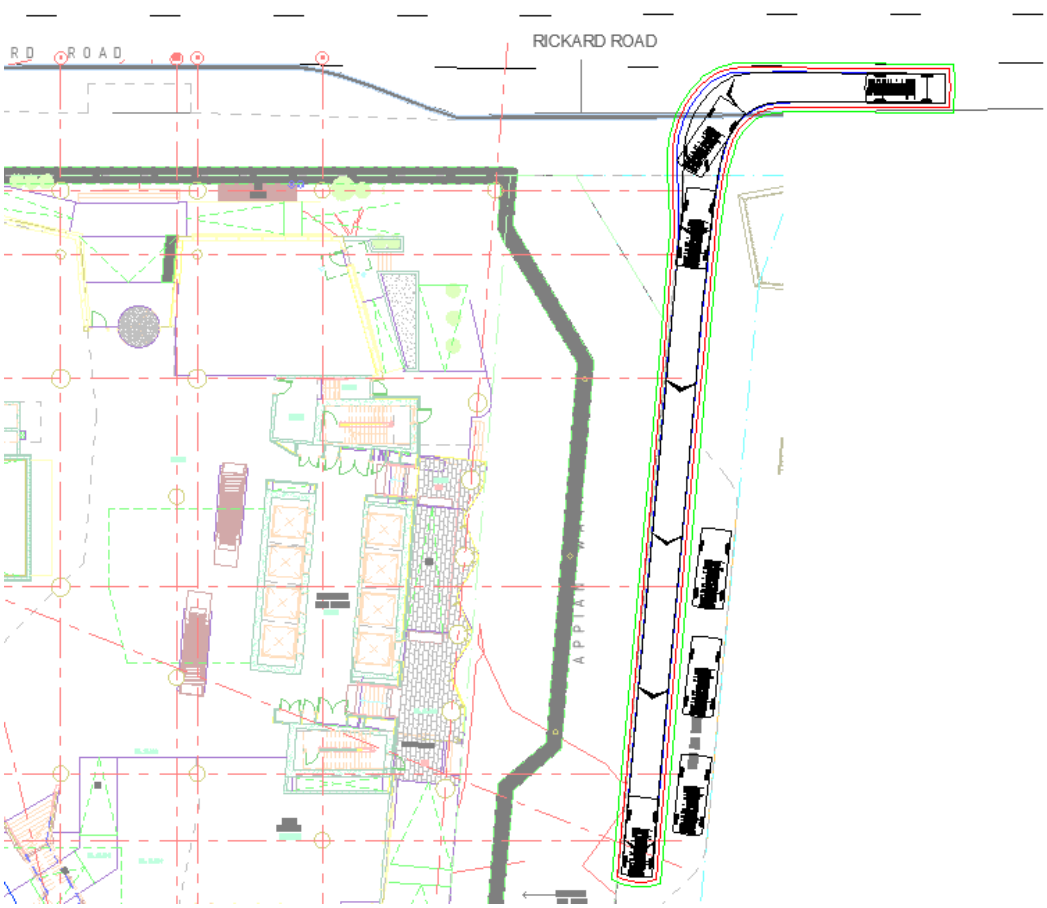


Figure 29 The Appian Way shared zone

The vehicle footpath crossover along Rickard Road into The Appian Way is proposed to shift slightly east from its existing location while maintaining a clearance from the existing culvert.

A swept path analysis of vehicles turning at the footpath crossover (into The Appian Way) is provided in **Appendix A**.

The construction of this lay-back is proposed as part of the Early Works DA package to facilitate construction vehicle movements into the site and is not subject to this SSD.

4.2 Pedestrian access

The Campus can be accessed by pedestrians from the southern, northern and eastern perimeter. The proposed access points are highlighted in Figure 30.

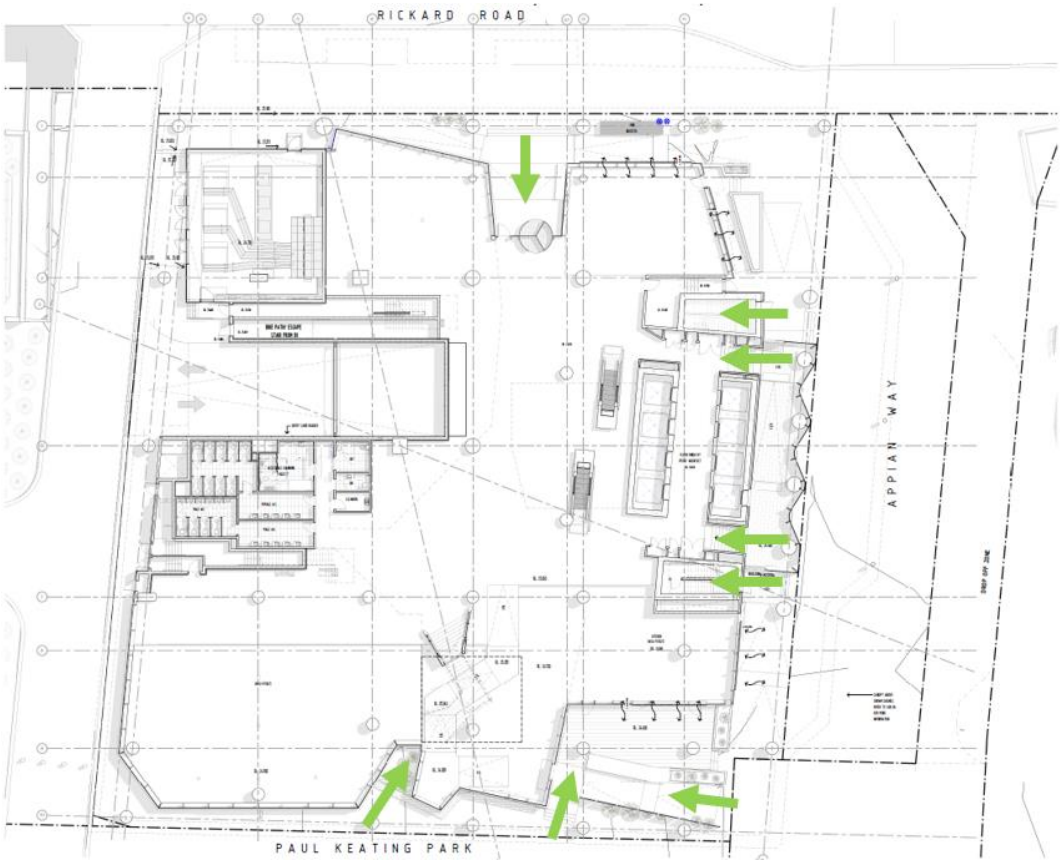


Figure 30 Pedestrian access points

High quality pedestrian amenity is provided throughout, with significant pedestrian space provided along The Appian Way (shared zone) and widened footpaths along Rickard Road. From the south The Appian Way and Paul Keating Park can be used by pedestrians. The building also allows for a north-south through site pedestrian link.

Given the location of bus stops and the train station, the southern access point is expected to be most utilised.

4.3 Cycle access

The proposed access route to the basement bicycle parking is highlighted in . Cyclists will also be able to access the basement from the south. The design of the bike parking is in accordance with AS2890.3 (2015). The Bankstown DCP 2015 does not specify a bicycle parking rate.

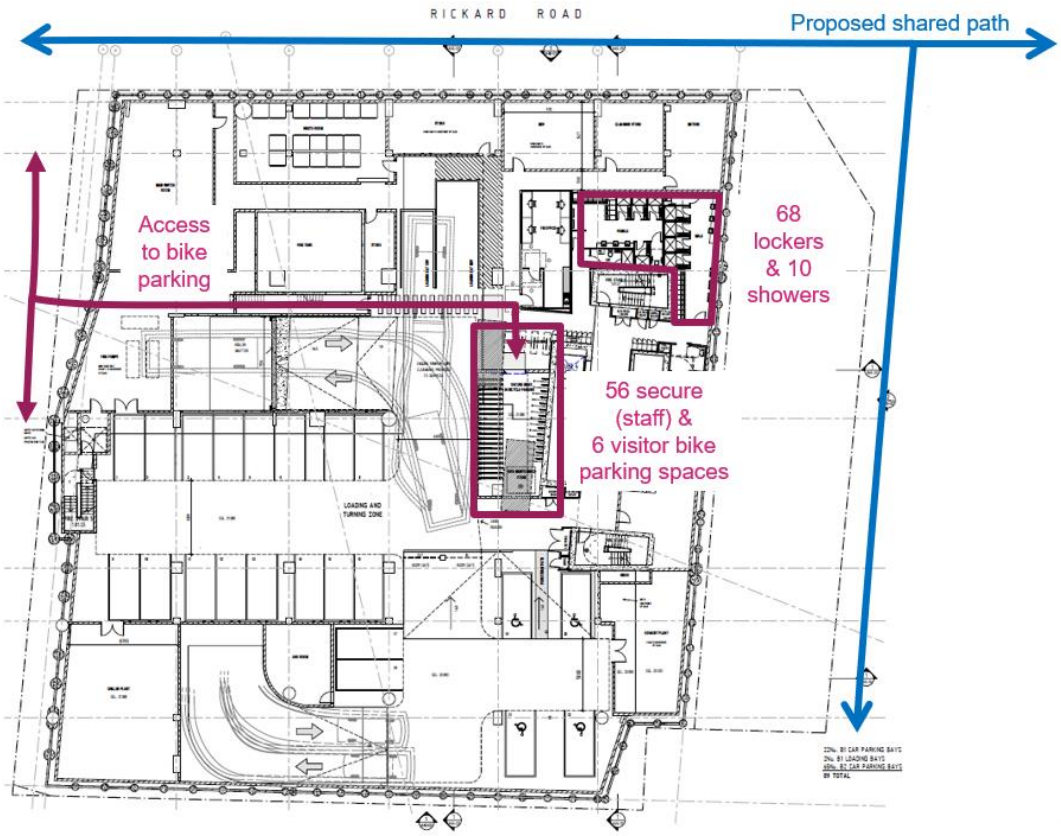


Figure 31 Proposed staff bike parking

4.4 Car parking

4.5 Loading and servicing

As part of the proposed layout, there is provision for loading and servicing within the basement. The design of the dock allows for one medium rigid vehicle (MRV)/waste vehicle and one courier van (see Figure 32 basement level 1 layout).

The design of the loading dock areas is in accordance with AS 2890.2, with the driveway ramp having a maximum grade of 1 in 6.5. Swept path analysis of a MRV accessing and egressing the dock is provided in **Appendix A**.

4.5.1 On-site provision

As part of the proposed layout, there is provision for approximately 87 car parking spaces, including 4 DDA compliant spaces, across two basement levels as shown in Figure 32 and Figure 33. No parking will be provided for students.

This is similar to the arrangement at the WSU Parramatta City Campus, where 80 parking spaces are provided, none of which are for students. The WSU Parramatta City Campus has many similar features to the development, including GFA, staff and student population, and proximity to public transport.

The parking requirements for 'educational establishments' as set out in the DCP are not considered appropriate for the development and are more aligned to primary and secondary school sites.

The City of Sydney LEP 2012 only permits parking to be provided at a rate of 2% site area for a development with a floor space ratio (FSR) in excess of 3.5:1 in a similar proximity to a major railway station. Application of this rate to the subject development would result in a total permissible car parking of 74 spaces for a site with a total area of 3,678 m^2.

The provision of 87 spaces is equivalent to approximately 1 space per 337m^2 GFA, and it is recommended this rate is applied for the following reasons:

- The excellent accessibility of the site by public transport, including the step-change in provision as a result of the metro;
- The anticipated growth in dwellings in the CBD, 80% of which is targeted to be within the walking catchment of the CBD[2] and, therefore within the walking catchment of the campus;
- Providing limited on-site car parking is a key travel demand measure which encourages travel by sustainable modes while mitigating the impacts of the development on the surrounding road network;
- The WSU Parramatta and Liverpool City Campuses are excellent examples of similar developments. Based on the University's recent experience of relocating to those campuses, public transport becomes the primary modes of transport for users, with limited demand for parking;
- The proposed retail is of a relatively small size and therefore future businesses are expected to be of a nature that will service staff and visitors of the proposed development and other surrounding land uses. As such, the ground floor retail uses are unlikely to generate significant visitor parking demands; and
- The reduced demand for parking that students generate when compared to staff in a typical commercial development.

Table 4 summarises the proposed provision in comparison with DCP rates. With the introduction of Metro, and the CBD car parking review being undertaken by Council as part of the draft Bankstown Complete Streets Project, the provision of

[2] Bankstown DCP 2015 – Part 1A Centres

additional public parking in the city centre is not aligned with the future vision for the CBD.

The proposed parking provision for the University / Education space is considered adequate in the context of the broader transport objectives for the Bankstown CBD.

Table 4 DCP Parking Provision

Use	Parking Rate	Spaces Permitted	Spaces Provided
University / Education space	No relevant rate in the DCP	n/a	87

The design of the car park (including ramps, spaces and circulation) is in accordance with AS 2890.1 (2004) and Bankstown Development Control Plan (2015).

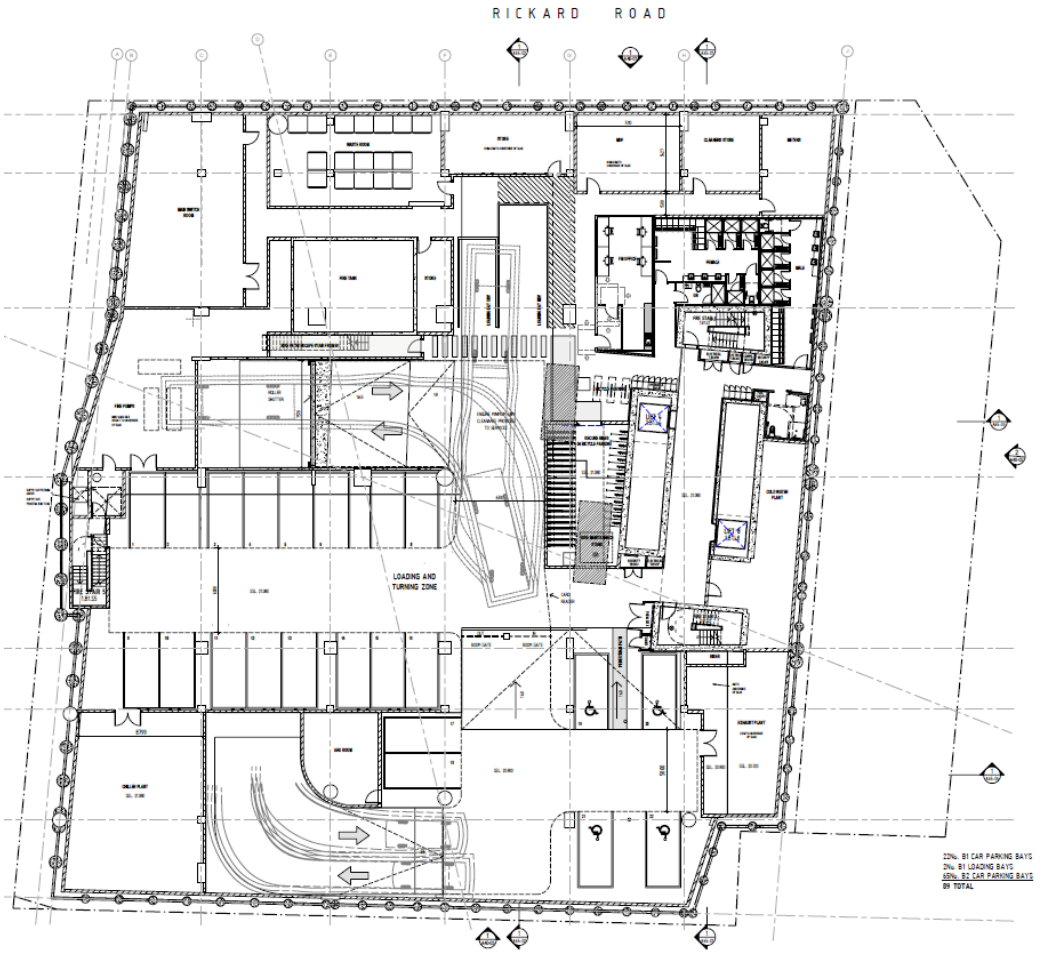


Figure 32 Basement level 1 car park

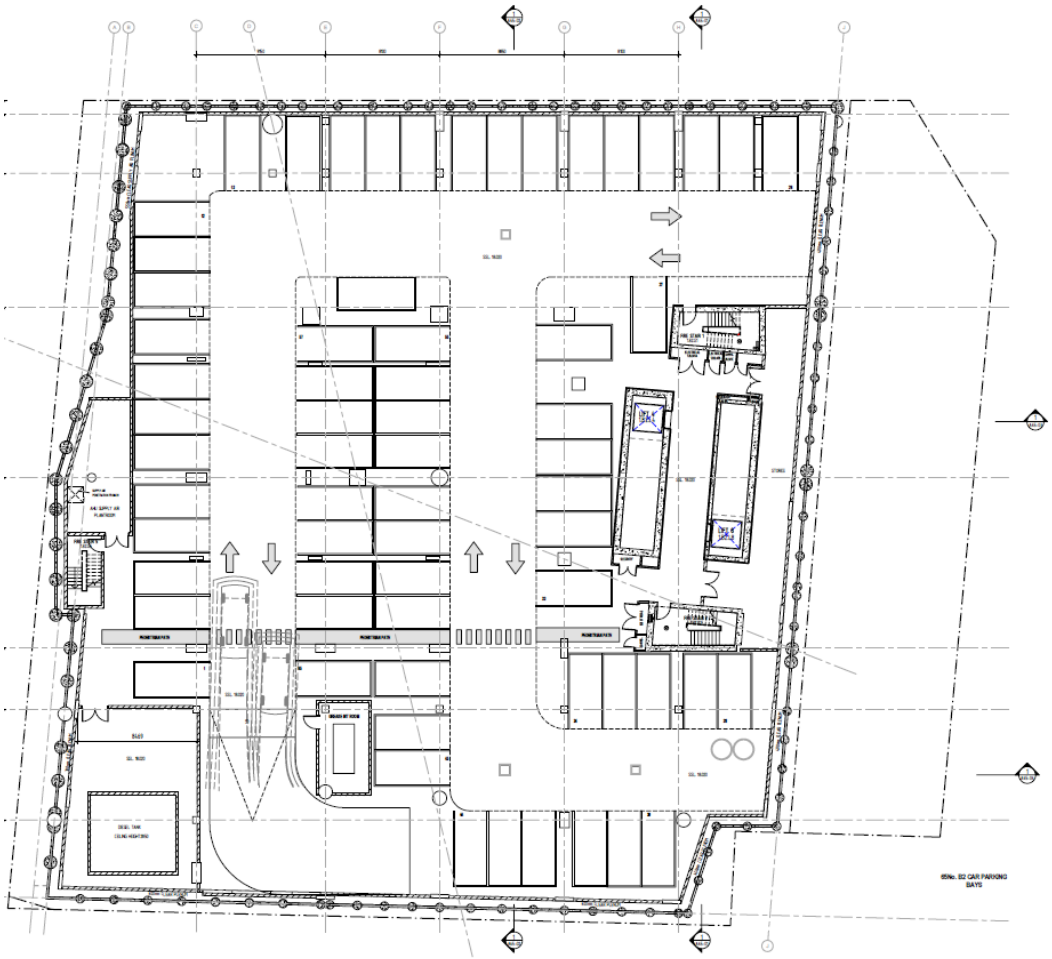


Figure 33 Basement level 2 car park

As noted in Section 3, there will be approximately 59 existing parking spaces removed as part of the proposed development. This strategy is consistent with the aspiration of the Bankstown Complete Streets project which seeks to reduce traffic volumes within the CBD through the relocation/reduction in parking spaces.

4.6 Public transport access

The site is well serviced by both rail and bus networks as described earlier. Given the limited number of parking spaces being provided on-site, travel by public transport is expected to be the main mode of travel.

With the improvements in the pedestrian route between the development and the Train / Metro Station due to the works to The Appian Way and pedestrian crossing of The Mall, the proposed development will be well integrated with the public transport network.

The draft Bankstown Complete Streets project has also proposed a future public transport network (see Figure 34) which identifies a potential new bus station on Jacob Street. The BCC is well placed to integrate with a future bus station at this location given the improvements outlined above.

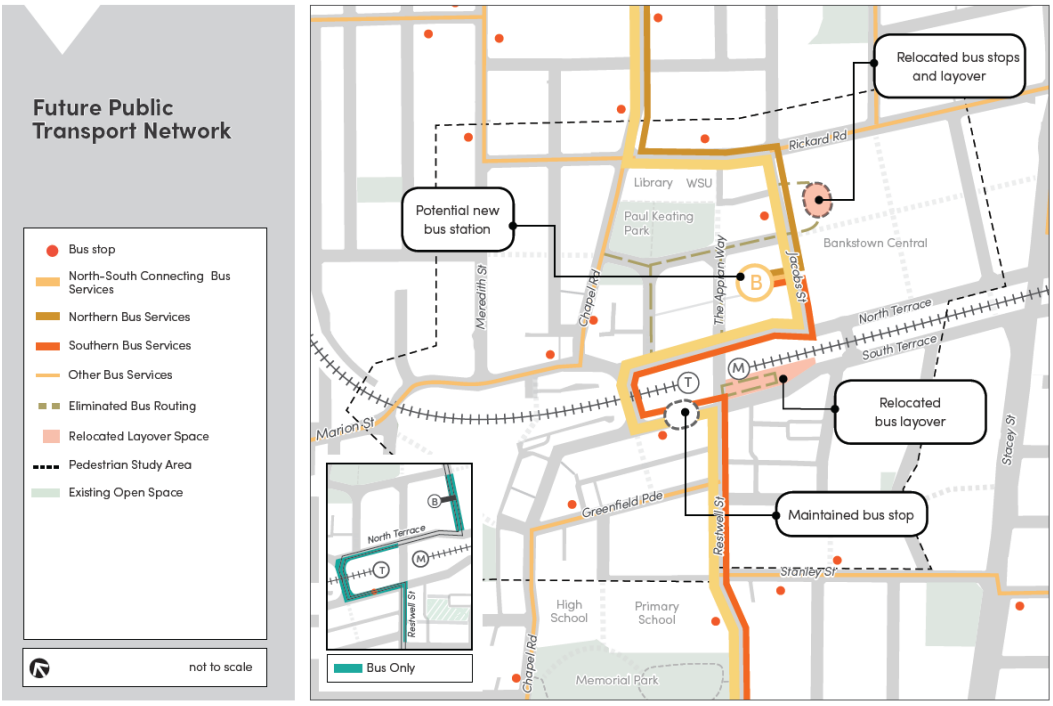


Figure 34 Bankstown Complete Streets - Future Public Transport Network

5 Traffic assessment

5.1 Trip origins

5.1.1 Students

Existing catchments

The catchment of students attending the existing WSU Bankstown Campus in Milperra is presented in Figure 35, highlighting the suburbs with the highest concentration of students. Many of these students live within the 2km and 5km catchment of the future campus, commuting from suburbs such as

- Bankstown
- Greenacre
- Punchbowl
- Yagoona
- Condell Park

These suburbs are within a 20-minute walk or cycle of the BCC as well as being served by bus services. Other suburbs with larger student populations such as Liverpool and Auburn are outside of the walk catchment but are well served by bus and rail and may also be within a reasonable cycle catchment for some students.

Future catchments

Overtime, locations along the Metro line will become attractive locations for students to live given the levels of accessibility to Bankstown it affords. As shown in Table 5 and Figure 36, Sydney Metro will result in journey times of 30 minutes or less between Bankstown and Pitt Street station in Sydney CBD and less than 45 minutes to locations such as Chatswood. These journey time savings, along with the frequency and reliability of service, are expected to attract students from suburbs located along the Metro line, including Lakemba, Campsie and Marrickville.

Table 5 Sydney Metro journey times

Bankstown to:	Existing journey time (mins)	Sydney Metro (mins)	Saving (mins)
Central	34	28	Up to 6
Pitt Street	45	30	Up to 15
Barangaroo	59	34	Up to 24
Victoria Cross	52	37	Up to 15
Chatswood	68	43	Up to 25
Macquarie University	79	54	Up to 25

Source: Sydney Metro

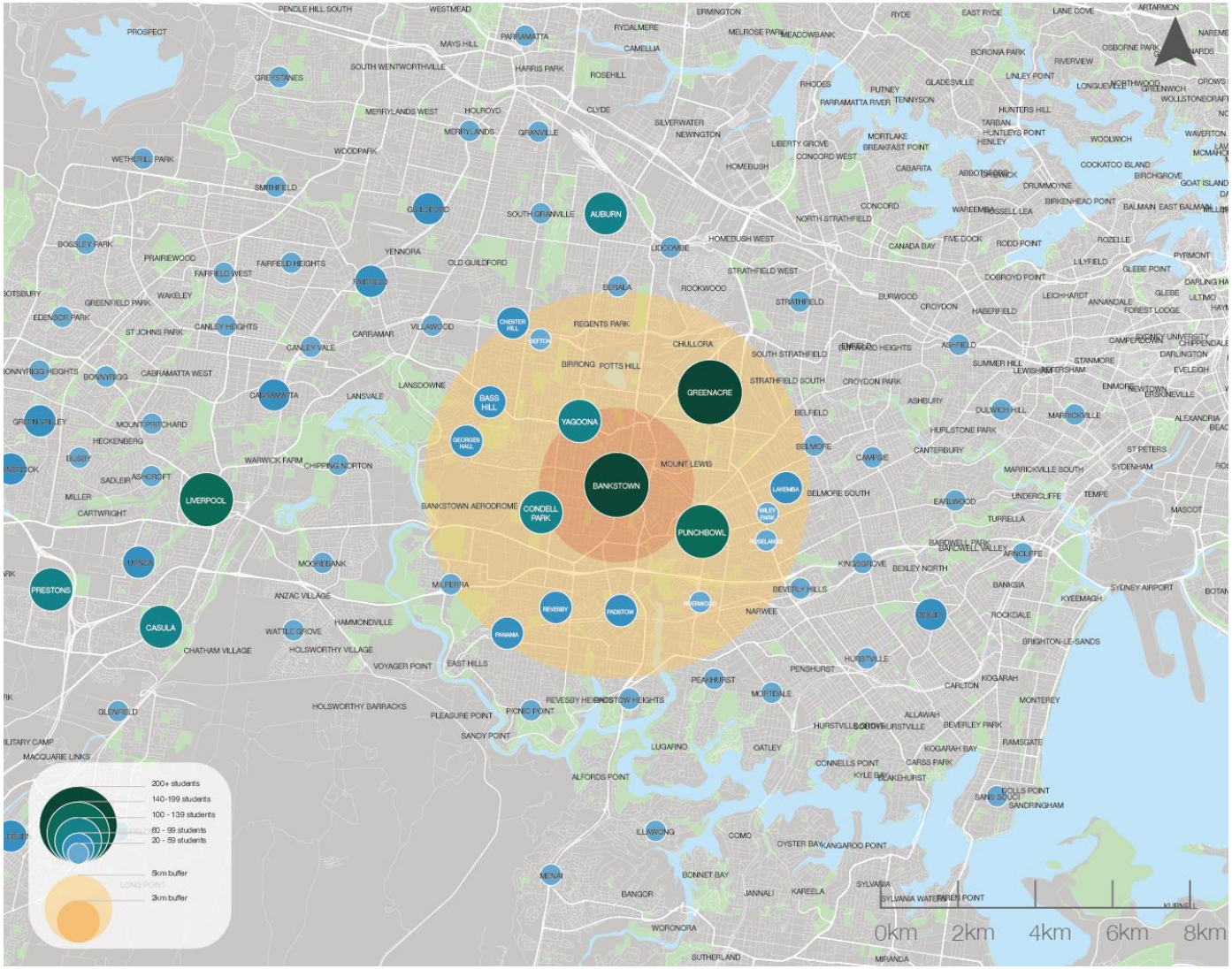


Figure 35 Existing student trip origins (Milperra Campus)

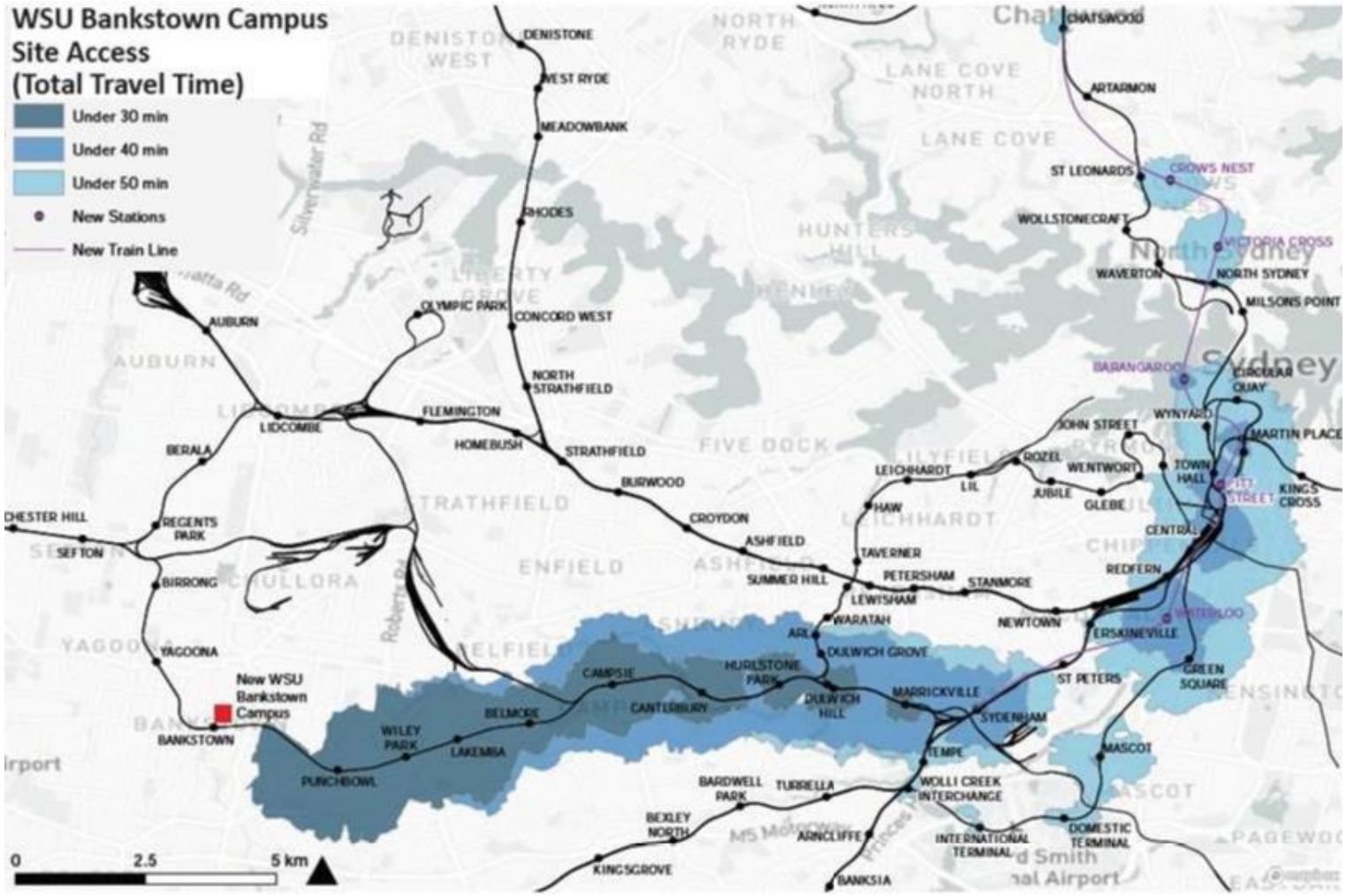


Figure 36 Future travel time along Sydney Metro line

Source: Hale Report

5.1.2 University / Education space staff

Existing catchment

2016 Census data has been used to identify the locations from which people working in Bankstown commute. This is likely to be the locations that both University / Education space staff trips will originate from.

Analysis at census SA2 level shows that people are expected to commute from the following areas (see Figure 37):

- Bankstown (e.g. Bankstown, Greenacre, Condell Park, Revesby and Yagoona) – 60%
- Canterbury (e.g. Punchbowl, Campsie, Roselands) – 10%
- Liverpool (e.g. Liverpool, Casula, Moorebank, Prestons)– 10%
- Merrylands – Guildford (e.g. Chester Hill, Fairfield, Merrylands) – 5%
- Hurstville – 5%
- Other – 10%

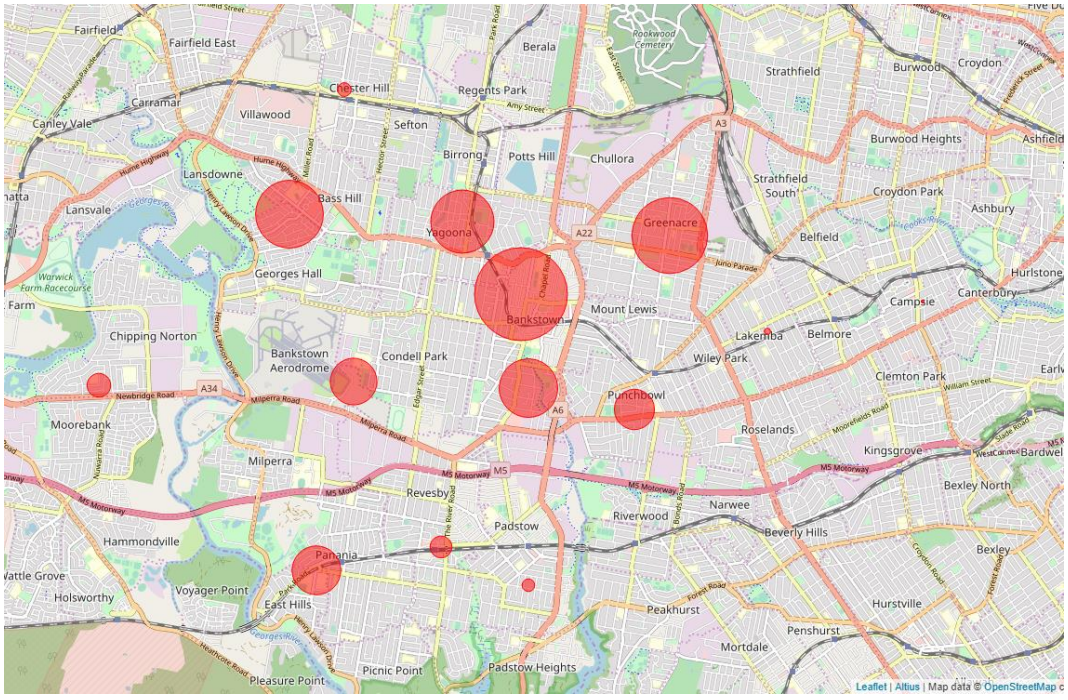


Figure 37 Existing staff trip origins

Many of the suburbs are within a 20-minute walk or cycle of the BCC as well as being served by bus and rail services. Suburbs outside of these catchments are generally well served by bus and rail while also being within a reasonable cycle catchment for some staff.

Future catchment

As mentioned in 5.1.1, locations along the Metro line will become attractive locations for University / Education space staff to live given the levels of

accessibility to Bankstown it affords, with quick, frequent and reliable journey times. Suburbs such as Lakemba, Campsie and Marrickville are expected to popular.

5.2 Mode share

WSU encourages and promotes the use of public transport and active modes by staff and students as a mode of travel to the campus. The relocation from a car dependent location (i.e. Milperra) to Bankstown city centre provides more equitable access to staff and students. It enables staff and students to commute by cheaper, more sustainable modes of transport which often are quicker also.

Lessons learned from the opening of the WSU Parramatta CBD campus show that students and staff will choose public transport when parking provision is limited and the alternative option of quick and frequent public transport is available, as would be the case at Bankstown.

The future users of the development have been split into two main cohorts, students and University / Education space staff. A target mode split for the two cohorts has been set (see Table 6) which considers the following factors:

- Existing and anticipated future trip origins
- Existing and future travel patterns
- Future public transport provision
- Trends at other universities/campuses
- Availability of on-site car parking spaces
- Access to a car
- Local changes in transport policy and infrastructure

Table 6 Mode share targets

Mode	University / Education space staff	Students
Walk	10%	15%
Cycle	5%	5%
Car Driver	15%	5%
Car Passenger (incl.drop-off)	3%	5%
Bus	30%	33%
Train/Metro	32%	32%
Other	5%	5%
Total	**100%**	**100%**

With consideration of the above factors, the following findings have shaped the mode share targets:

- Based on the trip origin data, it is expected that more students will live closer and therefore within the walk and cycle catchment of the BCC;

- Staff are more likely to drive than students given greater access to a car as well as having access to the on-site parking spaces;
- Metro to be an attractive mode of travel for both staff and students once operational, influencing where people commute from;
- Changes to parking policy in the CBD and new cycling infrastructure as part of the Bankstown Complete Streets project should reduce driving and encourage other, more sustainable forms of transport; and
- Students are more likely to be dropped-off or car share with other students

The mode split was developed to align with the vision for Bankstown CBD, as set out in the Bankstown Complete Streets project. It looks to promote active transport and public transport as a way to move large volumes of people safely to and within the CBD. The mode split is also reflective of current mobility trends for similar university CBD-located campuses, for example, WSU Parramatta and WSU Liverpool. The target mode splits are site-specific and have been developed to best align with anticipated future travel patterns, infrastructure and transport policy in Bankstown.

The student car driver mode share (5%) and staff car driver mode share (15%) can be justified by the transport considerations outlined in the following sections. It should also be noted that in order to achieve a private vehicle demand reduction, parking supply needs to be capped at less than the associated parking generation as a result of the target private vehicle mode share. The WSU BCC development complies with this concept, with a proposed parking supply slightly under that equivalent to a 15% staff car driver mode share (target). It is well-known that if provided, freely available all-day parking will be utilised.

Anticipated future travel patterns

WSU encourages and promotes the use of public transport and active modes by staff and students as a mode of travel to their campuses. The relocation of the campus from a car dependent location (i.e. Milperra) to Bankstown city centre provides more equitable access to public transport for both staff and students. It will enable staff and students to commute by cheaper, more sustainable modes of transport, as opposed to private vehicle.

Further, based on trip origin data provided by WSU (summarised in Section 5.1), it is expected that more students will live closer and therefore within the walk and cycle catchment of BCC. This is often observed near campuses, where students that rent tend to cluster closer to the CBD-located housing, which offers more affordable housing opportunities for students. This contributes to their ability to choose sustainable travel modes, particularly active travel modes.

Future public transport provision

BCC is to be located in an area that is well serviced by public transport with significant capacity available on existing and planned public transport services. Bankstown is a bus hub and is served by up to 58 services per direction during peak times. The train station is within 400m of the site, with the upgrade and conversion of the existing T3 Bankstown Line to metro standards between

Sydenham and Bankstown due to be complete in 2024. The Sydney Metro City & Southwest project will provide a step-change in public transport service provision, providing faster and more reliable journey times, with trains every 4-minutes in both directions. It is expected that the majority of trips for both staff and students will be taken by public transport, with the Metro having a significant role in serving the anticipated travel demand.

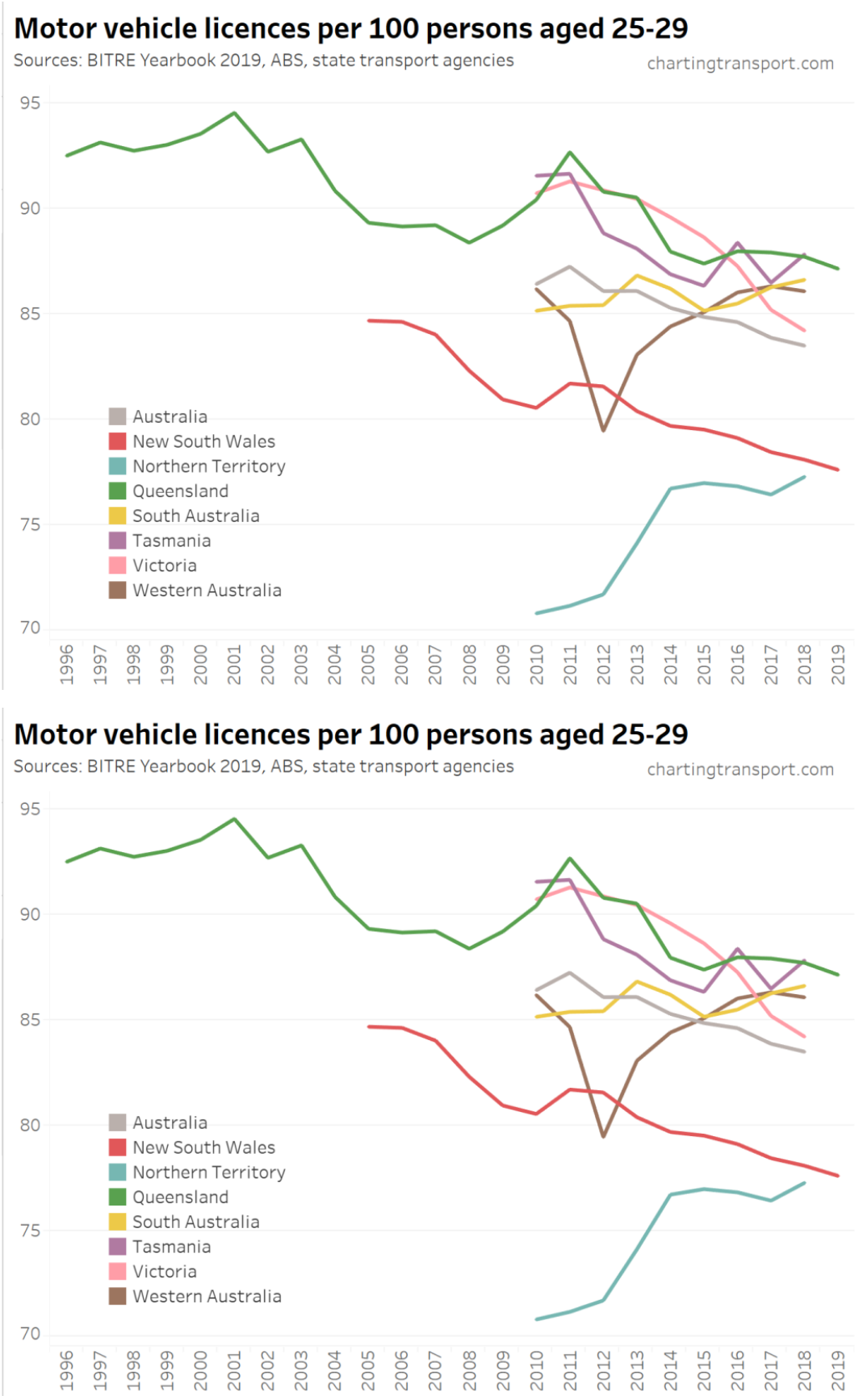
Trends

Being purpose-designed for university use, BCC will have different travel patterns when compared to typical commercial developments. University students are on average younger and typically have access to less disposable income[3] to invest in and operate cars. Students that choose to drive often car share with other students to reduce the associated costs.

Lessons learned from the opening of the WSU Parramatta CBD campus show that students and staff will choose public transport when parking provision is limited and the alternative option of quick and frequent public transport is available, as would be the case at BCC.

Furthermore, there have been recent declines in driver licence-holding by younger Australians[4], with this trend extending in major cities Australia-wide. The current predictions for NSW licences per person is that they will continue to trend downwards (see Figure 38).

[3] https://www.abs.gov.au/ausstats/abs@.nsf/lookup/4102.0main+features20july+2013
[44] Bureau of Infrastructure, Transport and Regional Economics, Drivers Licences in Australia – Information Sheet, 2017



Motor vehicle licences per 100 persons aged 25-29
Sources: BITRE Yearbook 2019, ABS, state transport agencies
chartingtransport.com
95
90
85
80
75
70
Australia
New South Wales
Northern Territory
Queensland
South Australia
Tasmania
Victoria
Western Australia
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

Figure 38: NSW licences per person (source: BITRE, December 2019)

Availability of on-site car parking spaces

No parking is proposed to be provided on-site for students. Any students wishing to drive will need to utilise existing on-street or off-street public or private parking spaces within Bankstown. Limiting access to car parking as a way of encouraging people to travel by other modes is a key feature of the Bankstown Complete Streets project. It is within private car park operator's control to manage their own sites, and if required, install boom gates to ensure their parking is used by their customers only. This may need to be considered in light of the Council strategy regardless of this proposed development.

Absence of on-site student parking is a means to discourage student driving. This has been WSU's experience at the Parramatta and Liverpool campuses. Conversely, if WSU provide parking, more students will likely drive – this goes against the vision laid out in Bankstown Complete Streets (described in Section 2.8.3).

Local Transport Policy

Both the NSW Government and Canterbury Bankstown Council have committed to support the growth in Bankstown through integrated transport to ensure the city centre is accessible. Bankstown Complete Streets identifies the large amount of free parking as a key issue within Bankstown CBD, noting that it encourages more people to drive and it increases congestion. As a result, a strategy to relocate public parking stations to the edge of the CBD along a ring road has been developed (see Figure 39). The City of Canterbury Bankstown has also explicitly identified that:

- Unrestricted parking promotes commuters to park in prime CBD-located carparks;
- Off-street parking complexes are an inefficient use of CBD land in their current format;
- Car parks dominate the inner CBD area, occupying 14% of the CBD area; and
- Smart parking is needed, not more parking.

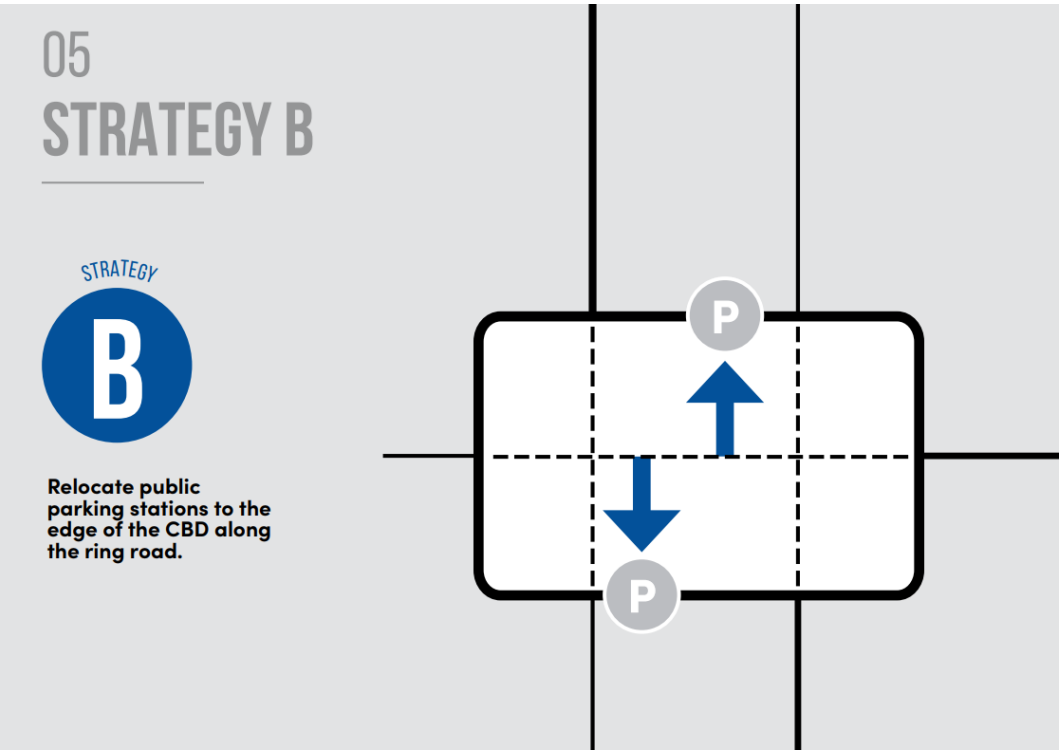


Figure 39 Bankstown Complete Streets – strategy to relocate public parking

The development proposes a parking strategy consistent with Council's Complete Streets strategy. Removing car parking on the site will result in less overall traffic generation, thereby encouraging the use of nearby public transport, especially given the lack of free all-day parking available nearby. This is observed in many centres including Sydney's CBD.

Travel surveys undertaken once the BCC is operational, will allow for an accurate baseline mode split to be established and a review of the mode share targets.

5.2.1 The Appian Way drop-off activity

A pick-up/drop-off facility, accommodating three spaces, is proposed along the eastern side of The Appian Way. The intention is for The Appian Way to continue acting as a shared zone and provide access to Civic Tower. The operation of the pick-up/drop-off facility has been assessed through swept path analysis. The output sketches of this are included in **Appendix A.**

Provision

In order to pick-up/drop-off on The Appian Way, vehicles will need to turn left from Rickard Road and egress via Civic Drive onto Jacobs Street.

The facility can provide for the simultaneous pick-up/drop-off by three vehicles – i.e. forward manoeuvre into and out of each space.

Level of Activity

Based on the mode share targets listed in Table 6, the morning peak hour is estimated to generate 51 drop-off trips and 35 pick-up trips to WSU BCC – i.e.

car passenger. The majority of these (~80%) will be students (see Table 7 below). Note: this also includes people travelling with someone going to the same destination or other destinations in Bankstown.

For assessment purposes, it is assumed that all car passengers will be dropped-off along The Appian Way given the proposed facility to be provided there, however it is likely that drop-off will occur at other locations in the CBD also.

Table 7: Drop-off activity

Mode	Arrivals			Departures		
	Staff	Students	Total	Staff	Students	Total
Car Passenger (incl. drop-off)*	9	41	**50**	8	26	**34**

*the mode shares were applied to the staff and student populations described in Section 5.4

Adequacy

Based on the volumes expected and incorporating the following assumptions, general queuing theory was applied to the three parallel spaces to assess the adequacy of the facility (see below). The drop-off is considered the critical peak, given the majority of people being dropped off will likely be linked trips from commuters during the AM peak hour. Pick-up will be spread throughout the afternoon depending on when classes finish.

Assumptions:

- 30 second drop-off time;
- During the AM peak, 286 staff and 828 students arrive (profile detailed and explained in Section 5.3);
- 50% of these arrive in a peak 15 minutes; and
- Uniform arrival distribution.

The capacity based on this calculation is 360 vehicles per hour. This will more than cater for the total of 50 vehicles generated by WSU with sufficient capacity available for surrounding land uses.

This equates to approximately one vehicle dropping off in the facility at any one time during the AM peak hour. As such, the facility is adequate to accommodate the expected peak drop-off volumes generated by WSU BCC.

Spare capacity in the facility may be used for nearby land uses, but estimates of the demand associated with these have not be analysed.

Management

It is suggested that WSU BCC building management monitor the drop-off and pick-up and provide updates to Council monthly for the six months following occupation. If the arrangement is causing queuing to the surrounding road network it is expected that Council rangers will monitor the area and enforce any vehicles parking in the bays.

If the arrangement is congested and not sustainable, WSU will investigate alternative locations that can be used for drop-off and pick-up (including basement levels within the site.)

5.2.2 Traffic distribution

Car park distribution

All access to the BCC car park will be via a left turn from Rickard Road and all exits will be via a left turn onto Rickard Road. The distribution of traffic shown in is based on likely routes to the state road network.

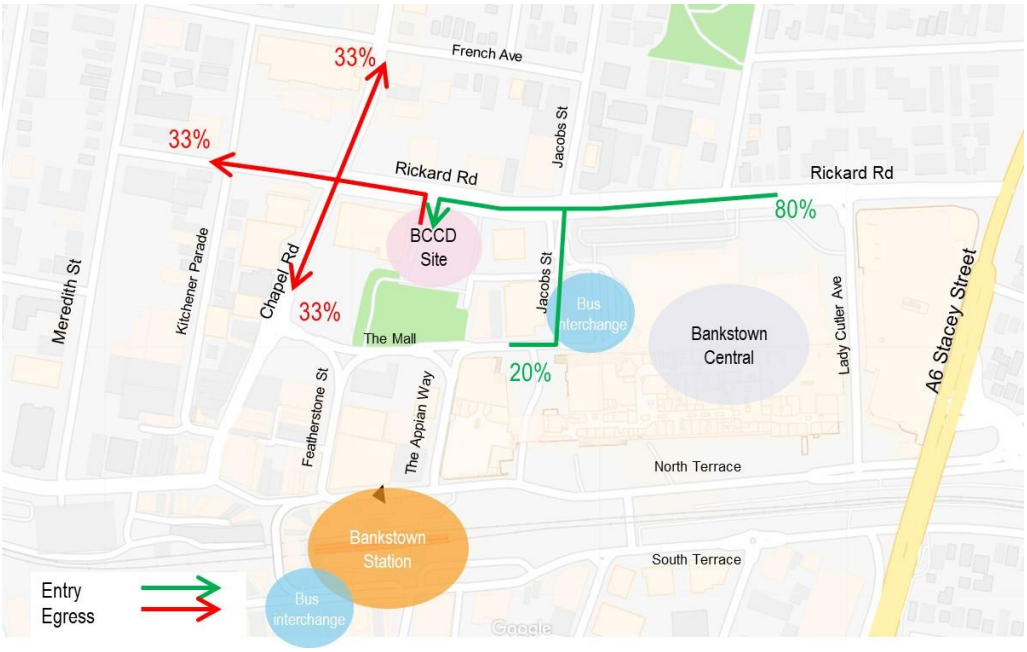


Figure 40 Car park access and egress routes and distribution

In terms of accessing the development, it is assumed the majority (80%) will arrive via Stacey Street and Rickard Road with the remainder arriving via Jacobs Street and Rickard Road.

When egressing the site at the intersection of Rickard Road and Chapel Road, the distribution is expected to be evenly split in all directions. Right-turns will facilitate trips to the north and west (via Hume Highway and Stacey Street), while straight-ahead and left-turns will facilitate trips to all other directions.

Set-down distribution

For the set-down, it has been assumed all arrivals will be from Rickard Road (i.e. a westbound through movement at the intersection with Jacob Street).

When egressing all vehicles must turn left onto Jacob Street (via Civic Drive). A 50/50 split has been assumed at the in terms of eastbound and westbound movements on Rickard Road.

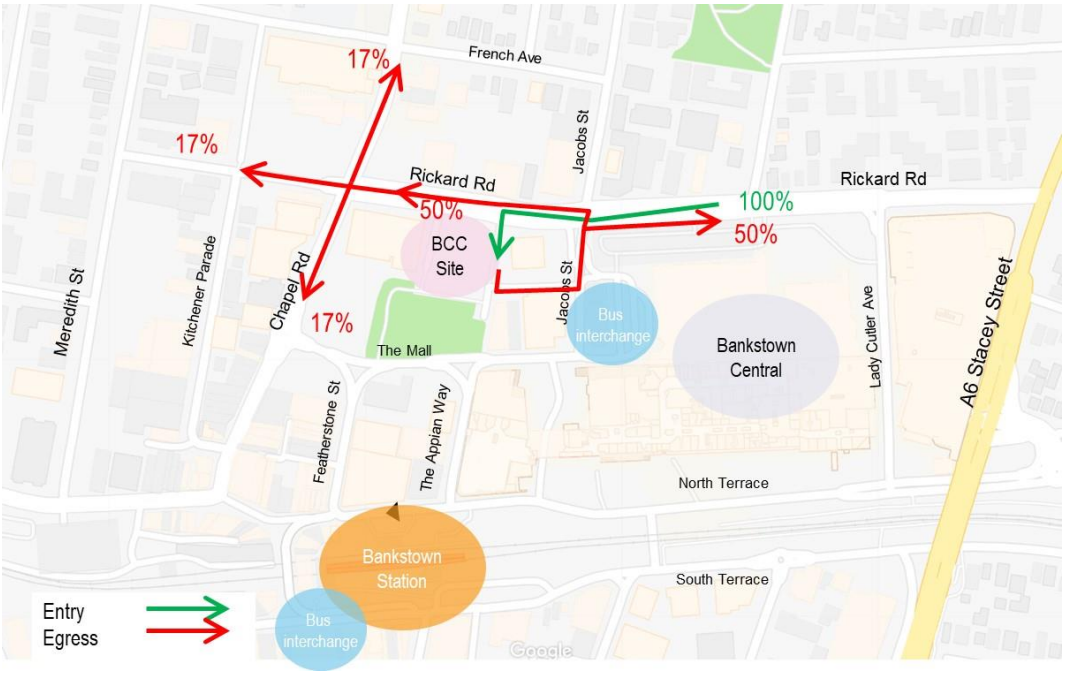


Figure 41 Set-down access and egress routes and distribution

5.2.3 Traffic modelling

Adjacent intersections

The surveyed intersections were assessed using SIDRA 8 Isolated Intersection software. The performance of the identified intersections is important to understand the traffic capacity of the intersections adjacent to the site as well as the wider road network. This performance has been assessed in terms of the following three factors for each intersection:

- Degree of Saturation (DoS)
- Average Delay (seconds per vehicle)
- Level of Service (LoS)

In urban areas, the traffic capacity of the major road network is generally a function of the performance of key intersections. This performance is quantified in terms of Level of Service (LoS) and is based on the average delay per vehicle. LoS ranges from A = very good to F = unsatisfactory (see).

Table 8 Level of service criteria for intersections

Level of Service	Average delay (seconds)	Description
A	Less than 14	Good operation
B	15 to 28	Good with acceptable delays and spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity. At signals, incidents will cause excessive delays. Roundabouts require other control mode
F	Greater than 71	Unsatisfactory with excessive queuing

Another common measure of intersection performance is the degree of saturation (DoS), which provides an overall measure of the capability of the intersection to accommodate additional traffic. A DoS of 1.0 indicates that an intersection is operating at capacity. The desirable maximum degree of saturation for an intersection is 0.9.

A morning (AM) peak hour (8:30am to 9:30am) and an evening (PM) peak hour (4:45pm to 5:45pm) were modelled for the following scenarios in the previous TMAP:

- **Existing** – traffic volumes based on traffic surveys commissioned by Arup in September 2018; and
- **Future** – traffic volumes from the Bankstown Complete Streets project in 2036 with traffic generated as a result of the development.

Growth rates to the 'Future' scenario were based on the modelling report dated 18 April 2019 by GTA Consultants associated with the Bankstown Complete Streets project. This report provides existing (2018) and forecast future (2036) mid-block volumes at key locations in the CBD. Rickard Road (50m west of Chapel Road) was the nearest location to the project and was therefore used for the background growth, with results presented in Table 9.

Table 9: Future mid-block traffic volumes (Rickard Road)

Time period	Existing (2018)			Future (2036)			Growth*
	EB	WB	Total	EB	WB	Total	
AM Peak	916	480	**1,396**	993	439	**1,432**	+2.5%
PM Peak	928	1144	**2,072**	787	1000	**1,787**	-13%

*For assessment purposes, a 2.5% growth rate has been applied to the AM peak while no change has been applied to the PM peak.

An interim modelling scenario (future 2026 traffic volumes + traffic associated with the development) was also developed and assessed. A total growth of 2.5% in traffic volumes by 2036 was interpolated to a growth of 1.1% by 2026 for the AM peak hour. Similarly, to the 2036 scenario, no growth has been applied to the PM peak hour, consistent with Bankstown Complete Streets document.

Therefore, the following scenarios were modelled consistent with RMS Modelling Guidelines dated March 2013 requirements which outline opening year in 2026 and the 10-year horizon:

- Existing Base Year 2018
- Interim Base Year 2026 (background growth and no development traffic)
- Interim Development Year 2026 (background growth and with development traffic)
- Future Base Year 2036 (background growth and no development traffic)
- Future Development Year 2036 (background growth and with development traffic)

A summary of the modelling results are presented in Table 10 and Table 11, with more detailed SIDRA results appended to this report as **Appendix B**. Traffic signal timing was based on observed cycle times during peak periods.

Table 10: Rickard Road / Jacobs Street modelling results

Scenario	AM Peak				PM Peak			
	Delay (s)	LoS	Queue Length (m)	DoS	Delay (s)	LoS	Queue Length (m)	DoS
Existing Base Year	29	C	102	0.69	27	B	112	0.67
Interim Base Year 2026	29	C	103	0.70	27	B	112	0.67
Interim Development Year 2026	30	C	115	0.79	29	C	123	0.74
Future Base Year 2036	33	C	136	0.83	27	B	115	0.68
Future Development Year 2036	29	C	105	0.71	30	C	138	0.80

Table 11: Rickard Road / Chapel Road modelling results

Scenario	AM Peak				PM Peak			
	Delay (s)	LoS	Queue Length (m)	DoS	Delay (s)	LoS	Queue Length (m)	DoS
Existing Base Year	23	B	79	0.67	26	B	109	0.76
Interim Base Year 2026	23	B	80	0.68	26	B	109	0.76
Interim Development Year 2026	23	B	81	0.69	27	B	115	0.77
Future Base Year 2036	23	B	83	0.69	26	B	114	0.79
Future Development Year 2036	23	B	80	0.68	26	B	113	0.78

The modelling indicates that, overall, the intersections will continue to operate with a satisfactory Level of Service as a result of the development and no road network upgrades are required.

While certain movements such as the right-turn from Rickard Road to Chapel Road are at capacity in the existing PM peak, this is not the result of additional development traffic.

Movements into the right-turn lane on Rickard Road (to Chapel Road) from the development driveway may be difficult in the PM peak hour due to queuing, however development traffic attempting that movement are low (approximately 8 vehicles in the PM peak hour), with alternative routes also available via Meredith Street to the west also.

Based on the above analysis and findings from the traffic modelling, the impact of the development on the surrounding road network is relatively low and manageable and can be expected to improve with the Bankstown Complete Streets project proposals.

The traffic flows from the development account for approximately 4-5% average additional traffic beyond the two adjacent signalised intersections described above. As a result, the level of development traffic expected to pass through each of the intersections is unlikely to register any noticeable traffic impacts. These traffic flows will distribute into different directions at each of the adjacent intersections into less proportional movement.

Rickard Road laneways

Traffic modelling has been undertaken to consider the impacts of the development on the two access roads off Rickard Road: The Appian Way; and the Bankstown Library and Knowledge Centre access.

Traffic counts recorded during a site visit in September 2018 were used to estimate the existing level of traffic on both access roads. The forecast traffic volumes for the future scenarios were calculated in line with the other traffic modelling, using the growth rates outlined in the Bankstown Complete Streets document. The results are shown in Table 12 and Table 13.

Table 12: AM Peak Hour - Access roads off Rickard Road modelling results

Scenario	Library Access				Appian Way			
	Delay (s)	LoS	Queue Length (m)	DoS	Delay (s)	LoS	Queue Length (m)	DoS
Existing Base Year	6	A	1	0.20	5	A	0	0.20
Interim Base Year 2026	6	A	1	0.20	5	A	0	0.20
Interim Development Year 2026	6	A	3	0.21	5	A	0	0.20
Future Base Year 2036	6	A	1	0.20	5	A	0	0.20
Future Development Year 2036	6	A	3	0.22	5	A	0	0.20

Table 13: PM Peak Hour - Access roads off Rickard Road modelling results

Scenario	Library Access				Appian Way			
	Delay (s)	LoS	Queue Length (m)	DoS	Delay (s)	LoS	Queue Length (m)	DoS
Existing Base Year	6	A	1	0.26	5	A	0	0.26
Interim Base Year 2026	6	A	1	0.26	5	A	0	0.26
Interim Development Year 2026	6	A	3	0.28	5	A	0	0.26
Future Base Year 2036	6	A	1	0.26	5	A	0	0.26
Future Development Year 2036	6	A	3	0.28	5	A	0	0.26

The modelling results show that the growth in traffic both in background and the development will have minimal impact on the performance of these two access roads.

5.3 Trip profile

The anticipated staff and student arrival and departure profiles to the BCC are presented in Figure 42 and Figure 43 based on a typical University trip profile.

The profile shows a peak arrival between 8am and 9am, with almost 50% of staff arriving in that time. Approximately one-third of students arrive during this time. There is also an additional smaller peak between 12pm and 2pm to account for staff and students (approximately 10% respectively) arriving for an afternoon shift/class at the campus.

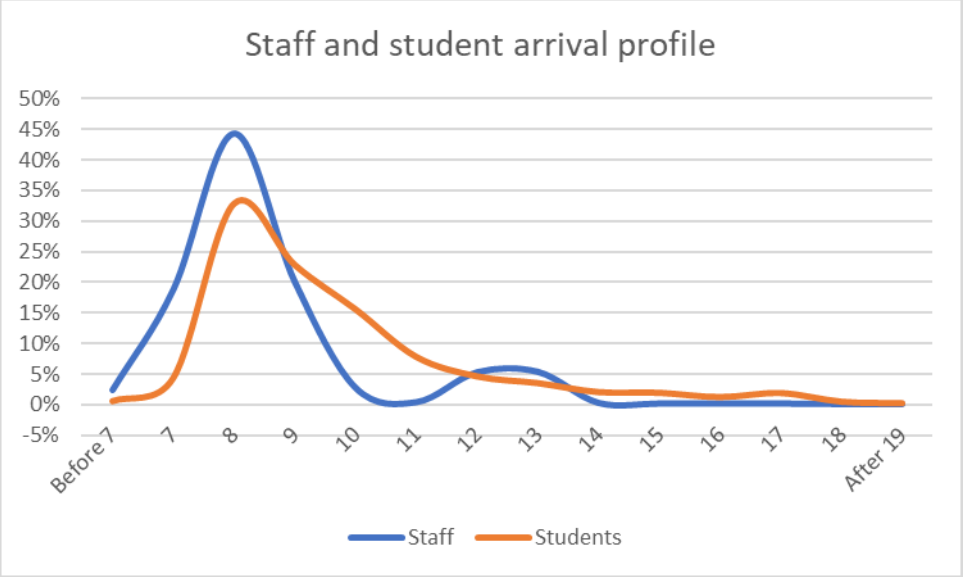


Figure 42 Staff and student arrival profile

In terms of departure times, there is a peak between 5pm and 6pm for staff (41% departing at this time). The peak is less pronounced for students, with departures occurring consistently over a four-hour period between 3pm and 7pm. Similarly to the arrival profile, there is an additional smaller peak between 12pm and 2pm to account for staff and students (approximately 10% respectively) departing the campus following a morning shift/class.

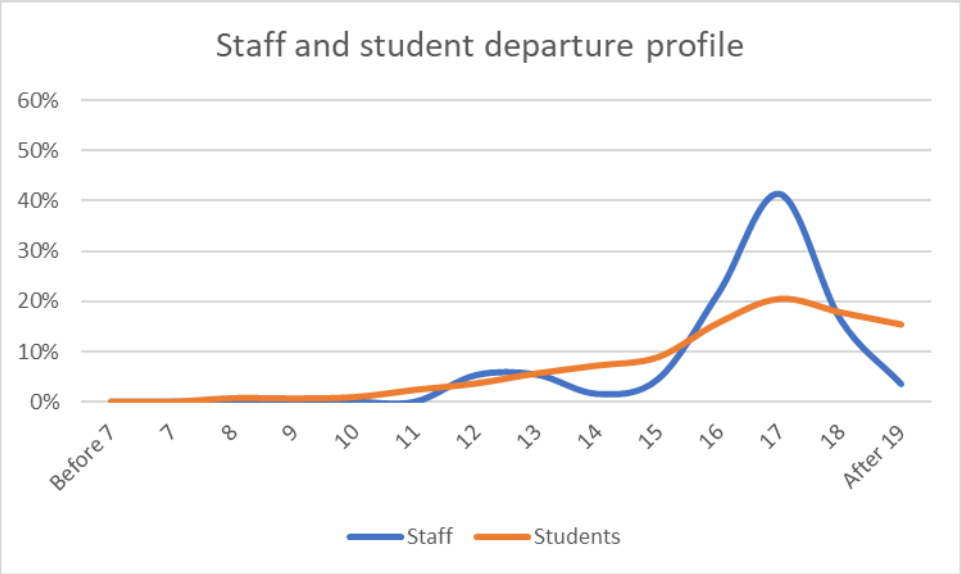


Figure 43 Staff and student arrival profile

The estimated overall travel demand (person trips) generated throughout the day is presented in Table 14. The profile has been developed based on the staff and student arrival and departure profiles along with anticipated populations and attendance on a typical day.

Table 14 BCC person trip arrival and departures

Time	**Arrivals**			**Departures**			**Accumulation** ***(students only)***
	Staff	Students	**Total**	Staff	Students	**Total**	***Total***
Before 7	15	14	**29**	0	0	**0**	*14*
7-8	121	110	**231**	0	0	**0**	*125*
8-9 (AM Peak)	286	828	**1114**	0	18	**18**	*935*
9-10	129	576	**705**	1	16	**17**	*1494*
10-11	17	393	**410**	0	23	**23**	*1864*
11-12	2	197	**199**	0	60	**60**	*2001*
12-13	34	116	**150**	34	92	**127**	*2025*
13-14	34	89	**123**	35	143	**178**	*1970*
14-15	1	52	**53**	10	183	**193**	*1839*
15-16	1	49	**49**	29	225	**254**	*1663*
16-17	1	31	**32**	141	400	**540**	*1294*
17-18 (PM Peak)	1	48	**48**	267	519	**786**	*823*
18-19	0	12	**12**	106	451	**557**	*384*
After 19	0	5	**6**	23	390	**413**	*0*

Based on the above analysis, it is anticipated that there will be approximately 1,114 people arriving during the AM peak (8am-9am) and 786 departing during the PM peak (5pm-6pm). At any one time, there is approximately 2,000 students on campus (i.e. from 12:00-13:00).

5.4 Peak hour trips

Based on the mode share targets listed in Table 6, the number of peak hour trips generated are anticipated as follows:

Table 15 Peak hour trips

Mode	Arrivals			Departures		
	Staff	Students	Total	Staff	Students	Total
Walk	29	124	**153**	27	78	**105**
Cycle	14	41	**56**	13	26	**39**
Car Driver	43	41	**84**	40	26	**66**
Car Passenger (incl.drop-off)	9	41	**50**	8	26	**34**
Bus	86	273	**359**	80	171	**251**
Train/Metro	91	265	**357**	85	166	**251**
Other	14	41	**56**	13	26	**39**
Total	**286**	**828**	**1114**	**267**	**519**	**786**

5.5 Vehicle trip generation

5.5.1 BCC car park

As noted in the description of the development, approximately 87 car parking spaces are proposed to be provided on site. These spaces will be available for use by University / Education space staff only.

The car driver trips associated with those two user groups calculated in Table 15 have been used to estimate the amount of development traffic generated by the proposed new car park. Allowance has been made for a small number of departure trips in the AM peak and arrival trips in the PM peak (see Table 16).

Table 16 BCC car park vehicular trip generation

	AM Peak		PM Peak	
	In	**Out**	**In**	**Out**
Vehicle trips	43	5	5	40
Total	**48**		**45**	

It is estimated that the development car park will generate a total of 48 vehicular trips in the AM peak hour and 45 vehicular trips in the PM peak hour.

The development proposes 87 car parking spaces across two basement levels. This parking is to be allocated to staff, contractors and WSU visitors only – with no car parking planned to be provided for students. A strategic assessment of the car parking provision is included below.

5.6 Public transport assessment

As noted in Section 5.2, it is anticipated that most University / Education space staff and students will travel by public transport to the BCC. A summary of the peak period demand for bus and train/metro services is provided in Table 17.

Table 17 Anticipated public transport usage

Mode	AM Peak	PM Peak
Bus	368	259
Train/Metro	367	260

5.6.1 Bus capacity

A summary of the number of buses serving Bankstown during peak periods is presented in Table 18. For assessment purposes, the capacity of inbound services (in the AM peak) and outbound services (in the PM peak) only have been considered.

Table 18 Estimated bus capacity

Terminus	Buses per hour per direction	Capacity per direction[5]	Capacity of AM inbound and PM outbound services only
Bankstown Station	21	1,449	1,449
Bankstown Central	15	1,035	1,035
Through Routes	22	1,518	3,036
Total	**58**	-	**5,520**

The anticipated demand for bus services is approximately 7% of capacity during the AM peak and 5% during the PM peak.

Analysis of TfNSW bus occupancy data for a typical day[6] has been undertaken. The data categorises the occupancy of buses into the following three categories along any route:

- Many seats available;
- Few seats available; and
- Standing room only.

[5] Assumed capacity of 69 people per bus
[6] Based on analysis of August 2016 data

Along routes towards Bankstown during the AM peak period, no capacity issues were noted with most services having ‘many seats available’.

For services departing Bankstown during the PM peak, only the M91 (towards Parramatta) was categorised as having ‘standing room only’, with all other services having ‘many seats’ or ‘few seats’ available.

Based on the above analysis, there is sufficient capacity on the bus network to accommodate demand from the BCC.

5.6.2 Train/Metro

Metro services will operate every 4 minutes during peak periods. With each metro train having a capacity for 1,100 passengers, there will be a significant amount of capacity available.

In addition to Metro services, train services will continue to operate regularly during peak times to and from Lidcombe and Liverpool.

5.7 Cycling assessment

As noted in Section 5.2, it is targeted that 5% of staff and students will travel by bike to the BCC. This would result in 57 bicycle trips during the AM peak period.

The Bankstown Complete Streets project identifies a future bike network that will result in the provision of a bike paths along the main arteries leading into Bankstown, along with new separated bikes paths within the CBD. This new, convenient and safe cycling infrastructure along with the proposed end of trip facilities at the BCC will be the most significant factors in achieving the target cycling mode share.

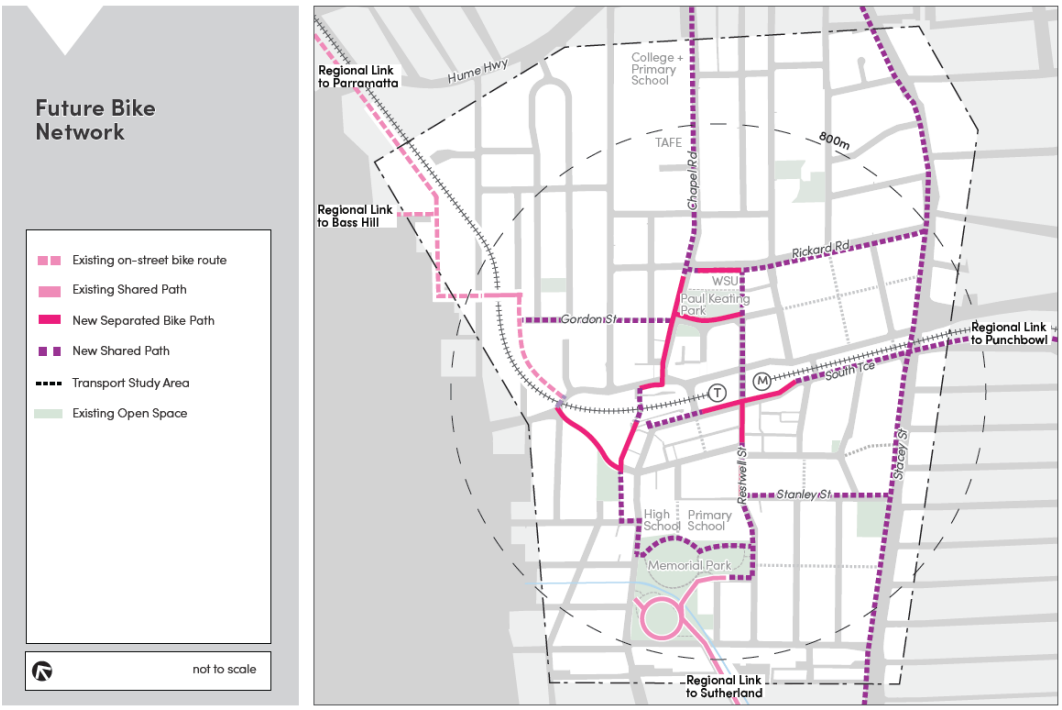


Figure 44 Bankstown Complete Streets project – Future Bike Network

The provision of approximately 62 bicycle parking spaces in the Level 1 basement along with approximately 98 spaces in the surrounding public domain will meet the demand for cycle parking for the staff and students over the course of the day.

The NSW Planning for Walking and Cycling Guidelines (NSW Government, 2004) outline suggested bicycle parking provision rates for tertiary education establishments. Applying these rates to the assumed on-site staff and student populations on a typical day generates a range of the required long-term and short-term bicycle parking facilities. This is detailed in Table 19 below.

Table 19 Bicycle parking provision

	Long-term use		**Short-term use**	
	Staff		**Staff**	**Students***
Rate	3-5%		5-10%	5-10%
On-site population assumption	650		65**	2,000
Bicycle parking requirement	20-33		3-7	100-200
Total	20-33		103-207	

Source: The NSW Planning for Walking and Cycling Guidelines (NSW Government, 2004, *Table 1 – Suggested bicycle parking provision rates for different land-use types*)
*Students are more likely to be short-stay and use bicycle racks for quick and easy parking
**10% of full-time staff will be additional staff visitors

The NSW Planning for Walking and Cycling Guidelines were written in 2004 when tertiary education establishments operated more traditionally, where students would attend between 9am and 5pm. The nature of WSU BCC is that classes would be scheduled so that students stay on campus for shorter durations. For this reason, it has been assumed that students will be more likely to be classified as short-stay and use bicycle racks for quick and easy parking. As such,

the rate for bicycle parking provision for students has been applied as a short-term use rate, rather than a long-term use rate.

As shown in Table 19, the required number of bicycle parking spaces is 123-240. WSU BCC proposes 56 secure spaces and 6 visitor spaces in the basement, plus approximately 98 other spaces within the public domain of the site (i.e. 156 bicycle parking spaces in total). This is therefore a sufficient provision.

No provision of end-of-trip facilities for students has been allowed. As mentioned above, the BCC proposal provides a total of approximately 98 bicycle parking spaces within the public domain. This provides students and visitors, as well as public visitors to the general precinct, with the ability to securely park bicycles with users' own locks. Students will have access to personal lockers as part of the building fit-out for required storage, but they will not have access to showers. The potential for secured end of trip facilities to be provided for students elsewhere in the development (i.e. other than in the secure basement), including enclosed storage room and shower/change facilities, was discarded due to the following issues:

- Prioritisation of Ground Level space to create active engagement facilities, including retail tenancies, exhibition and multi-function spaces; and
- Necessity for an additional separate ramped entry for bicycle access, ramping up from external ground level to necessary freeboard above the 100year flood level.

5.8 Pedestrian assessment

In order to assess the anticipated impact of WSU BCC on the surrounding pedestrian network, a static Fruin pedestrian assessment was undertaken. Site observations and spot counts were conducted for the surrounding network to identify pedestrian movements near the development. The observations and counts were undertaken on February 26, 2020 during the morning peak hour (8am – 9am) and lunch time peak hour (12pm – 1pm). The intersections chosen for survey are critical to the pedestrian connections between WSU BCC and key public transport/other land uses near the site such as Bankstown Central shopping centre. The intersections surveyed included:

- The Appian Way and The Mall;
- The Mall and Jacobs Street;
- Civic Tower Carpark Entrance and Jacobs Street; and
- Rickard Road and Jacobs Street.

The primary connections to public transport and other surrounding land uses from the proposed development, as well as the surveyed intersections, are shown in Figure 45.

Note: the Bankstown Library and Knowledge Centre laneway is not intended to be used as a pedestrian thoroughfare.

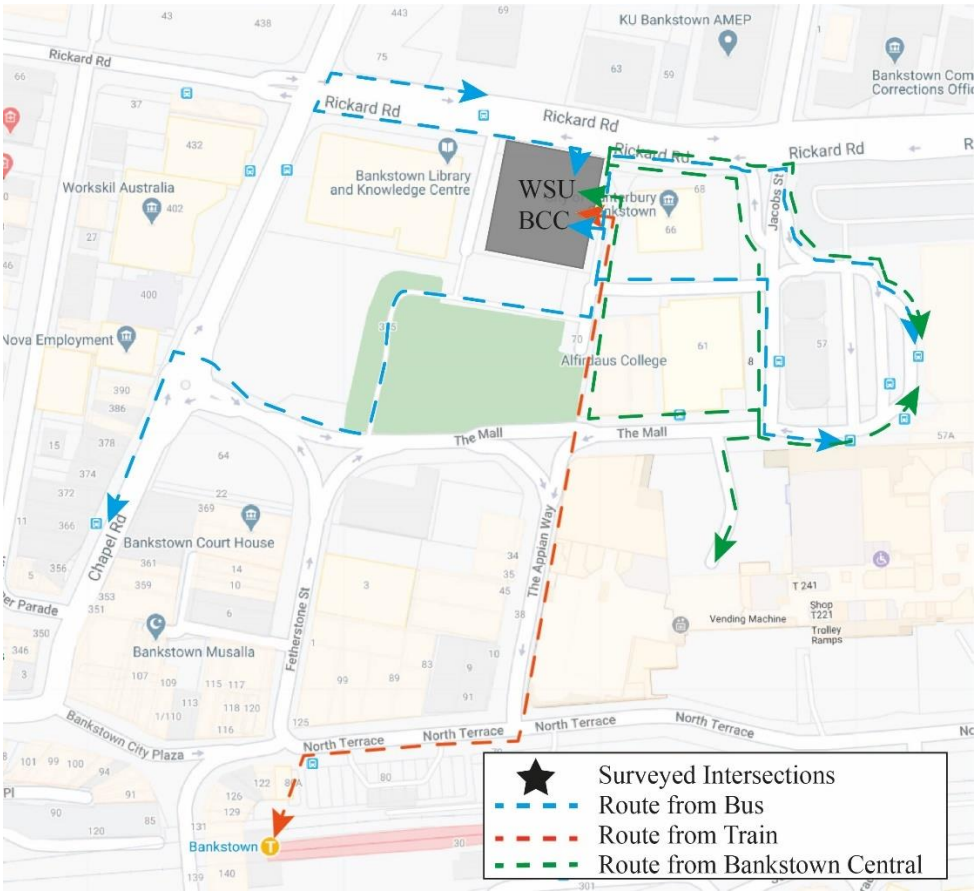


Figure 45 Key pedestrian routes and surveyed intersections

5.8.1 Fruin Level of Service

The Fruin Level of Service (LoS) was used to assess the level of storage at an intersection and the impact on the footpaths. The Fruin metric is a widely-recognised standard in pedestrian planning where a LoS A is the highest level of service, enabling easy access and LoS F is a highly constrained pedestrian environment. A design should not exceed a LoS D which is generally considered the upper limit given the impact to pedestrian flow and comfort. Figure 46 illustrates the Fruin standards for walkways and Table 20 indicates the corresponding Level of Service criteria.

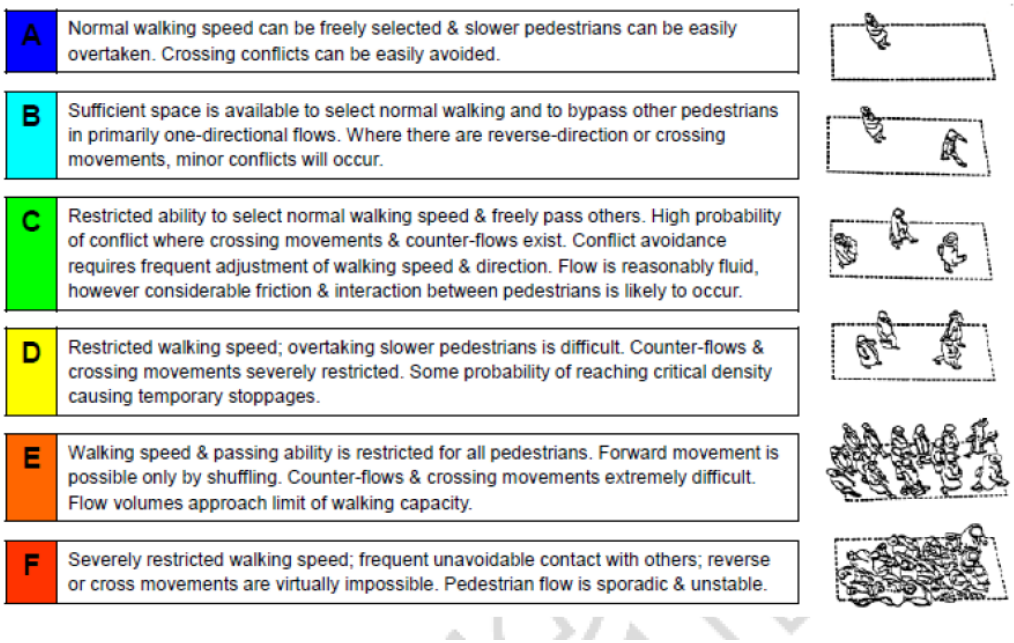


Figure 46 Fruin Level of Service (LoS) standard for walkways

Source: Pedestrian Planning and Design, John J. Fruin (1987)

The LoS of footpaths are determined by dividing the peak minute bidirectional flow by the width of the footpath.

Table 20 Fruin Level of Service

Level of Service	Area (m2) per pedestrian	Pedestrians per minute per width (m)
A	1.21+	23 –
B	0.93 – 1.21	23 – 33
C	0.65 – 0.93	33 – 49
D	0.28 – 0.65	49 – 66
E	0.19 – 0.28	66 – 82
F	0.19 –	82+

5.8.2 Existing Pedestrian Activity

The LoS at the surveyed intersections during the morning peak and lunch time peak are illustrated in Figure 47 and Figure 48, respectively.

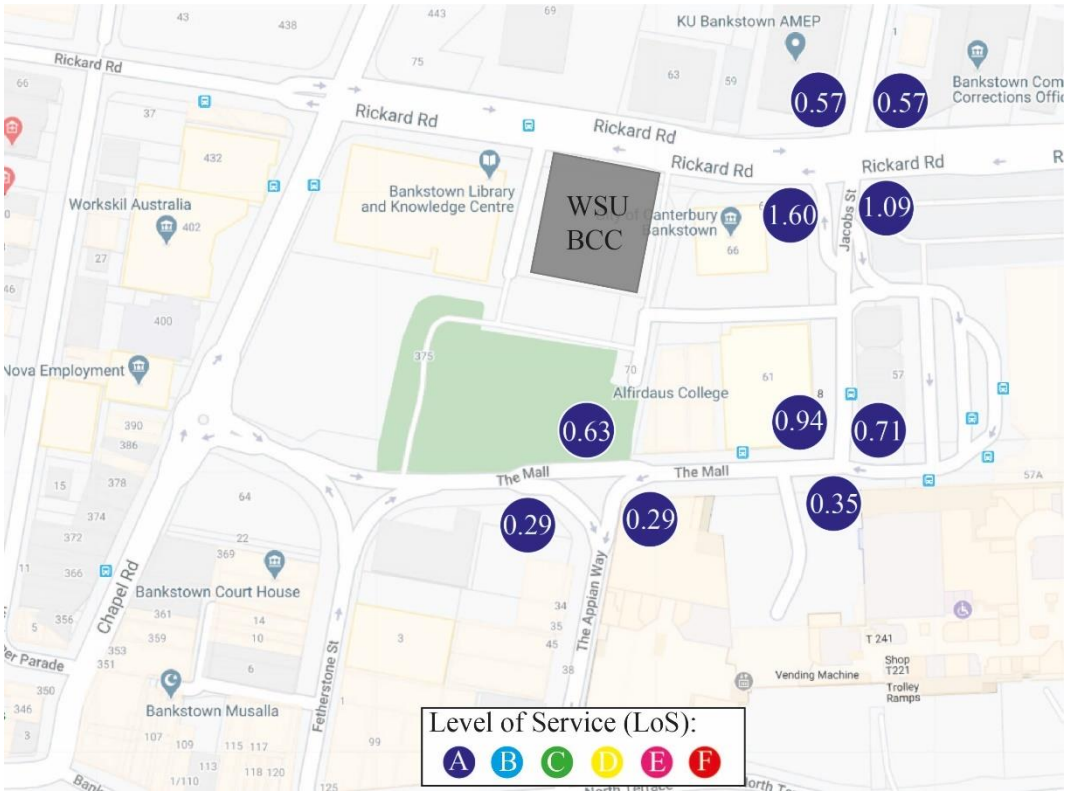


Figure 47 Morning peak intersection assessment – existing pedestrian activity (pedestrians per minute per metre width)

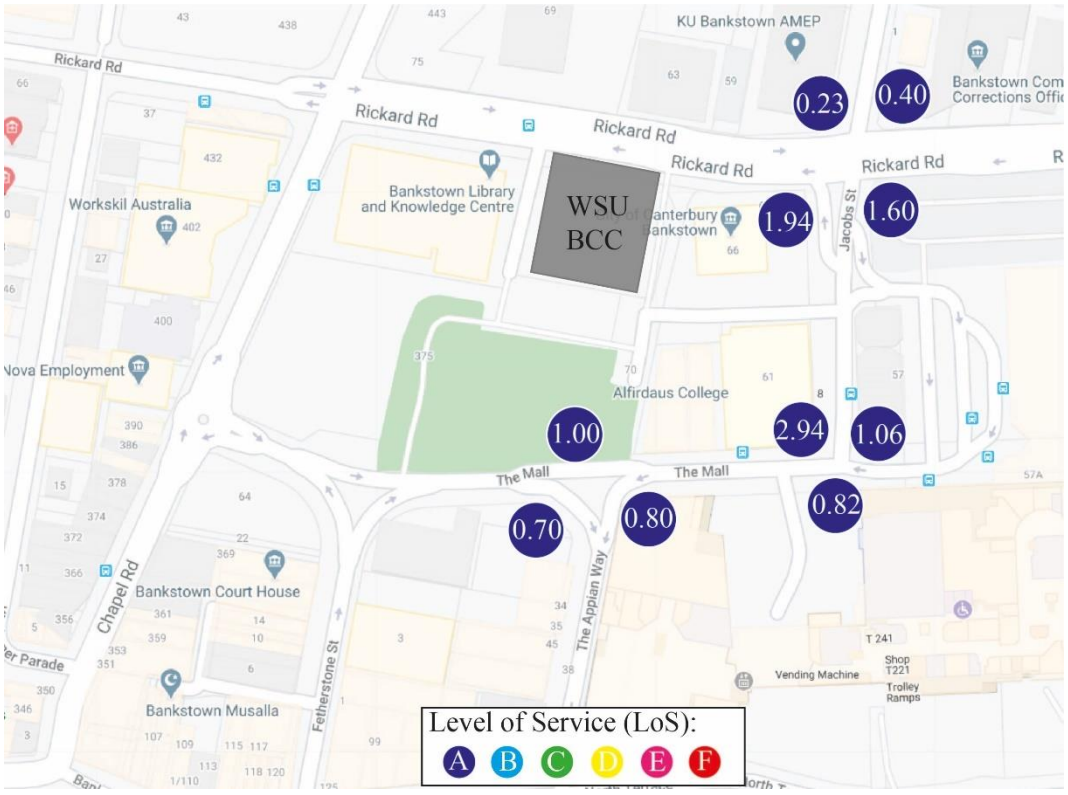


Figure 48 Lunch time peak intersection assessment – existing pedestrian activity (pedestrians per minute per metre width)

The results indicate that the surrounding pedestrian network is currently providing a sufficient LoS (A) at all locations. The network is busiest in the AM peak as pedestrians travel towards the train station. There is a notable volume of pedestrians during the lunch time peak in the direction of Bankstown Central shopping centre and the surrounds.

5.8.3 Future Pedestrian Activity

The number of trips expected once WSU BCC is in operation is as shown in Table 21 .

Table 21 Future pedestrian trip generation

Mode of Transport	Peak number of pedestrian trips per hour	Number of pedestrian trips per min*
Bus	368	8
Train/Metro	367	8
By Foot: local	156	4

*assuming 30% arrive in a peak 15 minutes, and then attenuation of flows evenly across those 15 minutes due to spread as a result of escalators, delays at intersections, general differences in walking speeds, etc.

To determine the future LoS of the pedestrian network surrounding the BCC site, pedestrian trips generated by the above modes were added to the routes described in Figure 49. To account for a worst-case scenario, the number of trips were added to all possible routes that patrons can take from the various public transport services. Additionally, it was assumed that traffic by foot would originate north of Rickard Road as that is primarily a residential area.

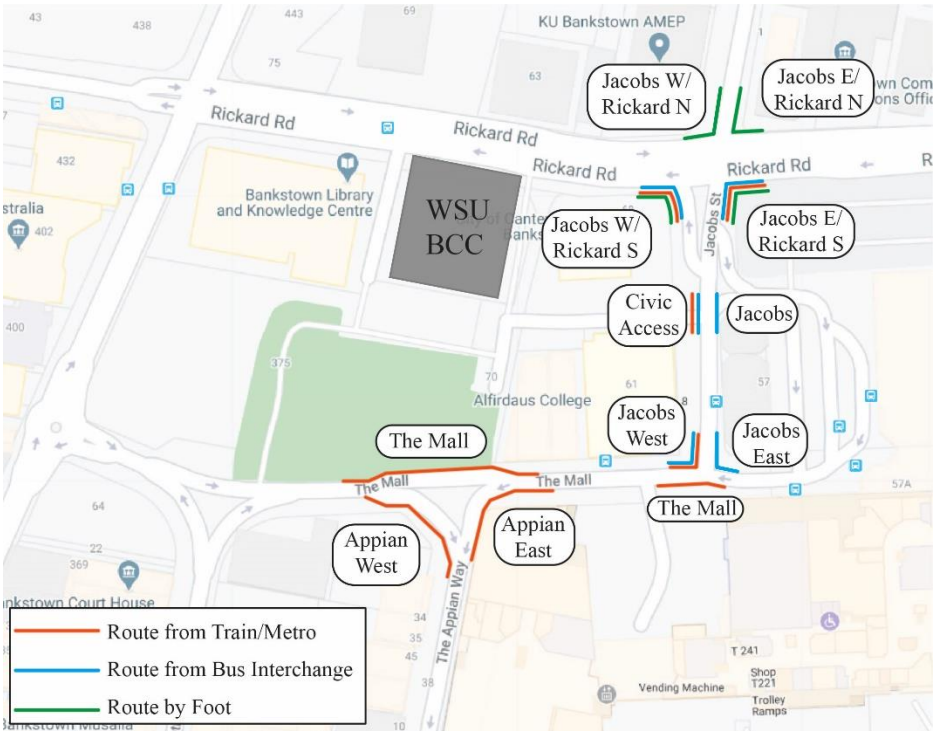


Figure 49 Routes affected by WSU BCC peak pedestrian activity

The LoS results for the future AM peak and lunch time peak are shown in Figure 50 and Figure 51, respectively.

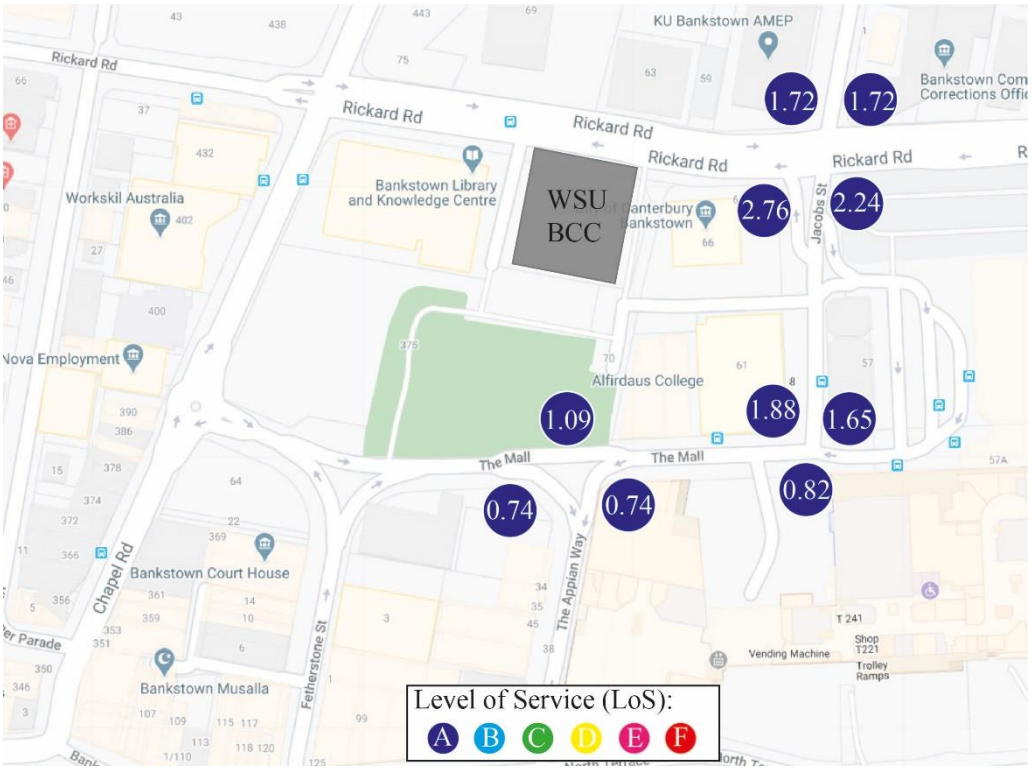


Figure 50 Morning peak intersection assessment – future pedestrian activity (pedestrians per minute per footpath width)

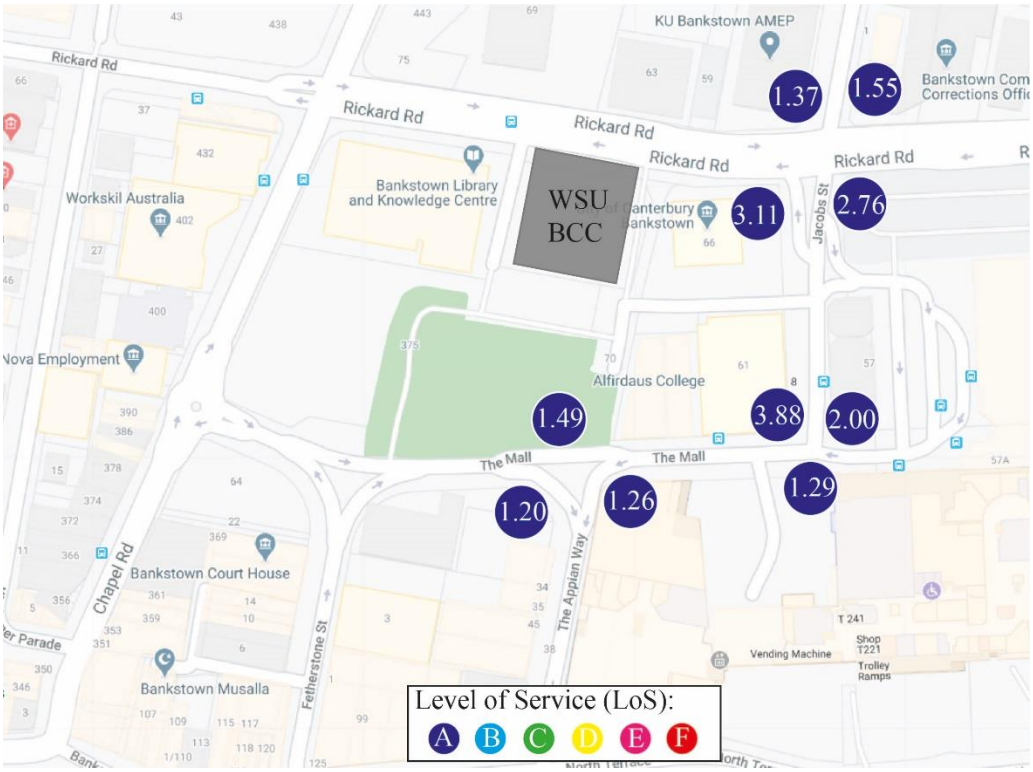


Figure 51 Lunch time peak intersection assessment – future pedestrian activity (pedestrians per minute per footpath width)

The results indicate that there is sufficient capacity on the surrounding pedestrian network to accommodate the expected volumes of pedestrian traffic generated by

WSU BCC. Given the results, the current footpaths and waiting areas are deemed sufficient. The analysis indicates that the existing pedestrian connections to public transport and shops are sufficient to achieve the mode share targets outlined in Section 5.2.

It should be noted that the Bankstown Complete Streets project identifies pedestrian network improvements that will ensure there is sufficient space for pedestrians along the key routes between the BCC and the Metro/train station and the bus interchanges. Specifically, it identifies a north-south activity spine which creates a pedestrian friendly environment between the new Metro station and the BCC. By converting The Appian Way to a low speed, shared zone and by improving the pedestrian crossings at the North Terrace and The Mall, the pedestrian route between the Metro/train station and southern bus interchange will be of a high quality and be able to accommodate the anticipated demand.

Pedestrian trips between the BCC and the northern bus interchange will also benefit from the above improvements along with the proposed changes to Jacob Street.

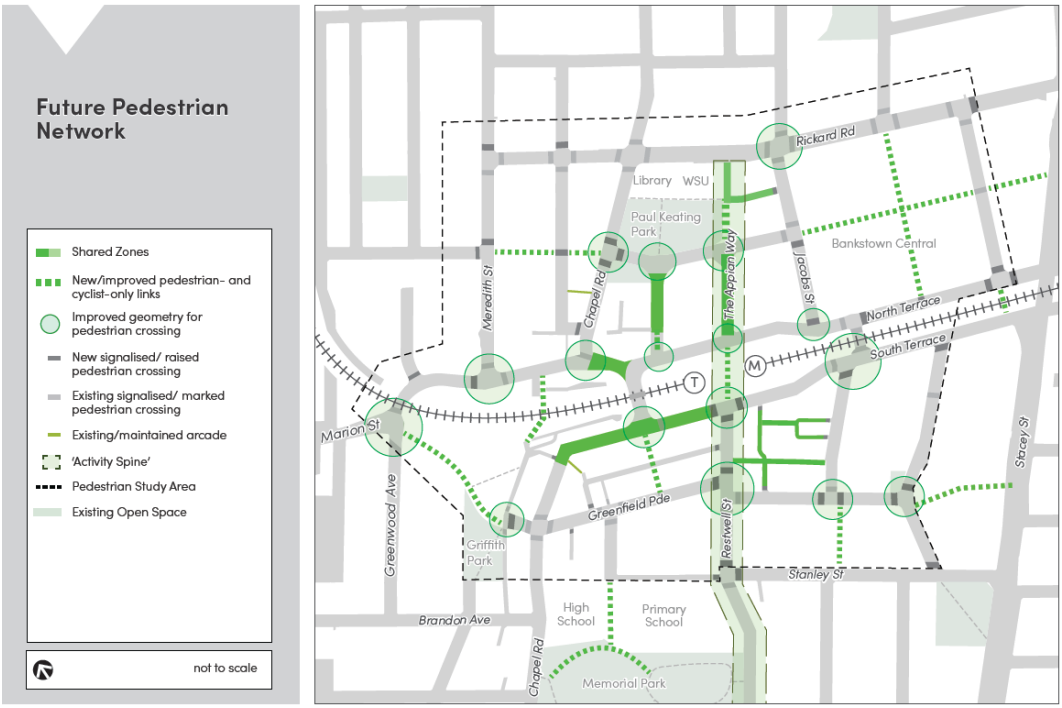


Figure 52 Bankstown Complete Streets project – Future Pedestrian Network

5.9 Parking assessment

5.9.1 BCC Car Park

A profile of vehicles entering and exiting the proposed BCC car park is provided in Table 22. It shows there is demand for 86 parking spaces during the day which aligns with the proposed capacity of the car park.

Table 22 BCC car park profile

Time	Arrival	Departure	Accumulation
Before 7	2	0	2
7-8	18	0	20
8-9 (AM Peak)	43	0	63
9-10	19	0	83
10-11	3	0	85
11-12	0	0	86
12-13	5	5	85
13-14	5	5	85
14-15	0	2	84
15-16	0	4	80
16-17	0	21	59
17-18 (PM Peak)	0	40	19
18-19	0	16	3
After 19	0	3	0

5.9.2 Other parking

No parking is proposed to be provided on-site for students. Any students wishing to drive will need to utilise existing on-street or off-street public or private parking spaces within Bankstown. The Bankstown Complete Streets project estimates that there are 7,500 – 8,000 such spaces in the CBD.

Based on a 5% student car driver mode share and a maximum student population of 2,000 at any one time, demand for parking is not expected to exceed 100 spaces, representing less than 1.5% of the parking provision in the Bankstown CBD.

Limiting access to car parking as a way of encouraging people to travel by other modes is a key feature of the Bankstown Complete Streets project. Key parking management features of the Bankstown Complete Streets project include:

- Minimizing private development parking in the CBD (especially those within 400m of the train station); and
- The introduction of parking controls which encourage a higher turnover of public parking spaces (e.g. 4hr time limits)

In this context, it is appropriate (and consistent with the Bankstown Complete Streets project) to not provide on-site parking for students as way to encourage students to use more sustainable modes of travel.

Any initial demand can be accommodated for in the public and private parking spaces in the CBD.

6 Sustainable transport initiatives

6.1 Workplace and green travel plan

The University is committed to encouraging more equitable and sustainable modes of transport. Limiting the amount of on-site parking is an important strategy in terms of encouraging University / Education space staff and students to use sustainable modes of travel. This is consistent with the Bankstown Complete Streets project which seeks to reduce the car dependency of the CBD.

The Sydney Metro will provide a step-change in service provision, with faster and more reliable journey times, with trains every 4-minutes in both directions. It is expected that majority of trips will be taken by public transport, with the Metro having a significant role in serving the anticipated travel demand. It is also expected to influence where people, especially students, choose to live. Locations within walking distance of high quality mass transit are far more desirable than car dependent locations.

A comprehensive Green Travel Plan will be prepared for the BCC. Key measures that will be put in place to support sustainable transport initiatives include:

- The appointment of a travel plan co-ordinator to promote the uptake of public transport, walking and cycling by staff and students travelling to and from BCC;
- Limited provision of on-site parking;
- The provision of high-quality and secure bike parking and end of trip facilities; and
- Undertaking travel surveys

As previously set out, the limited provision of on-site parking is recommended for the BCC owing to:

- The excellent accessibility of the site by public transport, with the Metro operational from 2024;
- The vision for the CBD as set out in the draft Bankstown Complete Streets project;
- The anticipated growth in dwellings in the CBD;
- The recent WSU experience of relocating to CBD campuses at Parramatta and Liverpool which resulted in users mainly travelling by public transport; and
- The reduced demand for parking that students generate when compared to staff in a typical commercial development.

It is noted that while some staff and students may decide to drive and use existing public parking spaces in the surrounding Bankstown area, the majority will travel by sustainable travel modes.

It should be noted that WSU is part of the Councils Transport Advisory Committee and would welcome the opportunity to provide further input into a

CBD Car Parking Strategy (potentially monitoring student travel habits once the campus is open) and the finalisation of the draft Bankstown Complete Streets plan, focusing on pedestrian connectivity from the new campus to public transport stops and more broadly throughout the Bankstown CBD.

Additionally, WSU would welcome the opportunity to provide ongoing contributions into DCP updates, the Public Domain Technical Manual and Street Design Manual, and the Transport Working Group and Active Transport Program.

7 Summary

This Transport Management and Accessibility Plan has prepared in support of the State Significant Development Application for the Bankstown City Campus Development. It provides a description of the transport features of the proposed development and assesses the associated impacts.

Key findings from the report are:

- The area is well serviced by public transport with significant capacity available on existing and planned public transport services;
- Bankstown is a bus hub and is served by up to 58 services per direction during peak times. The train station is within 400m of the site, with the Sydney Metro becoming operational from 2024;
- The Sydney Metro will be a step-change in terms of public transport provision, with faster and more reliable services every 4 minutes per direction during peak times. This will increase the accessibility of the BCC by public transport and significantly reduce its car dependency. It will also allow sustainable and equitable travel habits to form from day one as envisioned in the Bankstown Complete Streets project;
- The Bankstown Complete Streets project has been developed in response to growing traffic congestion issues and looks to promote active transport and public transport as a way to move large volumes of people (by mass transit) safely to and within the CBD. The BCC will be aligned with this strategy through the provision of a limited amount of on-site car parking and encouraging other sustainable forms of travel;
- The Appian Way is to be redesigned as a shared zone with provision for short-term drop-off and pick-up. This is consistent with the draft Bankstown Complete Streets project which identified The Appian Way as a shared zone. Approximately 16 existing parking spaces on The Appian Way will be lost, however the impact will be negligible considering other spaces are available in the CBD in addition to the upcoming improvements to the public transport, pedestrian and bicycle network;
- Public domain improvements on Rickard Road are also proposed, including a widened footpath that enables the provision of a shared path on the southern side of the road in the future;
- The BCC will have 87 car parking spaces (including 4 DDA bays) and a loading dock (2 bays) located in a basement car park. Access to the basement car park will be off the existing access road along the western boundary, also used by the Bankstown Library and Knowledge Centre;
- End of trip facilities and bike parking will be provided within the basement. 56 secure and 6 visitor bike parking spaces will be provided within the basement, with approximately 98 bike spaces placed within the public domain of the site;
- The assessment found that the development car park is likely to generate 548 vehicle trips in the AM peak hour and 45 vehicle trips in the PM peak hour.

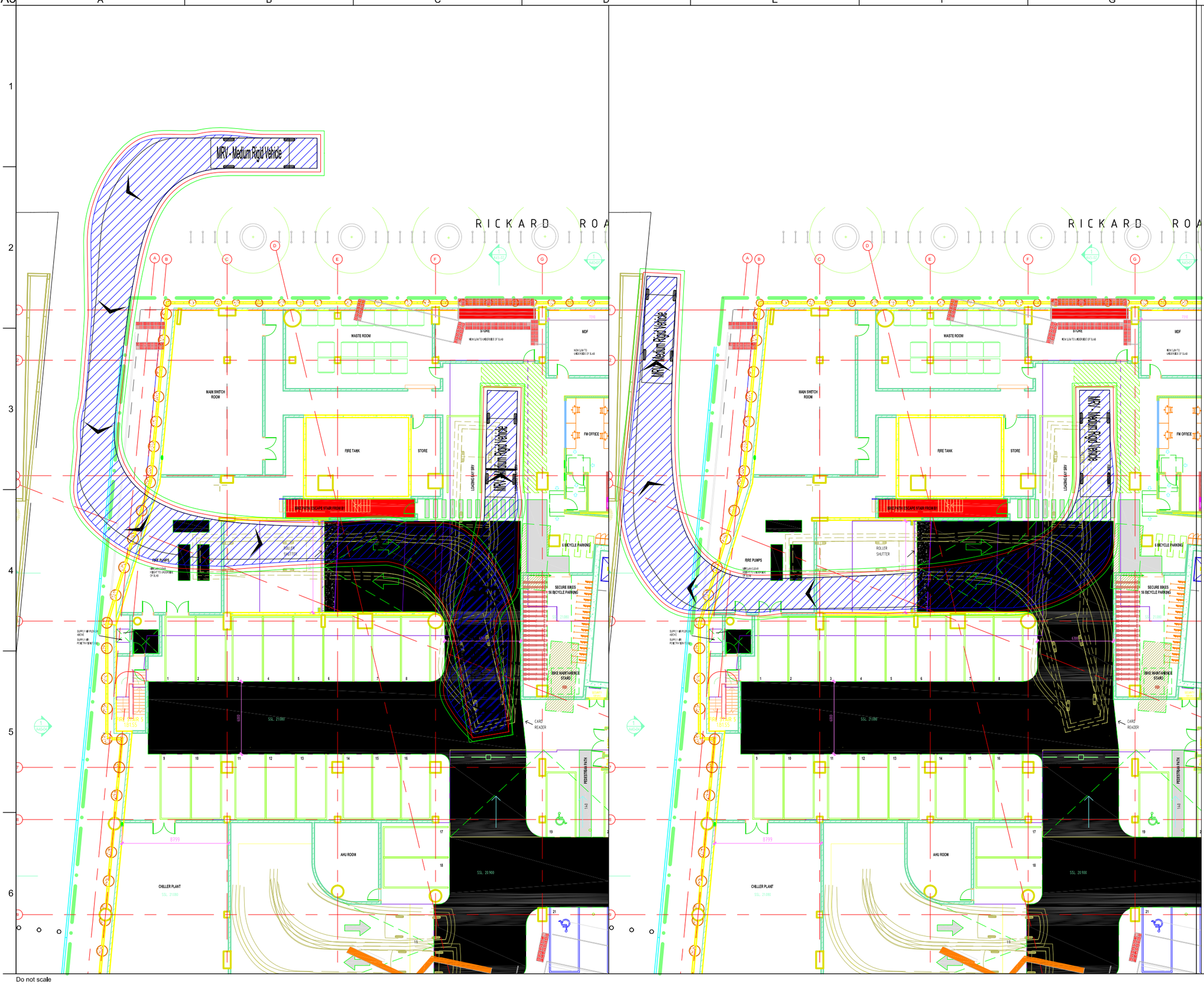
The Appian Way drop-off was assumed to generate 50 movements in the AM peak period and 34 in the PM peak period;

- The impact of this to the surrounding intersections at peak times was found to be manageable, with the SIDRA traffic modelling finding they will continue to operate at a satisfactory level of service;
- WSU will prepare a Sustainable Travel Plan for the campus and would welcome the opportunity to provide contributions to the various transport and planning strategies being prepared for the Bankstown CBD; and
- A preliminary Construction Pedestrian and Traffic Management Plan has been prepared for the development.

Appendix A

Swept path analysis

A3



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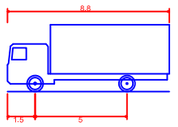
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



MRV - Medium Rigid Vehicle	
Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10.000m

Issue	Date	By	Chkd	Appd
A	14/08/20	SZ	JT	JT
For Information				

ARUP

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Sydney, NSW, 2000
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www.arup.com.au

Client
Walker Bankstown Corporation

Job Title
WSU BCC

Drawing Title
Loading Basement

Scale at A3 1:300

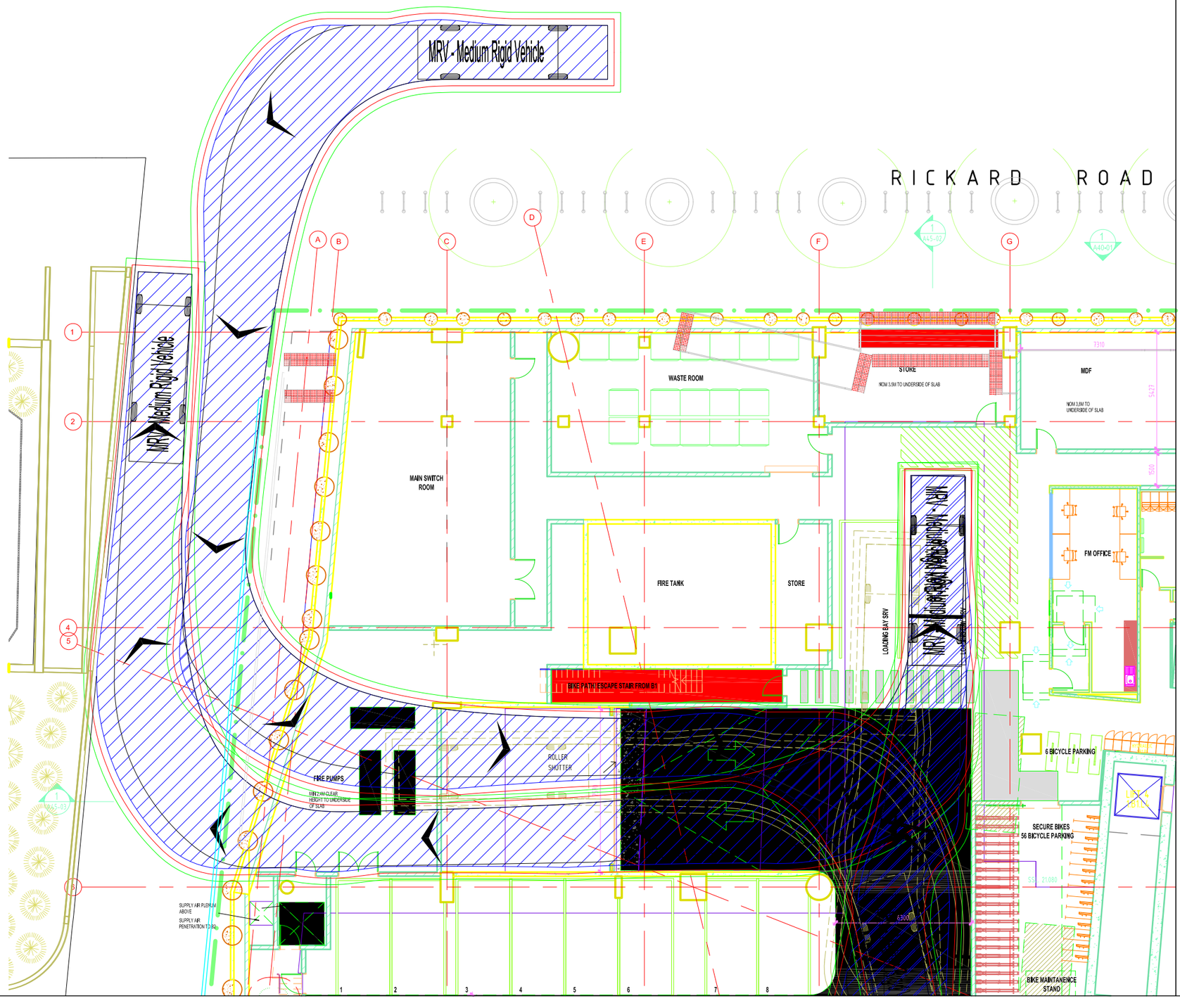
Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
263785-00	**SKT001**	**A**

Do not scale

A3



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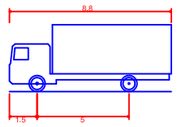
- Wheel Envelope

Design Vehicle(s)



MRV - Medium Rigid Vehicle	
Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10.000m

Issue	Date	By	Chkd	Appd
A	14/08/20	SZ	JT	JT

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Client
Walker Bankstown Corporation

Job Title
WSU BCC

Drawing Title
Western Access
Simultaneous Entry/Exit

Scale at A3
1:200

Discipline
Transport

Drawing Status
Draft

Job No	Drawing No	Issue
263785-00	**SKT002**	**A**

Do not scale

A3

Legend

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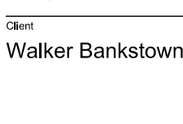
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



MRV - Medium Rigid Vehicle	
Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10.000m

Issue	Date	By	Chkd	Appd
A	14/08/20	SZ	JT	JT

For Information

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Client
Walker Bankstown Corporation

Job Title
WSU BCC

Drawing Title
The Appian Way

Scale at A3 1:200

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
263785-00	**SKT003**	**A**

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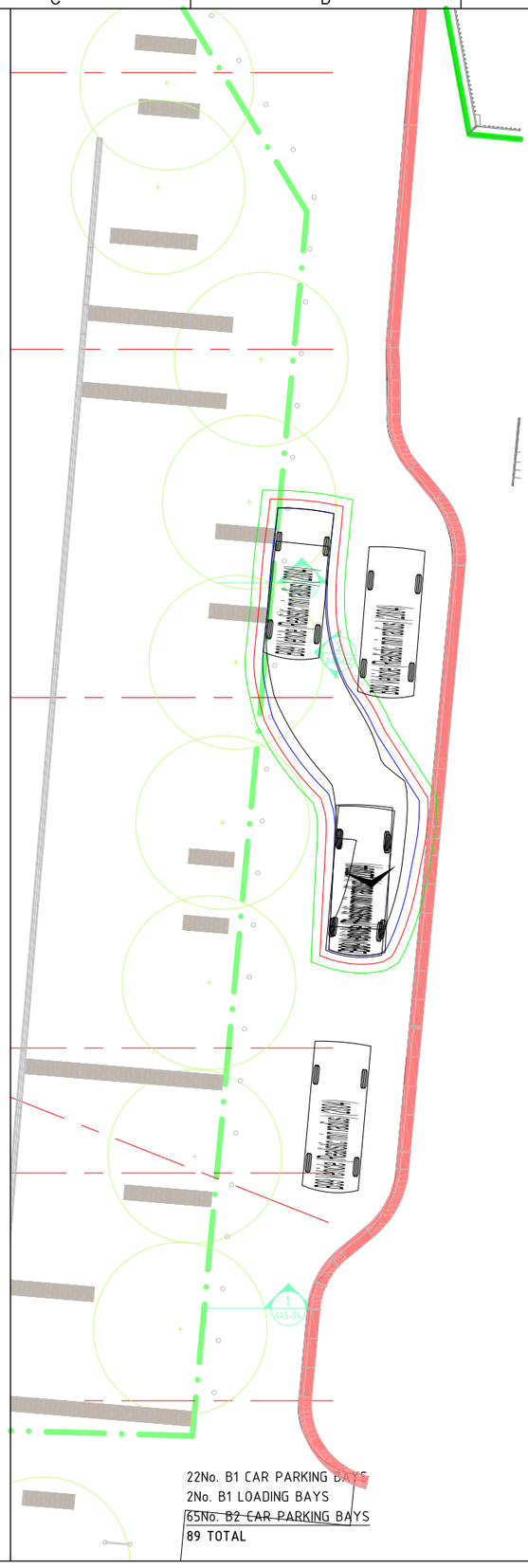

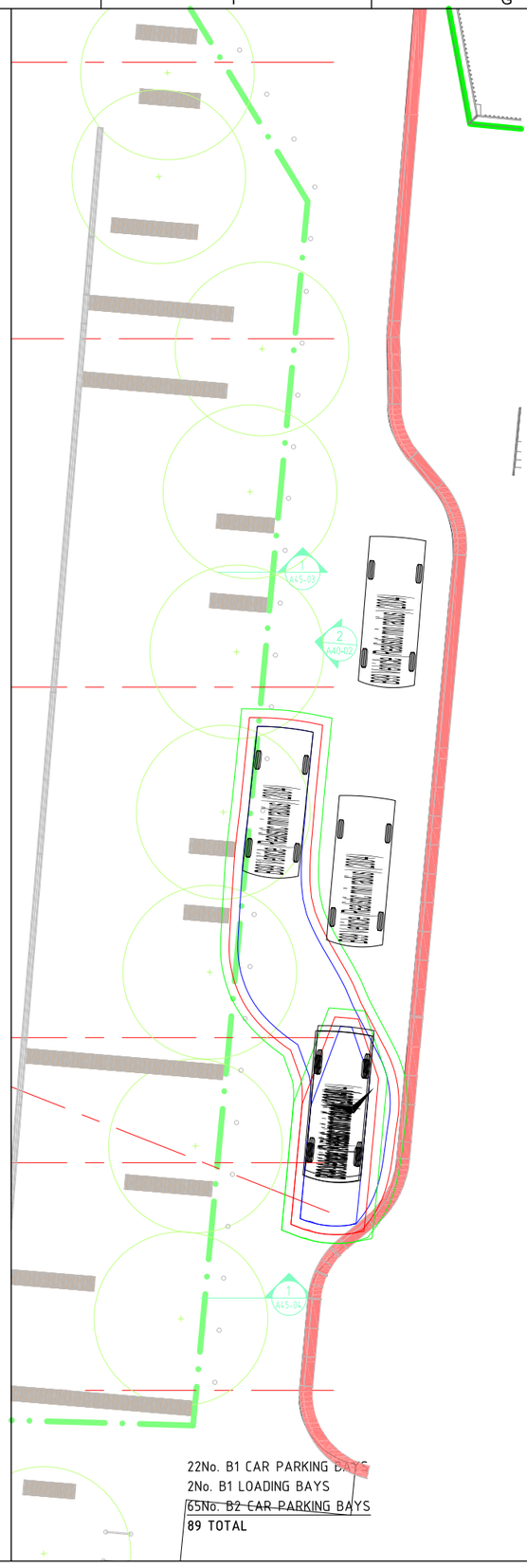

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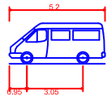

B99 Vehicle (Realistic min radius) (2004)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.250m

Issue	Date	By	Chkd	Appd
A	14/08/20	SZ	JT	JT

For Information

ARUP

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www.arup.com.au

Client
Walker Bankstown Corporation

Job Title
WSU BCC

Drawing Title
The Appian Way
Drop off entry

Scale at A3 1:200

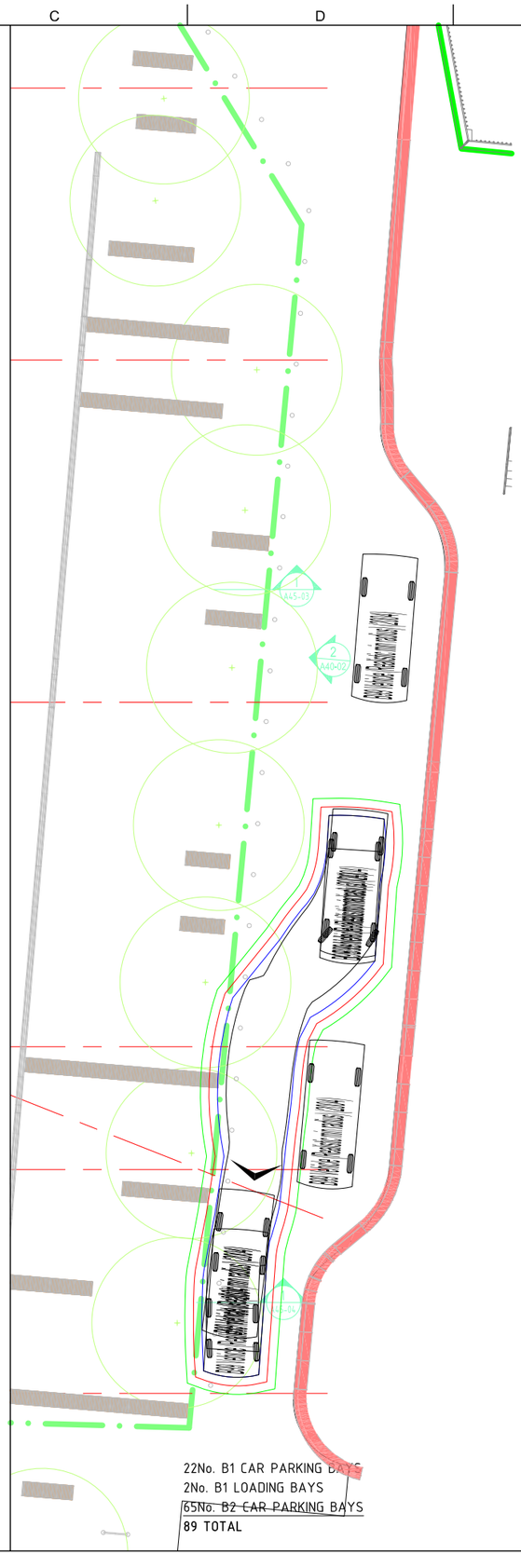
Discipline Transport

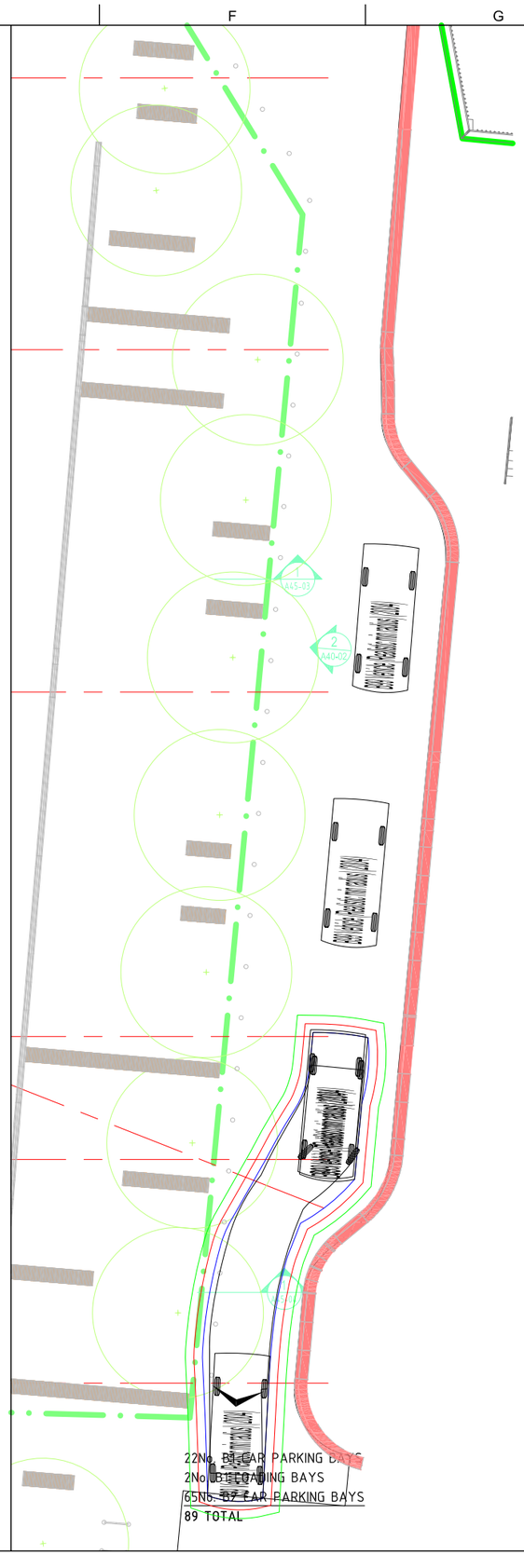
Drawing Status
Draft

Job No	Drawing No	Issue
263785-00	**SKT004**	**A**

Do not scale

A3





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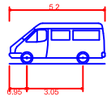
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



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Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.250m

Issue	Date	By	Chkd	Appd
A	14/08/20	SZ	JT	JT

For Information

ARUP

Arup, Level 5, 151 Clarence Street
Sydney, NSW, 2000
Tel +61(02)9320 9320 Fax +61(02)9320 9321
www.arup.com.au

Client
Walker Bankstown Corporation

Job Title
WSU BCC

Drawing Title
The Appian Way
Drop off exit

Scale at A3
1:200

Discipline
Transport

Drawing Status
Draft

Job No	Drawing No	Issue
263785-00	**SKT005**	**A**

Do not scale

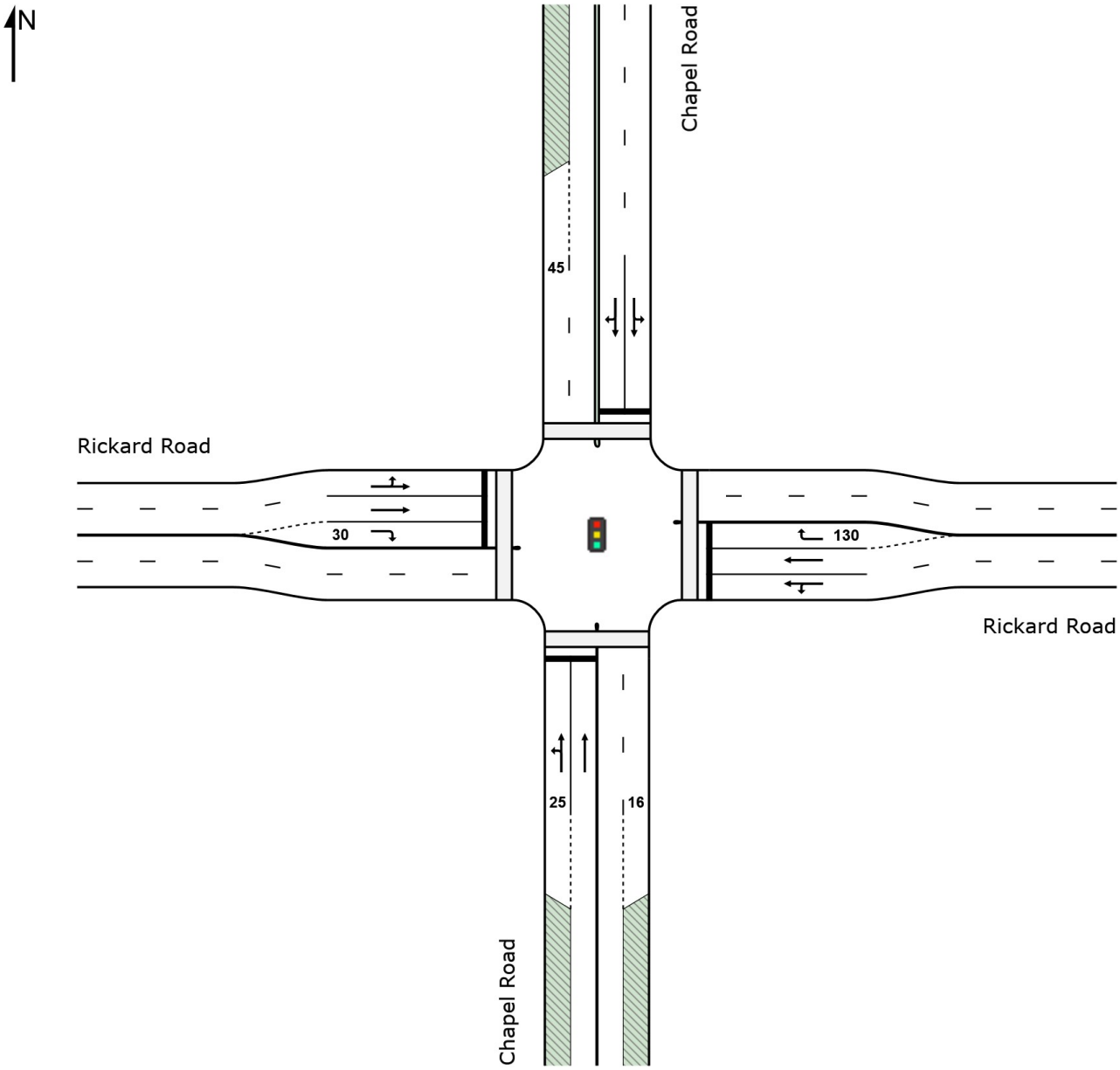
Appendix B

SIDRA Results

SITE LAYOUT

Site: [AM_Ex_Rickard Rd_Chapel Rd]

AM Existing
Site Category: (None)
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: [AM_Ex_Rickard Rd_Chapel Rd]

AM Existing
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Chapel Road												
1	L2	146	0.0	0.208	11.9	LOS A	2.5	17.2	0.52	0.64	0.52	25.2
2	T1	253	0.8	0.496	22.6	LOS B	7.2	51.1	0.87	0.73	0.87	22.5
Approach		399	0.5	0.496	18.7	LOS B	7.2	51.1	0.74	0.70	0.74	23.3
East: Rickard Road												
4	L2	94	1.1	0.383	28.4	LOS B	5.4	38.0	0.86	0.75	0.86	26.1
5	T1	306	1.3	0.383	22.3	LOS B	5.9	41.8	0.85	0.71	0.85	26.8
6	R2	165	13.9	0.372	24.3	LOS B	4.4	34.8	0.85	0.78	0.85	26.2
Approach		565	5.0	0.383	23.9	LOS B	5.9	41.8	0.85	0.74	0.85	26.5
North: Chapel Road												
7	L2	176	13.6	0.192	14.5	LOS A	3.1	24.0	0.54	0.71	0.54	32.3
8	T1	264	1.1	0.656	25.6	LOS B	9.6	67.8	0.94	0.82	0.97	22.6
9	R2	39	0.0	0.656	31.1	LOS C	9.6	67.8	0.94	0.82	0.97	16.3
Approach		479	5.6	0.656	21.9	LOS B	9.6	67.8	0.79	0.78	0.81	25.3
West: Rickard Road												
10	L2	82	0.0	0.667	30.1	LOS C	11.2	78.6	0.94	0.82	0.96	19.5
11	T1	576	0.5	0.667	24.3	LOS B	11.2	78.6	0.92	0.80	0.95	25.7
12	R2	205	0.5	0.364	19.9	LOS B	4.9	34.3	0.79	0.78	0.79	23.0
Approach		863	0.5	0.667	23.8	LOS B	11.2	78.6	0.89	0.80	0.91	24.6
All Vehicles		2306	2.6	0.667	22.5	LOS B	11.2	78.6	0.83	0.76	0.85	25.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	108	29.4	LOS C	0.2	0.2	0.92	0.92
P2	East Full Crossing	93	29.4	LOS C	0.2	0.2	0.92	0.92
P3	North Full Crossing	66	29.3	LOS C	0.1	0.1	0.92	0.92
P4	West Full Crossing	90	29.4	LOS C	0.2	0.2	0.92	0.92
All Pedestrians		357	29.4	LOS C			0.92	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [AM_2026_Rickard Rd_Chapel Rd_Withouth Dev]

Interim Without Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Chapel Road												
1	L2	148	0.0	0.211	11.9	LOS A	2.5	17.5	0.52	0.64	0.52	25.1
2	T1	256	0.8	0.505	22.6	LOS B	7.3	51.8	0.87	0.73	0.87	22.5
Approach		404	0.5	0.505	18.7	LOS B	7.3	51.8	0.74	0.70	0.74	23.3
East: Rickard Road												
4	L2	95	1.1	0.386	28.4	LOS B	5.4	38.4	0.86	0.75	0.86	26.1
5	T1	309	1.3	0.386	22.3	LOS B	6.0	42.3	0.85	0.72	0.85	26.8
6	R2	167	13.8	0.379	24.4	LOS B	4.5	35.4	0.85	0.78	0.85	26.2
Approach		571	4.9	0.386	23.9	LOS B	6.0	42.3	0.85	0.74	0.85	26.5
North: Chapel Road												
7	L2	178	13.5	0.194	14.5	LOS A	3.1	24.2	0.54	0.71	0.54	32.3
8	T1	267	1.1	0.663	25.7	LOS B	9.7	68.8	0.94	0.82	0.98	22.5
9	R2	39	0.0	0.663	31.3	LOS C	9.7	68.8	0.94	0.82	0.98	16.2
Approach		484	5.6	0.663	22.0	LOS B	9.7	68.8	0.80	0.78	0.82	25.3
West: Rickard Road												
10	L2	83	0.0	0.677	30.3	LOS C	11.4	80.4	0.94	0.83	0.97	19.4
11	T1	582	0.5	0.677	24.5	LOS B	11.4	80.4	0.92	0.81	0.96	25.6
12	R2	207	0.5	0.368	20.0	LOS B	4.9	34.8	0.79	0.78	0.79	23.0
Approach		872	0.5	0.677	24.0	LOS B	11.4	80.4	0.89	0.80	0.92	24.5
All Vehicles		2331	2.6	0.677	22.6	LOS B	11.4	80.4	0.84	0.76	0.85	25.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	109	29.4	LOS C	0.2	0.2	0.92	0.92
P2	East Full Crossing	94	29.4	LOS C	0.2	0.2	0.92	0.92
P3	North Full Crossing	67	29.3	LOS C	0.1	0.1	0.92	0.92
P4	West Full Crossing	91	29.4	LOS C	0.2	0.2	0.92	0.92
All Pedestrians		361	29.4	LOS C			0.92	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [AM_2026_Rickard Rd_Chapel Rd_With Dev]

Interim With Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Chapel Road												
1	L2	148	0.0	0.211	11.9	LOS A	2.5	17.5	0.52	0.64	0.52	25.1
2	T1	256	0.8	0.505	22.6	LOS B	7.3	51.8	0.87	0.73	0.87	22.5
Approach		404	0.5	0.505	18.7	LOS B	7.3	51.8	0.74	0.70	0.74	23.3
East: Rickard Road												
4	L2	97	1.0	0.410	30.2	LOS C	5.4	37.9	0.89	0.76	0.89	25.0
5	T1	311	1.3	0.410	22.9	LOS B	6.4	45.2	0.86	0.72	0.86	26.5
6	R2	169	13.6	0.385	25.0	LOS B	4.6	36.1	0.86	0.78	0.86	25.8
Approach		577	4.9	0.410	24.7	LOS B	6.4	45.2	0.87	0.75	0.87	26.0
North: Chapel Road												
7	L2	178	13.5	0.194	14.5	LOS A	3.1	24.2	0.54	0.71	0.54	32.3
8	T1	267	1.1	0.663	25.7	LOS B	9.7	68.8	0.94	0.82	0.98	22.5
9	R2	39	0.0	0.663	31.3	LOS C	9.7	68.8	0.94	0.82	0.98	16.2
Approach		484	5.6	0.663	22.0	LOS B	9.7	68.8	0.80	0.78	0.82	25.3
West: Rickard Road												
10	L2	83	0.0	0.689	30.7	LOS C	11.6	81.3	0.95	0.84	0.99	19.2
11	T1	582	0.5	0.689	24.8	LOS B	11.6	81.3	0.92	0.82	0.97	25.4
12	R2	207	0.5	0.386	21.5	LOS B	5.2	36.5	0.82	0.78	0.82	22.0
Approach		872	0.5	0.689	24.6	LOS B	11.6	81.3	0.90	0.81	0.94	24.1
All Vehicles		2337	2.6	0.689	23.1	LOS B	11.6	81.3	0.84	0.77	0.86	24.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	349	29.7	LOS C	0.6	0.6	0.93	0.93
P2	East Full Crossing	334	29.7	LOS C	0.6	0.6	0.93	0.93
P3	North Full Crossing	115	29.4	LOS C	0.2	0.2	0.92	0.92
P4	West Full Crossing	139	29.4	LOS C	0.3	0.3	0.92	0.92
All Pedestrians		937	29.6	LOS C			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [AM_Fu_Rickard Rd_Chapel Rd_Without Dev]

AM Future Without Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Chapel Road												
1	L2	150	0.0	0.214	11.9	LOS A	2.5	17.7	0.53	0.64	0.53	25.1
2	T1	259	0.8	0.515	22.7	LOS B	7.4	52.5	0.87	0.73	0.87	22.4
Approach		409	0.5	0.515	18.7	LOS B	7.4	52.5	0.75	0.70	0.75	23.3
East: Rickard Road												
4	L2	96	1.0	0.392	28.5	LOS B	5.5	39.0	0.86	0.75	0.86	26.0
5	T1	314	1.3	0.392	22.3	LOS B	6.1	43.0	0.85	0.72	0.85	26.8
6	R2	170	14.1	0.389	25.0	LOS B	4.7	36.5	0.86	0.78	0.86	25.8
Approach		580	5.0	0.392	24.1	LOS B	6.1	43.0	0.86	0.74	0.86	26.3
North: Chapel Road												
7	L2	181	13.8	0.197	14.5	LOS B	3.2	24.8	0.54	0.71	0.54	32.3
8	T1	271	1.1	0.676	26.0	LOS B	10.0	70.6	0.95	0.84	0.99	22.3
9	R2	40	0.0	0.676	31.6	LOS C	10.0	70.6	0.95	0.84	0.99	16.1
Approach		492	5.7	0.676	22.2	LOS B	10.0	70.6	0.80	0.79	0.83	25.1
West: Rickard Road												
10	L2	84	0.0	0.688	30.6	LOS C	11.8	82.6	0.95	0.84	0.98	19.2
11	T1	590	0.5	0.688	24.8	LOS B	11.8	82.6	0.92	0.82	0.97	25.4
12	R2	210	0.5	0.375	20.6	LOS B	5.1	35.9	0.80	0.78	0.80	22.6
Approach		884	0.5	0.688	24.3	LOS B	11.8	82.6	0.90	0.81	0.93	24.3
All Vehicles		2365	2.7	0.688	22.9	LOS B	11.8	82.6	0.84	0.77	0.86	24.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	111	29.4	LOS C	0.2	0.2	0.92	0.92
P2	East Full Crossing	95	29.4	LOS C	0.2	0.2	0.92	0.92
P3	North Full Crossing	68	29.3	LOS C	0.1	0.1	0.92	0.92
P4	West Full Crossing	92	29.4	LOS C	0.2	0.2	0.92	0.92
All Pedestrians		366	29.4	LOS C			0.92	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [AM_Fu_Rickard Rd_Chapel Rd]

AM Future With Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Chapel Road												
1	L2	146	0.0	0.208	11.9	LOS A	2.5	17.2	0.52	0.64	0.52	25.2
2	T1	253	0.8	0.496	22.6	LOS B	7.2	51.1	0.87	0.73	0.87	22.5
Approach		399	0.5	0.496	18.7	LOS B	7.2	51.1	0.74	0.70	0.74	23.3
East: Rickard Road												
4	L2	106	0.9	0.428	30.4	LOS C	5.6	39.4	0.89	0.77	0.89	24.9
5	T1	318	1.3	0.428	23.0	LOS B	6.7	47.4	0.87	0.73	0.87	26.4
6	R2	177	13.0	0.399	25.0	LOS B	4.8	37.7	0.86	0.78	0.86	25.8
Approach		601	4.7	0.428	24.9	LOS B	6.7	47.4	0.87	0.75	0.87	25.9
North: Chapel Road												
7	L2	176	13.6	0.192	14.5	LOS A	3.1	24.0	0.54	0.71	0.54	32.3
8	T1	264	1.1	0.656	25.6	LOS B	9.6	67.8	0.94	0.82	0.97	22.6
9	R2	39	0.0	0.656	31.1	LOS C	9.6	67.8	0.94	0.82	0.97	16.3
Approach		479	5.6	0.656	21.9	LOS B	9.6	67.8	0.79	0.78	0.81	25.3
West: Rickard Road												
10	L2	82	0.0	0.680	30.4	LOS C	11.3	79.5	0.94	0.83	0.98	19.3
11	T1	576	0.5	0.680	24.6	LOS B	11.3	79.5	0.92	0.81	0.96	25.6
12	R2	205	0.5	0.386	22.1	LOS B	5.2	36.6	0.83	0.78	0.83	21.7
Approach		863	0.5	0.680	24.5	LOS B	11.3	79.5	0.90	0.80	0.93	24.2
All Vehicles		2342	2.6	0.680	23.1	LOS B	11.3	79.5	0.84	0.77	0.86	24.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	351	29.7	LOS C	0.6	0.6	0.93	0.93
P2	East Full Crossing	335	29.7	LOS C	0.6	0.6	0.93	0.93
P3	North Full Crossing	115	29.4	LOS C	0.2	0.2	0.92	0.92
P4	West Full Crossing	140	29.4	LOS C	0.3	0.3	0.92	0.92
All Pedestrians		941	29.6	LOS C			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [PM_Ex_Rickard Rd_Chapel Rd]

PM Existing
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Chapel Road												
1	L2	160	0.6	0.300	30.5	LOS C	5.5	38.8	0.82	0.75	0.82	16.0
2	T1	229	0.0	0.439	26.2	LOS B	7.9	55.3	0.83	0.69	0.83	20.7
Approach		389	0.3	0.439	28.0	LOS B	7.9	55.3	0.83	0.72	0.83	18.7
East: Rickard Road												
4	L2	137	2.9	0.440	26.1	LOS B	10.7	75.8	0.77	0.72	0.77	27.7
5	T1	561	0.9	0.440	20.1	LOS B	11.2	79.0	0.76	0.68	0.76	28.3
6	R2	263	10.3	0.755	38.1	LOS C	11.5	87.5	0.93	0.91	1.08	20.4
Approach		961	3.7	0.755	25.9	LOS B	11.5	87.5	0.81	0.75	0.85	25.4
North: Chapel Road												
7	L2	234	12.8	0.516	36.5	LOS C	8.9	69.2	0.90	0.81	0.90	20.6
8	T1	345	0.0	0.721	31.8	LOS C	15.6	109.1	0.95	0.85	0.99	19.8
9	R2	37	0.0	0.721	37.4	LOS C	15.6	109.1	0.95	0.85	0.99	14.5
Approach		616	4.9	0.721	33.9	LOS C	15.6	109.1	0.93	0.84	0.96	19.8
West: Rickard Road												
10	L2	53	0.0	0.219	16.1	LOS B	5.0	35.4	0.54	0.52	0.54	29.5
11	T1	412	0.7	0.219	10.8	LOS A	5.2	36.4	0.54	0.48	0.54	37.4
12	R2	126	0.0	0.338	25.5	LOS B	3.9	27.6	0.79	0.77	0.79	19.9
Approach		591	0.5	0.338	14.4	LOS A	5.2	36.4	0.59	0.55	0.59	32.1
All Vehicles		2557	2.7	0.755	25.5	LOS B	15.6	109.1	0.79	0.72	0.81	23.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	57	39.3	LOS D	0.1	0.1	0.94	0.94
P2	East Full Crossing	144	39.4	LOS D	0.3	0.3	0.94	0.94
P3	North Full Crossing	60	39.3	LOS D	0.1	0.1	0.94	0.94
P4	West Full Crossing	39	39.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		300	39.4	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [PM_2026_Rickard Rd_Chapel Rd_Without Dev]

PM Interim Without Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Chapel Road												
1	L2	160	0.6	0.300	30.5	LOS C	5.5	38.8	0.82	0.75	0.82	16.0
2	T1	229	0.0	0.439	26.2	LOS B	7.9	55.3	0.83	0.69	0.83	20.7
Approach		389	0.3	0.439	28.0	LOS B	7.9	55.3	0.83	0.72	0.83	18.7
East: Rickard Road												
4	L2	137	2.9	0.440	26.1	LOS B	10.7	75.8	0.77	0.72	0.77	27.7
5	T1	561	0.9	0.440	20.1	LOS B	11.2	79.0	0.76	0.68	0.76	28.3
6	R2	263	10.3	0.755	38.1	LOS C	11.5	87.5	0.93	0.91	1.08	20.4
Approach		961	3.7	0.755	25.9	LOS B	11.5	87.5	0.81	0.75	0.85	25.4
North: Chapel Road												
7	L2	234	12.8	0.516	36.5	LOS C	8.9	69.2	0.90	0.81	0.90	20.6
8	T1	345	0.0	0.721	31.8	LOS C	15.6	109.1	0.95	0.85	0.99	19.8
9	R2	37	0.0	0.721	37.4	LOS C	15.6	109.1	0.95	0.85	0.99	14.5
Approach		616	4.9	0.721	33.9	LOS C	15.6	109.1	0.93	0.84	0.96	19.8
West: Rickard Road												
10	L2	53	0.0	0.219	16.1	LOS B	5.0	35.4	0.54	0.52	0.54	29.5
11	T1	412	0.7	0.219	10.8	LOS A	5.2	36.4	0.54	0.48	0.54	37.4
12	R2	126	0.0	0.338	25.5	LOS B	3.9	27.6	0.79	0.77	0.79	19.9
Approach		591	0.5	0.338	14.4	LOS A	5.2	36.4	0.59	0.55	0.59	32.1
All Vehicles		2557	2.7	0.755	25.5	LOS B	15.6	109.1	0.79	0.72	0.81	23.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	58	39.3	LOS D	0.1	0.1	0.94	0.94
P2	East Full Crossing	146	39.4	LOS D	0.4	0.4	0.94	0.94
P3	North Full Crossing	61	39.3	LOS D	0.1	0.1	0.94	0.94
P4	West Full Crossing	39	39.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		304	39.4	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [PM_2026_Rickard Rd_Chapel Rd_With Dev]

PM Interim With Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Chapel Road												
1	L2	160	0.6	0.325	32.3	LOS C	5.7	40.2	0.85	0.76	0.85	15.4
2	T1	229	0.0	0.460	27.1	LOS B	8.0	56.3	0.84	0.70	0.84	20.3
Approach		389	0.3	0.460	29.2	LOS C	8.0	56.3	0.84	0.73	0.84	18.2
East: Rickard Road												
4	L2	145	2.8	0.460	27.7	LOS B	11.0	78.5	0.79	0.74	0.79	26.7
5	T1	569	0.9	0.460	20.7	LOS B	11.8	83.6	0.78	0.69	0.78	27.9
6	R2	271	10.0	0.774	39.4	LOS C	12.2	92.4	0.94	0.92	1.11	19.9
Approach		985	3.7	0.774	26.9	LOS B	12.2	92.4	0.82	0.76	0.87	24.8
North: Chapel Road												
7	L2	234	12.8	0.563	38.5	LOS C	9.2	71.6	0.93	0.82	0.93	19.9
8	T1	345	0.0	0.760	34.8	LOS C	16.4	114.7	0.98	0.90	1.06	18.6
9	R2	37	0.0	0.760	40.4	LOS C	16.4	114.7	0.98	0.90	1.06	13.7
Approach		616	4.9	0.760	36.6	LOS C	16.4	114.7	0.96	0.87	1.01	18.9
West: Rickard Road												
10	L2	53	0.0	0.214	15.6	LOS B	4.9	34.5	0.52	0.51	0.52	30.1
11	T1	412	0.7	0.214	10.2	LOS A	5.0	35.5	0.52	0.47	0.52	38.1
12	R2	126	0.0	0.337	26.4	LOS B	4.0	28.2	0.80	0.78	0.80	19.5
Approach		591	0.5	0.337	14.1	LOS A	5.0	35.5	0.58	0.54	0.58	32.3
All Vehicles		2581	2.7	0.774	26.6	LOS B	16.4	114.7	0.80	0.73	0.83	23.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	297	39.7	LOS D	0.7	0.7	0.95	0.95
P2	East Full Crossing	384	39.8	LOS D	0.9	0.9	0.95	0.95
P3	North Full Crossing	108	39.4	LOS D	0.3	0.3	0.94	0.94
P4	West Full Crossing	87	39.3	LOS D	0.2	0.2	0.94	0.94
All Pedestrians		876	39.7	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [PM_Fu_Rickard Rd_Chapel Rd_Without Dev]

PM Future Without Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Chapel Road												
1	L2	164	0.6	0.307	30.5	LOS C	5.7	39.9	0.82	0.76	0.82	15.9
2	T1	235	0.0	0.458	26.3	LOS B	8.1	56.9	0.83	0.69	0.83	20.7
Approach		399	0.3	0.458	28.0	LOS B	8.1	56.9	0.83	0.72	0.83	18.6
East: Rickard Road												
4	L2	140	2.9	0.451	26.2	LOS B	11.0	78.1	0.77	0.72	0.77	27.6
5	T1	575	0.9	0.451	20.2	LOS B	11.5	81.4	0.77	0.68	0.77	28.3
6	R2	270	10.4	0.787	40.7	LOS C	12.4	94.5	0.95	0.94	1.15	19.6
Approach		985	3.8	0.787	26.7	LOS B	12.4	94.5	0.82	0.76	0.87	24.9
North: Chapel Road												
7	L2	240	12.9	0.529	36.6	LOS C	9.2	71.4	0.91	0.81	0.91	20.6
8	T1	354	0.0	0.742	32.6	LOS C	16.3	114.3	0.96	0.87	1.02	19.4
9	R2	38	0.0	0.742	38.2	LOS C	16.3	114.3	0.96	0.87	1.02	14.3
Approach		632	4.9	0.742	34.5	LOS C	16.3	114.3	0.94	0.85	0.98	19.6
West: Rickard Road												
10	L2	54	0.0	0.224	16.1	LOS B	5.2	36.4	0.54	0.52	0.54	29.5
11	T1	422	0.7	0.224	10.8	LOS A	5.3	37.4	0.54	0.48	0.54	37.4
12	R2	129	0.0	0.351	26.4	LOS B	4.1	28.8	0.80	0.78	0.80	19.5
Approach		605	0.5	0.351	14.6	LOS B	5.3	37.4	0.60	0.55	0.60	31.9
All Vehicles		2621	2.7	0.787	26.0	LOS B	16.3	114.3	0.80	0.73	0.83	23.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	58	39.3	LOS D	0.1	0.1	0.94	0.94
P2	East Full Crossing	147	39.4	LOS D	0.4	0.4	0.94	0.94
P3	North Full Crossing	62	39.3	LOS D	0.1	0.1	0.94	0.94
P4	West Full Crossing	40	39.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		307	39.4	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [PM_Fu_Rickard Rd_Chapel Rd]

PM Future With Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Chapel Road												
1	L2	160	0.6	0.312	31.4	LOS C	5.6	39.5	0.83	0.76	0.83	15.7
2	T1	229	0.0	0.460	27.1	LOS B	8.0	56.3	0.84	0.70	0.84	20.3
Approach		389	0.3	0.460	28.8	LOS C	8.0	56.3	0.84	0.72	0.84	18.3
East: Rickard Road												
4	L2	155	2.6	0.451	25.6	LOS B	11.1	78.9	0.76	0.72	0.76	27.9
5	T1	579	0.9	0.451	19.5	LOS B	11.7	82.6	0.76	0.68	0.76	28.7
6	R2	281	9.6	0.781	39.3	LOS C	12.7	96.1	0.94	0.93	1.12	20.0
Approach		1015	3.5	0.781	25.9	LOS B	12.7	96.1	0.81	0.75	0.86	25.4
North: Chapel Road												
7	L2	234	12.8	0.538	37.5	LOS C	9.1	70.4	0.91	0.82	0.91	20.3
8	T1	345	0.0	0.749	33.7	LOS C	16.1	113.0	0.97	0.89	1.04	19.0
9	R2	37	0.0	0.749	39.3	LOS C	16.1	113.0	0.97	0.89	1.04	14.0
Approach		616	4.9	0.749	35.5	LOS C	16.1	113.0	0.95	0.86	0.99	19.2
West: Rickard Road												
10	L2	53	0.0	0.214	15.6	LOS B	4.9	34.5	0.52	0.51	0.52	30.1
11	T1	412	0.7	0.214	10.2	LOS A	5.0	35.5	0.52	0.47	0.52	38.1
12	R2	126	0.0	0.342	25.6	LOS B	4.0	27.7	0.79	0.78	0.79	19.9
Approach		591	0.5	0.342	14.0	LOS A	5.0	35.5	0.58	0.54	0.58	32.5
All Vehicles		2611	2.7	0.781	25.9	LOS B	16.1	113.0	0.79	0.73	0.82	23.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

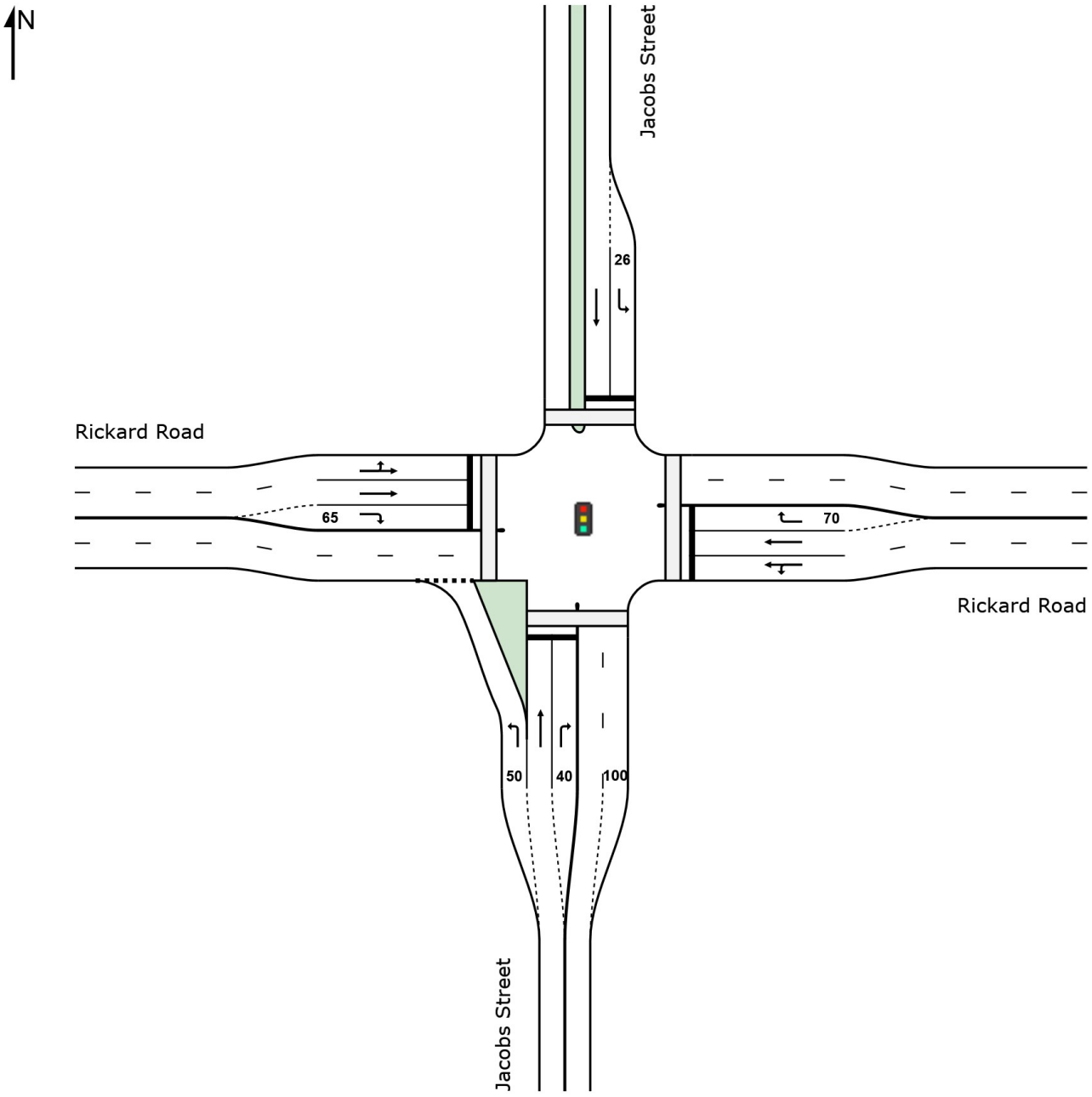
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	58	39.3	LOS D	0.1	0.1	0.94	0.94
P2	East Full Crossing	148	39.4	LOS D	0.4	0.4	0.94	0.94
P3	North Full Crossing	62	39.3	LOS D	0.1	0.1	0.94	0.94
P4	West Full Crossing	40	39.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		308	39.4	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: [AM_Ex_Rickard Rd_Jacobs St]

AM Existing
Site Category: (None)
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: [AM_Ex_Rickard Rd_Jacobs St]

AM Existing
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Jacobs Street												
1	L2	105	26.7	0.105	6.2	LOS A	1.1	9.8	0.33	0.53	0.33	35.6
2	T1	40	0.0	0.264	44.5	LOS D	1.8	12.3	0.98	0.71	0.98	25.1
3	R2	87	14.9	0.666	51.3	LOS D	4.1	32.3	1.00	0.85	1.15	13.6
Approach		232	17.7	0.666	29.7	LOS C	4.1	32.3	0.69	0.68	0.75	22.5
East: Rickard Road												
4	L2	86	10.5	0.690	38.7	LOS C	13.6	97.4	0.96	0.84	0.98	19.0
5	T1	607	0.0	0.690	32.9	LOS C	14.5	101.5	0.96	0.83	0.97	24.1
6	R2	150	0.0	0.265	18.9	LOS B	3.4	24.0	0.74	0.75	0.74	39.4
Approach		843	1.1	0.690	31.0	LOS C	14.5	101.5	0.92	0.82	0.93	26.5
North: Jacobs Street												
7	L2	128	0.8	0.195	17.1	LOS B	2.7	19.1	0.73	0.73	0.73	36.8
8	T1	104	0.0	0.282	35.7	LOS C	4.0	28.0	0.90	0.73	0.90	27.5
Approach		232	0.4	0.282	25.4	LOS B	4.0	28.0	0.80	0.73	0.80	32.0
West: Rickard Road												
10	L2	32	0.0	0.475	35.8	LOS C	9.0	62.9	0.89	0.75	0.89	34.3
11	T1	455	0.0	0.475	30.2	LOS C	9.2	64.5	0.89	0.75	0.89	25.4
12	R2	242	10.7	0.514	21.7	LOS B	6.0	45.6	0.87	0.80	0.87	28.2
Approach		729	3.6	0.514	27.7	LOS B	9.2	64.5	0.88	0.77	0.88	26.8
All Vehicles		2036	3.8	0.690	29.0	LOS C	14.5	101.5	0.87	0.77	0.88	26.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	108	39.4	LOS D	0.3	0.3	0.94	0.94
P2	East Full Crossing	93	39.4	LOS D	0.2	0.2	0.94	0.94
P3	North Full Crossing	66	39.3	LOS D	0.2	0.2	0.94	0.94
P4	West Full Crossing	50	39.3	LOS D	0.1	0.1	0.94	0.94
All Pedestrians		317	39.3	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [AM_2026_Rickard Rd_Jacobs St_Without Dev]

AM Interim Without Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Jacobs Street												
1	L2	106	26.4	0.106	6.4	LOS A	1.2	10.3	0.34	0.54	0.34	35.4
2	T1	40	0.0	0.264	44.5	LOS D	1.8	12.3	0.98	0.71	0.98	25.1
3	R2	88	14.8	0.673	51.4	LOS D	4.1	32.6	1.00	0.86	1.15	13.6
Approach		234	17.5	0.673	29.9	LOS C	4.1	32.6	0.70	0.69	0.76	22.5
East: Rickard Road												
4	L2	87	10.3	0.698	38.9	LOS C	13.8	99.1	0.96	0.85	0.99	19.0
5	T1	614	0.0	0.698	33.1	LOS C	14.7	103.2	0.96	0.84	0.98	24.0
6	R2	152	0.0	0.269	19.0	LOS B	3.5	24.3	0.74	0.75	0.74	39.4
Approach		853	1.1	0.698	31.2	LOS C	14.7	103.2	0.92	0.82	0.94	26.5
North: Jacobs Street												
7	L2	129	0.8	0.196	17.1	LOS B	2.7	19.3	0.73	0.73	0.73	36.8
8	T1	105	0.0	0.285	35.7	LOS C	4.0	28.2	0.90	0.73	0.90	27.4
Approach		234	0.4	0.285	25.4	LOS B	4.0	28.2	0.80	0.73	0.80	32.0
West: Rickard Road												
10	L2	32	0.0	0.479	35.8	LOS C	9.1	63.6	0.89	0.75	0.89	34.3
11	T1	460	0.0	0.479	30.3	LOS C	9.3	65.3	0.89	0.75	0.89	25.4
12	R2	244	10.7	0.520	22.0	LOS B	6.0	46.0	0.88	0.80	0.88	28.0
Approach		736	3.5	0.520	27.8	LOS B	9.3	65.3	0.89	0.77	0.89	26.7
All Vehicles		2057	3.7	0.698	29.2	LOS C	14.7	103.2	0.87	0.78	0.89	26.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	109	39.4	LOS D	0.3	0.3	0.94	0.94
P2	East Full Crossing	94	39.4	LOS D	0.2	0.2	0.94	0.94
P3	North Full Crossing	67	39.3	LOS D	0.2	0.2	0.94	0.94
P4	West Full Crossing	91	39.3	LOS D	0.2	0.2	0.94	0.94
All Pedestrians		361	39.4	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [AM_2026_Rickard Rd_Jacobs St_With Dev]

AM Interim With Development

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Jacobs Street												
1	L2	115	24.3	0.116	6.7	LOS A	1.4	11.6	0.36	0.55	0.36	35.3
2	T1	40	0.0	0.308	46.0	LOS D	1.8	12.5	0.99	0.72	0.99	24.6
3	R2	88	14.8	0.786	54.9	LOS D	4.3	34.1	1.00	0.96	1.36	13.0
Approach		243	16.9	0.786	30.6	LOS C	4.3	34.1	0.69	0.72	0.83	22.2
East: Rickard Road												
4	L2	87	10.3	0.746	42.0	LOS C	14.9	106.5	0.98	0.89	1.06	17.9
5	T1	647	0.0	0.746	35.3	LOS C	16.4	114.9	0.98	0.89	1.05	23.1
6	R2	152	0.0	0.279	19.6	LOS B	3.6	25.0	0.75	0.75	0.75	39.0
Approach		886	1.0	0.746	33.3	LOS C	16.4	114.9	0.94	0.86	1.00	25.5
North: Jacobs Street												
7	L2	129	0.8	0.203	17.9	LOS B	2.9	20.2	0.74	0.73	0.74	36.3
8	T1	105	0.0	0.255	33.7	LOS C	3.9	27.3	0.87	0.72	0.87	28.1
Approach		234	0.4	0.255	25.0	LOS B	3.9	27.3	0.80	0.72	0.80	32.2
West: Rickard Road												
10	L2	32	0.0	0.479	35.8	LOS C	9.1	63.6	0.89	0.75	0.89	34.3
11	T1	460	0.0	0.479	30.3	LOS C	9.3	65.3	0.89	0.75	0.89	25.4
12	R2	244	10.7	0.561	23.3	LOS B	6.2	47.2	0.92	0.81	0.92	27.2
Approach		736	3.5	0.561	28.2	LOS B	9.3	65.3	0.90	0.77	0.90	26.5
All Vehicles		2099	3.7	0.786	30.3	LOS C	16.4	114.9	0.88	0.80	0.92	26.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	349	39.8	LOS D	0.8	0.8	0.95	0.95
P2	East Full Crossing	334	39.8	LOS D	0.8	0.8	0.95	0.95
P3	North Full Crossing	115	39.4	LOS D	0.3	0.3	0.94	0.94
P4	West Full Crossing	139	39.4	LOS D	0.3	0.3	0.94	0.94
All Pedestrians		937	39.7	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [AM_Fu_Rickard Rd_Jacobs St_Without Dev]

AM Future Without Development

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Jacobs Street												
1	L2	108	26.9	0.109	6.4	LOS A	1.2	10.6	0.34	0.54	0.34	35.3
2	T1	41	0.0	0.270	44.6	LOS D	1.8	12.6	0.98	0.72	0.98	25.0
3	R2	89	14.6	0.680	51.5	LOS D	4.2	33.0	1.00	0.86	1.16	13.6
Approach		238	17.6	0.680	29.9	LOS C	4.2	33.0	0.70	0.69	0.76	22.5
East: Rickard Road												
4	L2	88	10.2	0.706	39.2	LOS C	14.1	101.0	0.96	0.85	1.00	18.9
5	T1	622	0.0	0.706	33.4	LOS C	15.0	105.3	0.96	0.85	0.99	23.9
6	R2	154	0.0	0.274	19.0	LOS B	3.5	24.7	0.74	0.75	0.74	39.4
Approach		864	1.0	0.706	31.4	LOS C	15.0	105.3	0.92	0.83	0.95	26.4
North: Jacobs Street												
7	L2	131	0.8	0.199	17.1	LOS B	2.8	19.6	0.73	0.73	0.73	36.8
8	T1	107	0.0	0.290	35.7	LOS C	4.1	28.8	0.90	0.73	0.90	27.4
Approach		238	0.4	0.290	25.5	LOS B	4.1	28.8	0.81	0.73	0.81	32.0
West: Rickard Road												
10	L2	33	0.0	0.486	35.9	LOS C	9.2	64.6	0.89	0.76	0.89	34.3
11	T1	466	0.0	0.486	30.3	LOS C	9.5	66.4	0.89	0.75	0.89	25.4
12	R2	248	10.9	0.532	22.1	LOS B	6.1	46.9	0.89	0.81	0.89	27.9
Approach		747	3.6	0.532	27.9	LOS B	9.5	66.4	0.89	0.77	0.89	26.7
All Vehicles		2087	3.8	0.706	29.3	LOS C	15.0	105.3	0.87	0.78	0.89	26.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	111	39.4	LOS D	0.3	0.3	0.94	0.94
P2	East Full Crossing	95	39.4	LOS D	0.2	0.2	0.94	0.94
P3	North Full Crossing	68	39.3	LOS D	0.2	0.2	0.94	0.94
P4	West Full Crossing	92	39.4	LOS D	0.2	0.2	0.94	0.94
All Pedestrians		366	39.4	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [AM_Fu_Rickard Rd_Jacobs St]

AM Future
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Jacobs Street												
1	L2	143	19.6	0.142	7.4	LOS A	1.9	15.5	0.39	0.56	0.39	35.2
2	T1	40	0.0	0.231	43.1	LOS D	1.7	12.0	0.96	0.71	0.96	25.4
3	R2	117	11.1	0.765	52.2	LOS D	5.6	43.0	1.00	0.94	1.26	13.5
Approach		300	13.7	0.765	29.6	LOS C	5.6	43.0	0.71	0.73	0.81	22.3
East: Rickard Road												
4	L2	86	10.5	0.832	47.1	LOS D	17.5	125.4	1.00	0.99	1.21	16.5
5	T1	700	0.0	0.832	40.8	LOS C	19.4	135.5	1.00	0.99	1.19	21.2
6	R2	150	0.0	0.291	20.8	LOS B	3.7	25.8	0.77	0.76	0.77	38.3
Approach		936	1.0	0.832	38.1	LOS C	19.4	135.5	0.96	0.95	1.13	23.4
North: Jacobs Street												
7	L2	128	0.8	0.208	17.9	LOS B	2.8	19.6	0.75	0.73	0.75	36.3
8	T1	104	0.0	0.253	33.7	LOS C	3.9	27.1	0.87	0.72	0.87	28.1
Approach		232	0.4	0.253	24.9	LOS B	3.9	27.1	0.81	0.73	0.81	32.2
West: Rickard Road												
10	L2	32	0.0	0.496	36.8	LOS C	9.1	63.9	0.90	0.76	0.90	33.9
11	T1	455	0.0	0.496	31.2	LOS C	9.4	65.7	0.90	0.76	0.90	25.0
12	R2	242	10.7	0.603	24.9	LOS B	6.4	49.1	0.94	0.81	0.94	26.3
Approach		729	3.6	0.603	29.3	LOS C	9.4	65.7	0.92	0.78	0.92	25.9
All Vehicles		2197	3.5	0.832	32.7	LOS C	19.4	135.5	0.90	0.84	0.98	25.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	351	39.8	LOS D	0.9	0.9	0.95	0.95
P2	East Full Crossing	335	39.8	LOS D	0.8	0.8	0.95	0.95
P3	North Full Crossing	116	39.4	LOS D	0.3	0.3	0.94	0.94
P4	West Full Crossing	140	39.4	LOS D	0.3	0.3	0.94	0.94
All Pedestrians		942	39.7	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [PM_Ex_Rickard Rd_Jacobs St]

PM Existing
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Jacobs Street												
1	L2	227	15.4	0.232	7.1	LOS A	3.0	23.9	0.40	0.58	0.40	36.0
2	T1	72	0.0	0.277	39.1	LOS C	2.9	20.6	0.94	0.72	0.94	26.6
3	R2	148	6.1	0.624	45.3	LOS D	6.5	47.8	0.99	0.82	1.03	14.9
Approach		447	9.8	0.624	24.9	LOS B	6.5	47.8	0.68	0.68	0.70	24.9
East: Rickard Road												
4	L2	91	9.9	0.665	34.3	LOS C	15.1	108.1	0.92	0.81	0.92	20.8
5	T1	722	0.0	0.665	28.6	LOS C	16.0	111.9	0.92	0.80	0.92	26.1
6	R2	142	0.0	0.389	24.2	LOS B	4.0	28.1	0.82	0.76	0.82	36.3
Approach		955	0.9	0.665	28.5	LOS B	16.0	111.9	0.91	0.80	0.91	27.5
North: Jacobs Street												
7	L2	236	0.0	0.545	23.3	LOS B	6.2	43.1	0.93	0.80	0.93	33.6
8	T1	86	0.0	0.209	33.3	LOS C	3.2	22.1	0.86	0.71	0.86	28.3
Approach		322	0.0	0.545	26.0	LOS B	6.2	43.1	0.91	0.78	0.91	32.0
West: Rickard Road												
10	L2	32	0.0	0.410	31.3	LOS C	8.7	60.9	0.83	0.71	0.83	36.5
11	T1	475	0.6	0.410	25.8	LOS B	8.8	62.2	0.83	0.70	0.83	27.7
12	R2	130	24.6	0.559	26.9	LOS B	3.8	31.8	0.92	0.78	0.92	24.9
Approach		637	5.5	0.559	26.3	LOS B	8.8	62.2	0.85	0.72	0.85	27.8
All Vehicles		2361	3.7	0.665	26.9	LOS B	16.0	111.9	0.85	0.75	0.85	27.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	57	39.3	LOS D	0.1	0.1	0.94	0.94
P2	East Full Crossing	144	39.4	LOS D	0.3	0.3	0.94	0.94
P3	North Full Crossing	60	39.3	LOS D	0.1	0.1	0.94	0.94
P4	West Full Crossing	39	39.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		300	39.4	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [PM_2026_Rickard Rd_Jacobs St_Without Dev]

PM Interim Without Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Jacobs Street												
1	L2	227	15.4	0.232	7.1	LOS A	3.0	23.9	0.40	0.58	0.40	36.0
2	T1	72	0.0	0.277	39.1	LOS C	2.9	20.6	0.94	0.72	0.94	26.6
3	R2	148	6.1	0.624	45.3	LOS D	6.5	47.8	0.99	0.82	1.03	14.9
Approach		447	9.8	0.624	24.9	LOS B	6.5	47.8	0.68	0.68	0.70	24.9
East: Rickard Road												
4	L2	91	9.9	0.665	34.3	LOS C	15.1	108.1	0.92	0.81	0.92	20.8
5	T1	722	0.0	0.665	28.6	LOS C	16.0	111.9	0.92	0.80	0.92	26.1
6	R2	142	0.0	0.389	24.2	LOS B	4.0	28.1	0.82	0.76	0.82	36.3
Approach		955	0.9	0.665	28.5	LOS B	16.0	111.9	0.91	0.80	0.91	27.5
North: Jacobs Street												
7	L2	236	0.0	0.545	23.3	LOS B	6.2	43.1	0.93	0.80	0.93	33.6
8	T1	86	0.0	0.209	33.3	LOS C	3.2	22.1	0.86	0.71	0.86	28.3
Approach		322	0.0	0.545	26.0	LOS B	6.2	43.1	0.91	0.78	0.91	32.0
West: Rickard Road												
10	L2	32	0.0	0.410	31.3	LOS C	8.7	60.9	0.83	0.71	0.83	36.5
11	T1	475	0.6	0.410	25.8	LOS B	8.8	62.2	0.83	0.70	0.83	27.7
12	R2	130	24.6	0.559	26.9	LOS B	3.8	31.8	0.92	0.78	0.92	24.9
Approach		637	5.5	0.559	26.3	LOS B	8.8	62.2	0.85	0.72	0.85	27.8
All Vehicles		2361	3.7	0.665	26.9	LOS B	16.0	111.9	0.85	0.75	0.85	27.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	58	39.3	LOS D	0.1	0.1	0.94	0.94
P2	East Full Crossing	146	39.4	LOS D	0.4	0.4	0.94	0.94
P3	North Full Crossing	61	39.3	LOS D	0.1	0.1	0.94	0.94
P4	West Full Crossing	40	39.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		305	39.4	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [PM_2026_Rickard Rd_Jacobs St_With Dev]

PM Interim With Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Jacobs Street												
1	L2	229	15.3	0.231	7.4	LOS A	3.2	25.1	0.41	0.58	0.41	35.7
2	T1	72	0.0	0.302	40.2	LOS C	3.0	20.9	0.95	0.73	0.95	26.3
3	R2	148	6.1	0.680	47.2	LOS D	6.7	49.2	1.00	0.86	1.10	14.5
Approach		449	9.8	0.680	25.8	LOS B	6.7	49.2	0.69	0.70	0.73	24.5
East: Rickard Road												
4	L2	91	9.9	0.736	38.6	LOS C	16.2	115.8	0.96	0.87	1.02	19.1
5	T1	730	0.0	0.736	32.4	LOS C	17.6	123.4	0.96	0.87	1.01	24.4
6	R2	142	0.0	0.350	23.0	LOS B	3.8	26.8	0.81	0.76	0.81	36.9
Approach		963	0.9	0.736	31.6	LOS C	17.6	123.4	0.94	0.85	0.98	26.0
North: Jacobs Street												
7	L2	236	0.0	0.497	22.3	LOS B	6.0	42.3	0.90	0.80	0.90	34.1
8	T1	86	0.0	0.209	33.3	LOS C	3.2	22.1	0.86	0.71	0.86	28.3
Approach		322	0.0	0.497	25.2	LOS B	6.0	42.3	0.89	0.77	0.89	32.3
West: Rickard Road												
10	L2	32	0.0	0.440	33.1	LOS C	9.0	63.0	0.86	0.73	0.86	35.6
11	T1	475	0.6	0.440	27.6	LOS B	9.2	64.5	0.86	0.72	0.86	26.8
12	R2	130	24.6	0.487	26.3	LOS B	3.6	30.2	0.93	0.78	0.93	25.2
Approach		637	5.5	0.487	27.6	LOS B	9.2	64.5	0.87	0.74	0.87	27.1
All Vehicles		2371	3.7	0.736	28.6	LOS C	17.6	123.4	0.87	0.78	0.89	27.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	297	39.7	LOS D	0.7	0.7	0.95	0.95
P2	East Full Crossing	384	39.8	LOS D	0.9	0.9	0.95	0.95
P3	North Full Crossing	108	39.4	LOS D	0.3	0.3	0.94	0.94
P4	West Full Crossing	87	39.3	LOS D	0.2	0.2	0.94	0.94
All Pedestrians		876	39.7	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [PM_Fu_Rickard Rd_Jacobs St_Without Dev]

PM Future Without Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Jacobs Street												
1	L2	233	15.5	0.239	7.4	LOS A	3.2	25.7	0.41	0.58	0.41	35.6
2	T1	74	0.0	0.285	39.1	LOS C	3.0	21.2	0.94	0.72	0.94	26.6
3	R2	151	6.0	0.636	45.5	LOS D	6.6	48.9	1.00	0.83	1.05	14.9
Approach		458	9.8	0.636	25.1	LOS B	6.6	48.9	0.69	0.69	0.71	24.8
East: Rickard Road												
4	L2	93	9.7	0.681	34.5	LOS C	15.6	111.5	0.93	0.81	0.93	20.7
5	T1	740	0.0	0.681	28.8	LOS C	16.5	115.4	0.93	0.81	0.93	26.0
6	R2	146	0.0	0.405	24.2	LOS B	4.1	29.0	0.82	0.76	0.82	36.3
Approach		979	0.9	0.681	28.7	LOS C	16.5	115.4	0.91	0.80	0.91	27.4
North: Jacobs Street												
7	L2	242	0.0	0.558	23.4	LOS B	6.3	44.4	0.93	0.80	0.93	33.5
8	T1	88	0.0	0.214	33.3	LOS C	3.2	22.7	0.87	0.71	0.87	28.2
Approach		330	0.0	0.558	26.0	LOS B	6.3	44.4	0.91	0.78	0.91	32.0
West: Rickard Road												
10	L2	33	0.0	0.420	31.5	LOS C	8.9	62.7	0.83	0.71	0.83	36.4
11	T1	487	0.6	0.420	25.9	LOS B	9.1	64.1	0.83	0.71	0.83	27.7
12	R2	133	24.8	0.582	27.4	LOS B	3.9	32.8	0.94	0.79	0.95	24.6
Approach		653	5.5	0.582	26.5	LOS B	9.1	64.1	0.85	0.72	0.86	27.7
All Vehicles		2420	3.7	0.681	27.0	LOS B	16.5	115.4	0.85	0.76	0.86	27.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	58	39.3	LOS D	0.1	0.1	0.94	0.94
P2	East Full Crossing	148	39.4	LOS D	0.4	0.4	0.94	0.94
P3	North Full Crossing	62	39.3	LOS D	0.1	0.1	0.94	0.94
P4	West Full Crossing	40	39.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		308	39.4	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [PM_Fu_Rickard Rd_Jacobs St]

PM Future With Development
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Jacobs Street												
1	L2	259	13.5	0.262	7.8	LOS A	3.8	30.0	0.44	0.60	0.44	35.4
2	T1	72	0.0	0.277	39.1	LOS C	2.9	20.6	0.94	0.72	0.94	26.6
3	R2	178	5.1	0.745	47.9	LOS D	8.2	59.9	1.00	0.91	1.16	14.4
Approach		509	8.6	0.745	26.3	LOS B	8.2	59.9	0.70	0.72	0.76	24.1
East: Rickard Road												
4	L2	91	9.9	0.799	41.8	LOS C	19.0	135.3	0.99	0.94	1.11	18.1
5	T1	790	0.0	0.799	35.4	LOS C	19.8	138.3	0.98	0.93	1.10	23.1
6	R2	142	0.0	0.368	23.8	LOS B	3.9	27.5	0.82	0.76	0.82	36.5
Approach		1023	0.9	0.799	34.4	LOS C	19.8	138.3	0.96	0.91	1.06	24.7
North: Jacobs Street												
7	L2	236	0.0	0.520	22.6	LOS B	6.0	42.3	0.91	0.80	0.91	33.9
8	T1	86	0.0	0.209	33.3	LOS C	3.2	22.1	0.86	0.71	0.86	28.3
Approach		322	0.0	0.520	25.5	LOS B	6.0	42.3	0.90	0.77	0.90	32.2
West: Rickard Road												
10	L2	32	0.0	0.440	33.1	LOS C	9.0	63.0	0.86	0.73	0.86	35.6
11	T1	475	0.6	0.440	27.6	LOS B	9.2	64.5	0.86	0.72	0.86	26.8
12	R2	130	24.6	0.546	27.8	LOS B	3.7	31.1	0.96	0.79	0.96	24.5
Approach		637	5.5	0.546	27.9	LOS B	9.2	64.5	0.88	0.74	0.88	26.9
All Vehicles		2491	3.5	0.799	29.9	LOS C	19.8	138.3	0.88	0.81	0.93	26.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

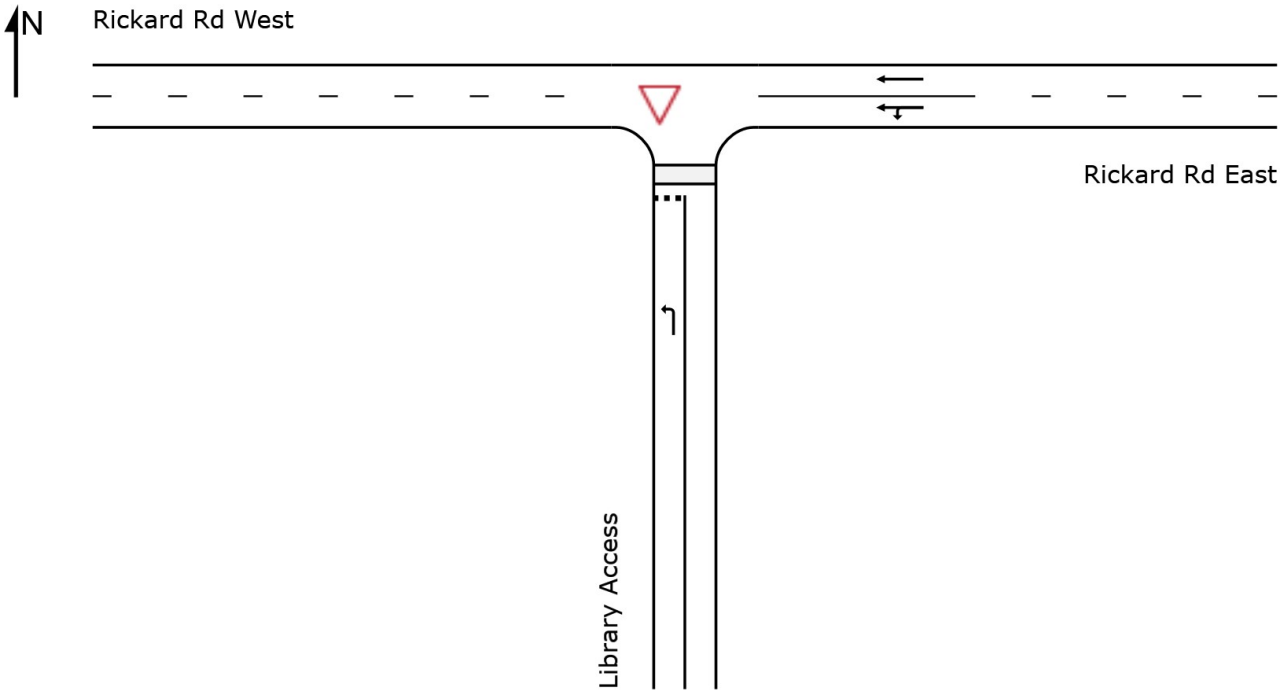
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	298	39.7	LOS D	0.7	0.7	0.95	0.95
P2	East Full Crossing	388	39.8	LOS D	0.9	0.9	0.95	0.95
P3	North Full Crossing	110	39.4	LOS D	0.3	0.3	0.94	0.94
P4	West Full Crossing	88	39.3	LOS D	0.2	0.2	0.94	0.94
All Pedestrians		884	39.7	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: [2018_Library Access- AM]

Existing
Site Category: (None)
Giveway / Yield (Two-Way)



Organisation: ARUP PTY LTD | Created: Wednesday, 1 July 2020 11:32:52 AM
Project: \\global.arup.com\australasia\SYD\Projects\263000\263785-00 WSU Bankstown Campus\Work\Internal\Analysis\SIDRA\Rickard Rd_LibraryAndAppian.sip8

MOVEMENT SUMMARY

Site: [2018_Library Access- AM]

Existing
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Library Access												
1	L2	4	0.0	0.004	5.1	LOS A	0.0	0.1	0.39	0.54	0.39	31.2
Approach		4	0.0	0.004	5.1	LOS A	0.0	0.1	0.39	0.54	0.39	31.2
East: Rickard Rd East												
4	L2	13	0.0	0.197	5.8	LOS A	0.1	0.7	0.01	0.02	0.01	48.9
5	T1	751	0.0	0.197	0.0	LOS A	0.1	0.7	0.01	0.01	0.01	59.4
Approach		763	0.0	0.197	0.1	NA	0.1	0.7	0.01	0.01	0.01	59.2
All Vehicles		767	0.0	0.197	0.1	NA	0.1	0.7	0.01	0.01	0.01	59.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2026_Library Access_Without Dev - AM]

Interim Without Development

Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Library Access												
1	L2	4	0.0	0.004	5.1	LOS A	0.0	0.1	0.39	0.54	0.39	31.2
Approach		4	0.0	0.004	5.1	LOS A	0.0	0.1	0.39	0.54	0.39	31.2
East: Rickard Rd East												
4	L2	13	0.0	0.199	5.8	LOS A	0.1	0.7	0.01	0.02	0.01	48.9
5	T1	759	0.0	0.199	0.0	LOS A	0.1	0.7	0.01	0.01	0.01	59.4
Approach		772	0.0	0.199	0.1	NA	0.1	0.7	0.01	0.01	0.01	59.3
All Vehicles		776	0.0	0.199	0.1	NA	0.1	0.7	0.01	0.01	0.01	59.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2026_Library Access_With Dev - AM]

Interim With Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Library Access												
1	L2	6	0.0	0.005	5.0	LOS A	0.0	0.1	0.38	0.54	0.38	31.3
Approach		6	0.0	0.005	5.0	LOS A	0.0	0.1	0.38	0.54	0.38	31.3
East: Rickard Rd East												
4	L2	48	0.0	0.213	5.8	LOS A	0.4	2.7	0.05	0.07	0.05	46.7
5	T1	759	0.0	0.213	0.0	LOS A	0.4	2.7	0.02	0.03	0.02	58.2
Approach		807	0.0	0.213	0.4	NA	0.4	2.7	0.02	0.04	0.02	57.4
All Vehicles		814	0.0	0.213	0.4	NA	0.4	2.7	0.02	0.04	0.02	57.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2036_Library Access_Without Dev - AM]

Future Without Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Library Access												
1	L2	4	0.0	0.004	5.1	LOS A	0.0	0.1	0.40	0.54	0.40	31.2
Approach		4	0.0	0.004	5.1	LOS A	0.0	0.1	0.40	0.54	0.40	31.2
East: Rickard Rd East												
4	L2	13	0.0	0.202	5.8	LOS A	0.1	0.7	0.01	0.02	0.01	48.9
5	T1	769	0.0	0.202	0.0	LOS A	0.1	0.7	0.01	0.01	0.01	59.4
Approach		782	0.0	0.202	0.1	NA	0.1	0.7	0.01	0.01	0.01	59.3
All Vehicles		786	0.0	0.202	0.1	NA	0.1	0.7	0.01	0.01	0.01	59.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2036_Library Access_With Dev - AM]

Future With Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Library Access												
1	L2	6	0.0	0.005	5.0	LOS A	0.0	0.1	0.38	0.54	0.38	31.3
Approach		6	0.0	0.005	5.0	LOS A	0.0	0.1	0.38	0.54	0.38	31.3
East: Rickard Rd East												
4	L2	48	0.0	0.215	5.8	LOS A	0.4	2.7	0.04	0.07	0.04	46.8
5	T1	769	0.0	0.215	0.0	LOS A	0.4	2.7	0.02	0.03	0.02	58.2
Approach		818	0.0	0.215	0.4	NA	0.4	2.7	0.02	0.03	0.02	57.4
All Vehicles		824	0.0	0.215	0.4	NA	0.4	2.7	0.02	0.04	0.02	57.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2018_Library Access - PM]

Existing
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Library Access												
1	L2	16	0.0	0.016	5.7	LOS A	0.1	0.4	0.46	0.61	0.46	30.2
Approach		16	0.0	0.016	5.7	LOS A	0.1	0.4	0.46	0.61	0.46	30.2
East: Rickard Rd East												
4	L2	13	0.0	0.261	5.8	LOS A	0.1	0.8	0.01	0.01	0.01	49.1
5	T1	1001	0.0	0.261	0.0	LOS A	0.1	0.8	0.00	0.01	0.00	59.5
Approach		1014	0.0	0.261	0.1	NA	0.1	0.8	0.01	0.01	0.01	59.4
All Vehicles		1029	0.0	0.261	0.2	NA	0.1	0.8	0.01	0.02	0.01	58.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2026_Library Access_Without Dev - PM]

Interim Without Development

Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Library Access												
1	L2	16	0.0	0.016	5.7	LOS A	0.1	0.4	0.46	0.61	0.46	30.2
Approach		16	0.0	0.016	5.7	LOS A	0.1	0.4	0.46	0.61	0.46	30.2
East: Rickard Rd East												
4	L2	13	0.0	0.261	5.8	LOS A	0.1	0.8	0.01	0.01	0.01	49.1
5	T1	1001	0.0	0.261	0.0	LOS A	0.1	0.8	0.00	0.01	0.00	59.5
Approach		1014	0.0	0.261	0.1	NA	0.1	0.8	0.01	0.01	0.01	59.4
All Vehicles		1029	0.0	0.261	0.2	NA	0.1	0.8	0.01	0.02	0.01	58.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2026_Library Access_With Dev - PM]

Interim With Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Library Access												
1	L2	74	0.0	0.071	5.7	LOS A	0.3	1.9	0.46	0.65	0.46	30.2
Approach		74	0.0	0.071	5.7	LOS A	0.3	1.9	0.46	0.65	0.46	30.2
East: Rickard Rd East												
4	L2	48	0.0	0.275	5.8	LOS A	0.4	2.9	0.04	0.06	0.04	47.4
5	T1	1001	0.0	0.275	0.0	LOS A	0.4	2.9	0.02	0.03	0.02	58.5
Approach		1049	0.0	0.275	0.3	NA	0.4	2.9	0.02	0.03	0.02	58.0
All Vehicles		1123	0.0	0.275	0.6	NA	0.4	2.9	0.05	0.07	0.05	55.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2036_Library Access_Without Dev - PM]

Future Without Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Library Access												
1	L2	16	0.0	0.016	5.7	LOS A	0.1	0.4	0.46	0.61	0.46	30.2
Approach		16	0.0	0.016	5.7	LOS A	0.1	0.4	0.46	0.61	0.46	30.2
East: Rickard Rd East												
4	L2	13	0.0	0.261	5.8	LOS A	0.1	0.8	0.01	0.01	0.01	49.1
5	T1	1001	0.0	0.261	0.0	LOS A	0.1	0.8	0.00	0.01	0.00	59.5
Approach		1014	0.0	0.261	0.1	NA	0.1	0.8	0.01	0.01	0.01	59.4
All Vehicles		1029	0.0	0.261	0.2	NA	0.1	0.8	0.01	0.02	0.01	58.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2036_Library Access_With Dev - PM]

Future With Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Library Access												
1	L2	74	0.0	0.071	5.7	LOS A	0.3	1.9	0.46	0.65	0.46	30.2
Approach		74	0.0	0.071	5.7	LOS A	0.3	1.9	0.46	0.65	0.46	30.2
East: Rickard Rd East												
4	L2	48	0.0	0.275	5.8	LOS A	0.4	2.9	0.04	0.06	0.04	47.4
5	T1	1001	0.0	0.275	0.0	LOS A	0.4	2.9	0.02	0.03	0.02	58.5
Approach		1049	0.0	0.275	0.3	NA	0.4	2.9	0.02	0.03	0.02	58.0
All Vehicles		1123	0.0	0.275	0.6	NA	0.4	2.9	0.05	0.07	0.05	55.7

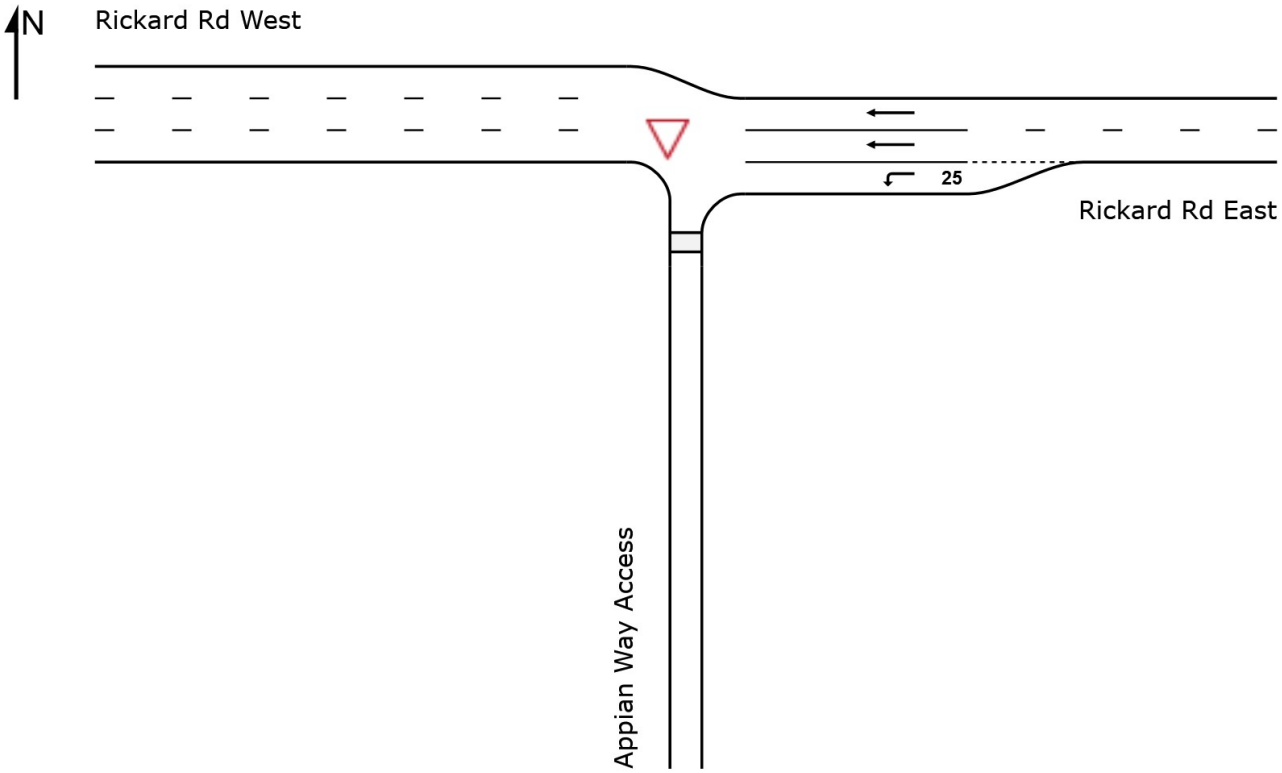
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: [2018_Appian Way Access - AM]

Existing

Site Category: (None)
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: [2018_Appian Way Access - AM]

Existing

Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Rickard Rd East												
4	L2	76	0.0	0.041	4.7	LOS A	0.0	0.0	0.00	0.57	0.00	32.1
5	T1	751	0.0	0.192	3.3	LOS A	0.0	0.0	0.00	0.52	0.00	43.4
Approach		826	0.0	0.192	3.5	NA	0.0	0.0	0.00	0.52	0.00	42.4
All Vehicles		826	0.0	0.192	3.5	NA	0.0	0.0	0.00	0.52	0.00	42.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2026_Appian Way Access_Without Dev - AM]

Interim Without Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Rickard Rd East												
4	L2	77	0.0	0.041	4.7	LOS A	0.0	0.0	0.00	0.57	0.00	32.1
5	T1	759	0.0	0.195	3.3	LOS A	0.0	0.0	0.00	0.52	0.00	36.0
Approach		836	0.0	0.195	3.5	NA	0.0	0.0	0.00	0.52	0.00	35.5
All Vehicles		836	0.0	0.195	3.5	NA	0.0	0.0	0.00	0.52	0.00	35.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2026_Appian Way Access_With Dev - AM]

Interim With Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Rickard Rd East												
4	L2	113	0.0	0.061	4.7	LOS A	0.0	0.0	0.00	0.57	0.00	32.1
5	T1	759	0.0	0.195	3.3	LOS A	0.0	0.0	0.00	0.52	0.00	36.0
Approach		872	0.0	0.195	3.5	NA	0.0	0.0	0.00	0.52	0.00	35.4
All Vehicles		872	0.0	0.195	3.5	NA	0.0	0.0	0.00	0.52	0.00	35.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2036_Appian Way Access_Without Dev - AM]

Future Without Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Rickard Rd East												
4	L2	78	0.0	0.042	4.7	LOS A	0.0	0.0	0.00	0.57	0.00	32.1
5	T1	769	0.0	0.197	3.3	LOS A	0.0	0.0	0.00	0.52	0.00	36.0
Approach		847	0.0	0.197	3.5	NA	0.0	0.0	0.00	0.52	0.00	35.5
All Vehicles		847	0.0	0.197	3.5	NA	0.0	0.0	0.00	0.52	0.00	35.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2036_Appian Way Access_With Dev - AM]

Future With Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Rickard Rd East												
4	L2	114	0.0	0.061	4.7	LOS A	0.0	0.0	0.00	0.57	0.00	32.1
5	T1	769	0.0	0.197	3.3	LOS A	0.0	0.0	0.00	0.52	0.00	36.0
Approach		883	0.0	0.197	3.5	NA	0.0	0.0	0.00	0.52	0.00	35.4
All Vehicles		883	0.0	0.197	3.5	NA	0.0	0.0	0.00	0.52	0.00	35.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2018_Appian Way Access - PM]

Existing

Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Rickard Rd East												
4	L2	76	0.0	0.041	4.7	LOS A	0.0	0.0	0.00	0.57	0.00	32.1
5	T1	1001	0.0	0.257	3.3	LOS A	0.0	0.0	0.00	0.52	0.00	43.4
Approach		1077	0.0	0.257	3.4	NA	0.0	0.0	0.00	0.52	0.00	42.7
All Vehicles		1077	0.0	0.257	3.4	NA	0.0	0.0	0.00	0.52	0.00	42.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2026_Appian Way Access_Without Dev - PM]

Interim Without Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Rickard Rd East												
4	L2	3	0.0	0.002	4.7	LOS A	0.0	0.0	0.00	0.57	0.00	32.1
5	T1	1001	0.0	0.257	3.3	LOS A	0.0	0.0	0.00	0.52	0.00	36.0
Approach		1004	0.0	0.257	3.3	NA	0.0	0.0	0.00	0.52	0.00	35.9
All Vehicles		1004	0.0	0.257	3.3	NA	0.0	0.0	0.00	0.52	0.00	35.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2026_Appian Way Access_With Dev - PM]

Interim With Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Rickard Rd East												
4	L2	37	0.0	0.020	4.7	LOS A	0.0	0.0	0.00	0.57	0.00	32.1
5	T1	1001	0.0	0.257	3.3	LOS A	0.0	0.0	0.00	0.52	0.00	36.0
Approach		1038	0.0	0.257	3.4	NA	0.0	0.0	0.00	0.52	0.00	35.8
All Vehicles		1038	0.0	0.257	3.4	NA	0.0	0.0	0.00	0.52	0.00	35.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2036_Appian Way Access_Without Dev - PM]

Future Without Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Rickard Rd East												
4	L2	3	0.0	0.002	4.7	LOS A	0.0	0.0	0.00	0.57	0.00	32.1
5	T1	1001	0.0	0.257	3.3	LOS A	0.0	0.0	0.00	0.52	0.00	36.0
Approach		1004	0.0	0.257	3.3	NA	0.0	0.0	0.00	0.52	0.00	35.9
All Vehicles		1004	0.0	0.257	3.3	NA	0.0	0.0	0.00	0.52	0.00	35.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2036_Appian Way Access_With Dev - PM]

Future With Development
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Rickard Rd East												
4	L2	37	0.0	0.020	4.7	LOS A	0.0	0.0	0.00	0.57	0.00	32.1
5	T1	1001	0.0	0.257	3.3	LOS A	0.0	0.0	0.00	0.52	0.00	36.0
Approach		1038	0.0	0.257	3.4	NA	0.0	0.0	0.00	0.52	0.00	35.8
All Vehicles		1038	0.0	0.257	3.4	NA	0.0	0.0	0.00	0.52	0.00	35.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix C

Preliminary Construction Pedestrian and Traffic Management Plan

Western Sydney University

Bankstown City Campus

SEARs (SSD 9831) - Preliminary Construction Pedestrian and Traffic Management Plan

Issue 5 | 12 August 2020

Job number 263785

Arup Australia Pty Ltd ABN 76 625 912 665

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ARUP

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Appendices

Appendix A

Construction Vehicle Access

1 Introduction

1.1 Background

This report details the preliminary Construction Pedestrian and Traffic Management Plan (CPTMP) for the Bankstown City Campus Development (BCCD). The project is a transformative project for the Bankstown CBD and from a transport and traffic perspective, will respond to improvements in public transport access that is planned with the introduction of Metro services from 2024.

This CPTMP responds to Section 5 Transport and Accessibility of the Planning Secretary's Environmental Assessment Requirements (SEARs) for SSD 9831. The purpose of this preliminary CPTMP is to assess the proposed access and operation of construction traffic associated with the construction works only with respect to safety and capacity.

This preliminary plan details the management needed to control construction traffic, while minimising effects on the surrounding developments and allowing for appropriate access at all times. The final CPTMP plan will be developed by the appointed contractor and provide additional detail.

1.2 CPTMP requirements

The preliminary CPTMP requirements as outlined in the project SEARs are included in Table 1 along with the section of this report where it has been responded.

Table 1: SEARs CPTMP requirements

Requirement	Section
Assessment of cumulative impacts associated with other construction activities	See section 3.7 where the Sydney Metro and works are discussed
Assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity	See section 3.2 for locations where traffic controllers are proposed to help manage the interaction between construction vehicles and pedestrians
Measures proposed to mitigate any associated general traffic, public transport, pedestrian and cyclist impacts	See proposed measures in section 3 for various users.
Details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process	See program and description of the works in Section 2.2
Details of anticipated peak hour and daily construction vehicle movements to and from the site	See section 3.3 for anticipated daily and peak hours truck volumes
Proposed haulage routes and location of work zones (if any)	See section 3.1 for the primary haulage route. The northern section of Appian Way (adjacent

Requirement	Section
	to the site) is proposed to be closed for the duration of the works.
Details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicles	See section 3.2 for construction vehicle site access and egress arrangements. No car parking is being provided for construction workers. No impact to emergency or service vehicle access is anticipated.
Details of temporary cycling and pedestrian access during construction	See section 3.4 for details of arrangements for pedestrians and cyclists during the works.

2 Description of proposed works

2.1 Location and site description

The proposed site is in Bankstown City Centre, north of Bankstown Train Station and west of Bankstown Central Shopping Mall (see Figure 1). The existing use of the site is at-grade car parking and green space.

The site is situated within the Canterbury-Bankstown Local Government Area (LGA) and is bounded by Bankstown Library and Knowledge Centre to the west, Bankstown Civic Tower to the east, Rickard Road to the north and Paul Keating Park to the south. It is well connected to the public transport network, with both a rail and bus interchange located within 400m of the site.

Figure 1: Site location of BCCD

2.2 Description of the works

The proposed BCCD will have a GFA of approximately 29,266 m^2. The building will be 18 floors above ground with two basement levels. A site plan of the BCCD is presented in Figure 2.

The primary use of the building will be for tertiary education (accommodating the relocation of WSU from their Milperra campus). The campus will also have ancillary retail.

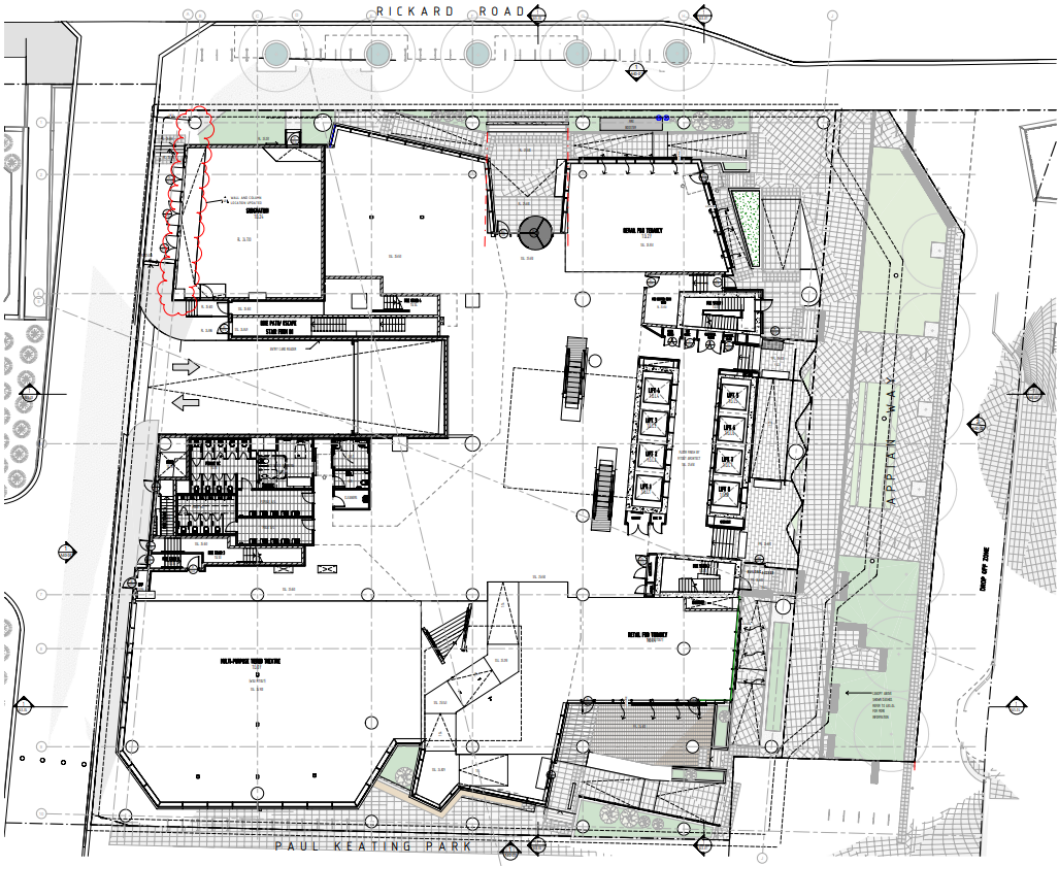


Figure 2: BBCD site plan

Subject to approval timing, the early works are proposed to commence in mid-2020 with the main works commencing in early 2021 and a target project completion date of mid-2022.

Early site preparation works will be subject to a separate development application and assessed by Canterbury Bankstown Council. Early works not the subject of this CTMP include:

- Erection of site hoardings;
- Demolition, including tree removal;
- Bulk excavation;
- Shoring, including temporary anchors;
- Disconnection and/or diversion of services; and
- A new lay-back along Rickard Road leading into Appian Way.

The proposed new layback between Rickard Road and The Apian Way will be constructed within the early works package so as to allow the safe manoeuvring of construction traffic into the site.

The timeline of the key construction works relating to the Bankstown City Campus is presented in Table 2. A more detailed programme will be developed by the appointed Contractor and submitted with the final CPTMP.

Table 2: Timeline of construction works

Activities	Start Date	Finish Date
Early Works	Mid 2020	End 2020
Main Works	Early 2021	Mid 2022

2.3 Hours of operation

Main site working hours will be governed by the final SSDA consent conditions, however the following is proposed for the preliminary CPTMP:

- Mondays to Fridays inclusive: 7am–5pm
- Saturdays: 7am–1pm
- Sundays and public holidays: No work

Works may also be undertaken outside these hours where approvals are gained.

3 Proposed measures and impact

3.1 Truck routes and controls

The effective management of haulage operations is not only critical to the success of the project but is also necessary to minimise the impact on the road network and to maintain the safety of pedestrians.

Truck routes have been selected on the basis that trucks are to utilise state and regional roads first before travelling on local roads. The primary arrival and departure haulage routes are listed below and illustrated in Figure 3.

Primary arrival routes

- From the north – via Stacey Street > Rickard Road
- From the south – via Stacey Street > Rickard Road

Primary departure routes

- To the north – via Rickard Road > Chapel Road (outside of school hours) / via Rickard Road > Meredith Street (during school hours)
- To the south – via Rickard Road > Chapel Road > Marion Street > Meredith Street -> Rickard Road -> Stacey Street.

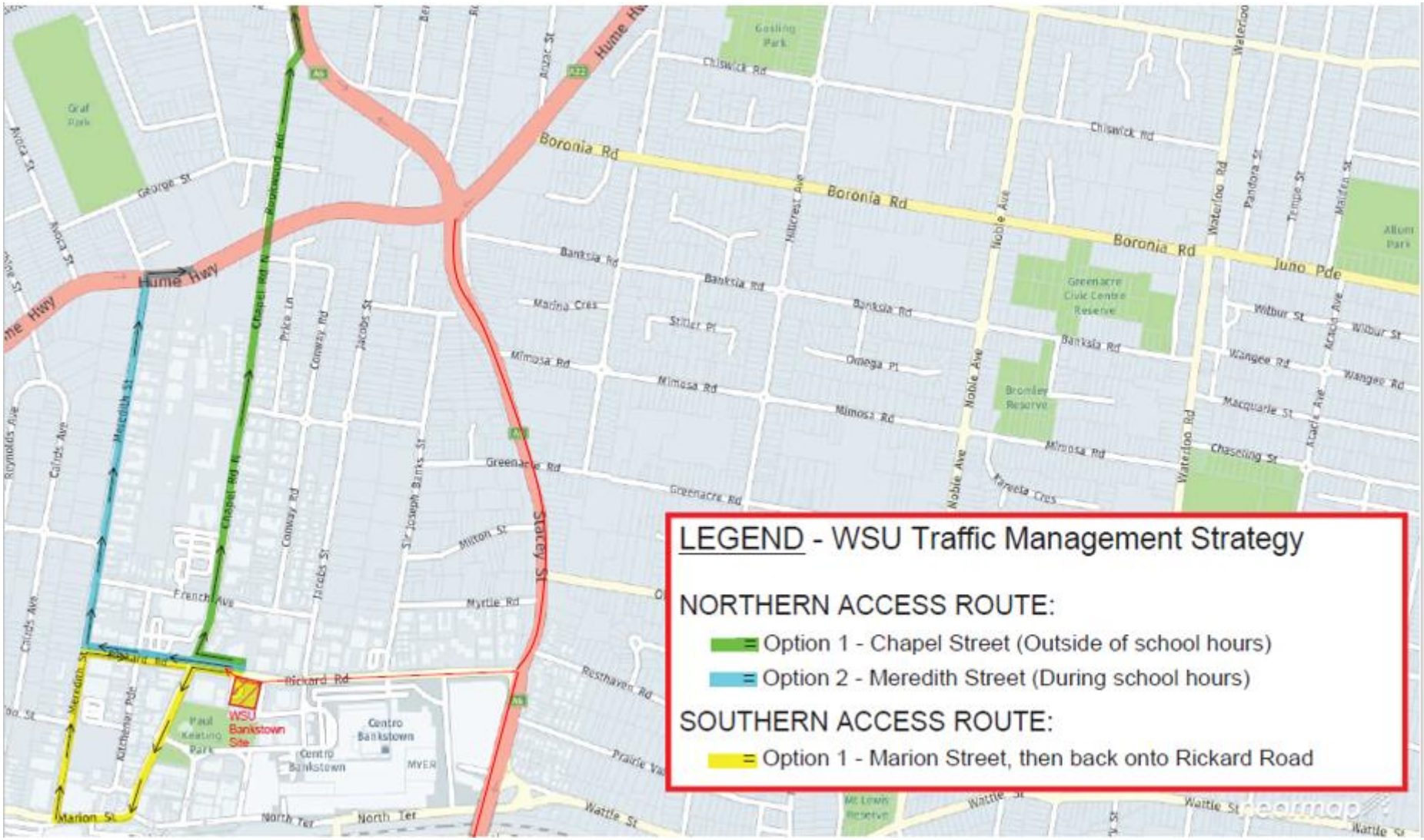


Figure 3: Truck arrival and departure routes

3.2 Construction vehicle access and traffic staging plan

Vehicular access to site to enable delivery of large plant, material and equipment will be through the northern boundary of the site, via Rickard Road.

This vehicular access will accommodate large material and plant deliveries including steel, concrete, external elements which require delivery by table top truck, semi-trailer, concrete truck etc. This will also apply to smaller deliveries by utility vehicles. The single-entry point will necessitate close monitoring and coordination of vehicular movements to ensure they do not encumber access for the adjoining properties and existing pedestrian thoroughfares.

The proposed construction methodology ensures that the basement and tower will be constructed without affecting access through the existing Bankstown Library and Knowledge Centre and The Appian Way roads from Rickard Road.

The access route and associated traffic management is presented in Figure 4 below. A swept path of the vehicle access is included in Appendix A.

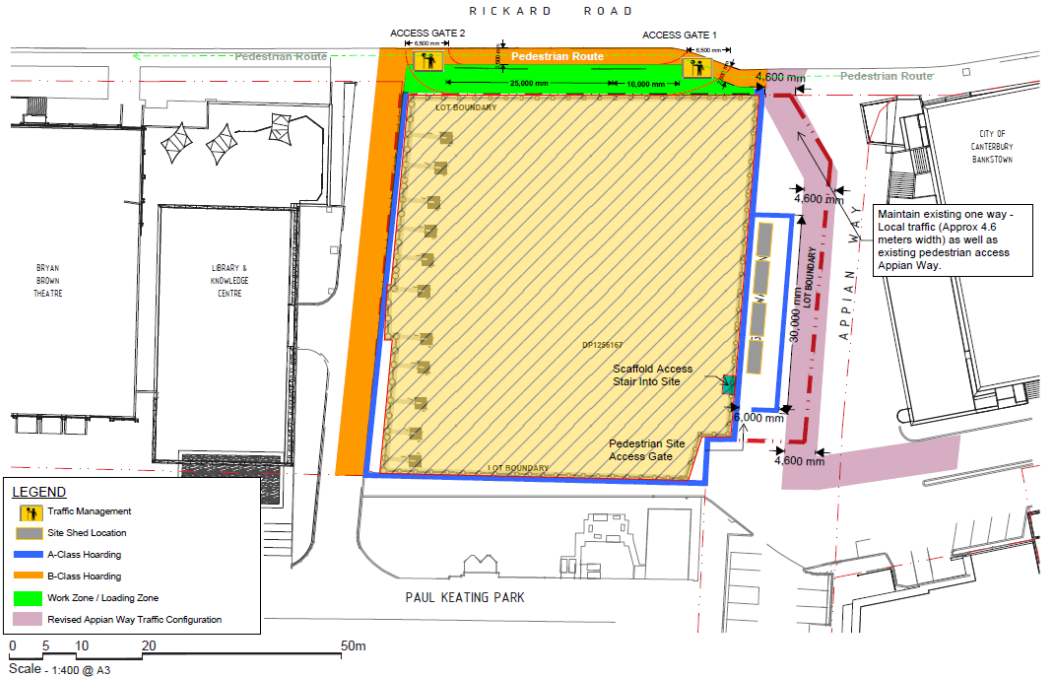


Figure 4 Construction access and egress route

Other key points in relation to construction vehicle access include:

- As much as possible, truck movements to and from the site will be scheduled to minimise traffic disruption in the surrounding road network;
- Oversized vehicles will be transported to/from the site in strict accordance with Roads and Maritime guidelines and Canterbury-Bankstown Council requirements to minimise traffic disruption during normal business hours;
- The designated haulage routes will be communicated to all truck drivers to ensure truck movements to/from the site are as efficient as possible;

- The loading and unloading of trucks would be planned to ensure each individual truck haulage capacity is fully utilised reducing the number of truck movements;
- The need for construction vehicle marshalling areas outside of the site will be determined closer to the time of construction when there is more detailed information available regarding the origin of construction vehicle trips. If required, potential areas will be identified, and their suitability discussed with the relevant stakeholders;
- All construction vehicles associated with the site will be parked wholly within the site in designated off-street parking areas. Construction vehicles associated with the subject site must not park in any on-street parking spaces;
- On-site parking would not be made available for construction workers. Workers would be encouraged to use public transport when travelling to/from the site, hence minimizing traffic impacts on the surrounding road network; and
- Following the construction of the basement levels, there may be an option to utilise these spaces for construction workers (subject to the appointed contractors final Construction Traffic Management Plan).

In terms of traffic staging and pedestrian access, the following has been considered:

- Continued pedestrian access along Rickard Road, Jacob Street, The Appian Way and along the northern boundary of Paul Keating Park;
- Continued vehicle access to the Library car park;
- Continued function of The Appian Way for both vehicles and pedestrians;
- Continued access to Civic Drive, including vehicle access to the Council car park and any remaining parking spaces;
- Traffic controllers in place at two key locations:
    - At the site entry (at Rickard Road)
    - At the exit from site (at Rickard Road)
- The traffic controllers will ensure the safe interaction between pedestrians and construction vehicles at the three locations listed above. If required, expandable barriers will be in place at these locations to temporarily hold pedestrians while construction vehicles are entering and exiting only.

Traffic control plans will be prepared as part of the final CPTMP prepared by the appointed Contractor.

3.3 Construction traffic volumes

It is anticipated that the site will generate approximately 75 trucks per day during peak activity which equates to approximately 8 vehicles per hour over the course of the day, including during peak times.

During other construction stages, the vehicle generation is expected to be approximately 50 trucks per day.

The busiest period in terms of construction traffic volumes is likely to be during construction of the core and slab when a consistent arrival of concrete agitator trucks is required.

During the construction works, vehicles that will access the site will comprise of:

- 19m semi-trailers
- 12.5m Heavy Rigid Vehicles
- 8m Bogie Tippers
- Concrete agitators and pump trucks

Occasionally, larger vehicles may need to access the site for specific purposes (e.g. delivery of cranes etc.). These types of movements will be infrequent and will be planned to occur outside of peak traffic periods with limited lifting operations on weekends. These operations would be subject to a separate application for partial road closure with the Roads and Maritime Services (RMS), Transport for NSW (TfNSW), Canterbury-Bankstown Council and emergency services as required where a Road Occupancy Licence will be issued.

3.4 Pedestrian and cyclist access

It is proposed to maintain all pedestrian and cycle access on all streets surrounding the site. At the key locations where construction vehicles need to enter and exit the site and cross areas of pedestrian activity, traffic controllers are proposed. These locations are:

- At the site entry (at Rickard Road)
- At the exit from site (at Rickard Road)

If required, expandable barriers will be in place at these locations to temporarily hold pedestrians while construction vehicles are entering and exiting only

Existing pedestrian crossing facilities are to be maintained at all nearby signalized intersections and mid-block locations on Jacobs Street and Chapel Road.

Suitable signage including the “Watch for Pedestrians” signs would be provided at egress points for construction vehicles to maintain pedestrian safety when pedestrians travel across the proposed vehicular crossings.

3.5 Emergency vehicle access

Access to the site and neighbouring sites by emergency vehicles would not be affected by the works as the main roads and footpath frontage would be unaffected. Emergency protocols on the site would include a requirement for suitably accredited site personnel to assist with emergency access from the street.

Contact shall be maintained with the police and emergency services agencies throughout construction and a 24-hour contact would be made available for 'out of hours' emergencies and access.

3.6 Public transport

No changes to bus stops or services are proposed during the BCCD construction activities. Changes are, however, anticipated as part of the Sydney Metro works due to need for rail replacement services. A summary of Temporary Transport Plan is presented in Figure 5.

The temporary transport bus stops would use areas that are currently allocated car parking, bus layovers, loading zones and special events bus zones.

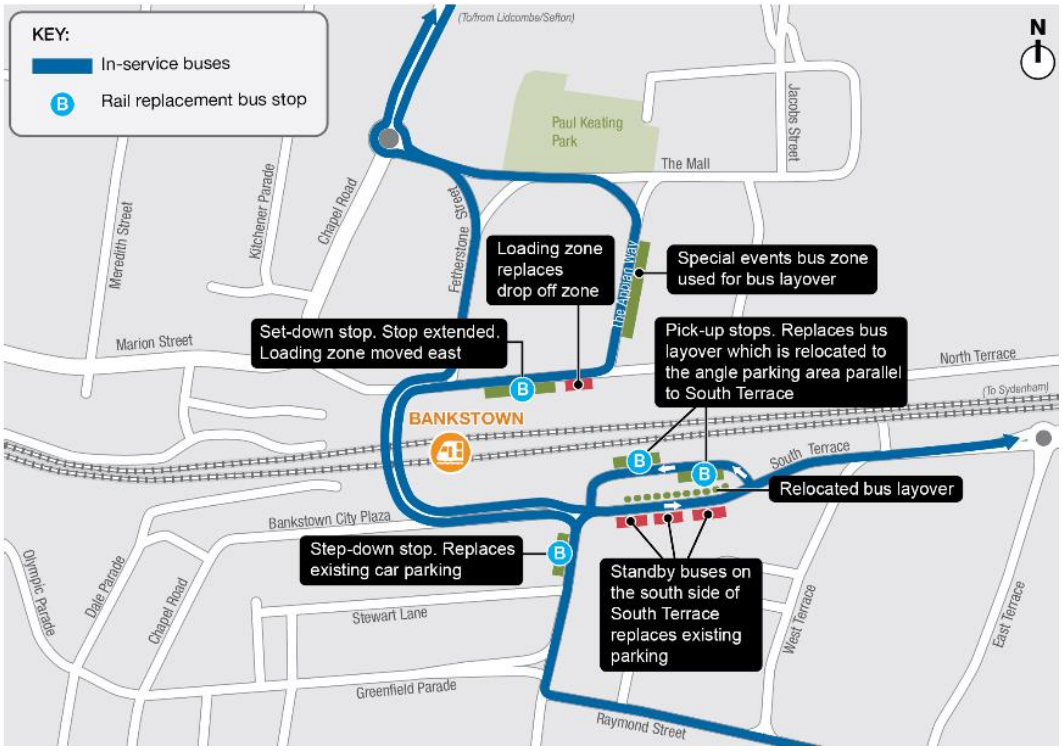


Figure 5 Bankstown Temporary Transport Plan

Source: Sydney Metro City and Southwest EIS (Sydenham to Bankstown)

3.7 Concurrent construction projects

3.7.1 Sydney Metro

The main construction works taking place within 400m of the site will be the Sydney Metro works. The proposed construction haulage routes into the sites to be used during the Metro construction works are presented in Figure 6. Stacey Street is identified as the primary Haulage Route, with Rickard Road and Meredith Street as secondary routes.

The EIS anticipates that 10 heavy and 10 light vehicles would be generated in the AM and PM peak hours.

While the BCCD project also uses Stacey Street and Rickard Road as the primary haulage route, the cumulative peak period volumes will not be significant, and no issues are anticipated given the additional capacity be added to Stacey Street as part of the RMS pinch point program.

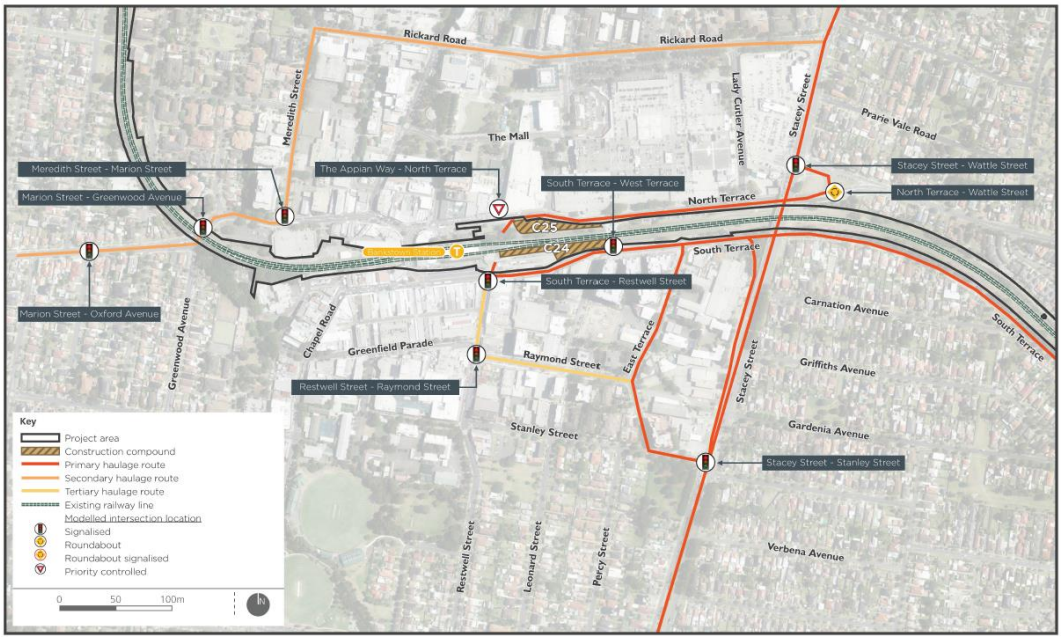


Figure 6 Metro construction routes

Source: Sydney Metro City and Southwest EIS (Sydenham to Bankstown)

In addition to the construction traffic volumes generated by the Sydney Metro works, temporary road and lanes closures will occur at the following locations

- Stacey Street Overbridge (6 months of weekend works (half-lane closures) and 4 weeks of half lane closures)
- North Terrace to South Terrace Underbridge (6 months of weekend works (half-lane closures) and 4 weeks of half lane closures)
- Chapel Road Overbridge (no lane closures)

Sydney Metro will also be implementing a comprehensive Temporary Transport Plan during rail line possession works which will include temporary rail services, temporary bus services and supporting infrastructure.

3.7.2 Gateway to the south – pinch point program

Stage one of the works along Stacey Street have been completed and the second stage of works is due to commence in the second half of 2019. It is likely this project will be substantially completed by the time works commence at the BCCD.

The works are generally removing pinch points along the A6 Stacey Street to improve the flow of traffic and reduce congestion.

3.7.3 Bankstown Central

A transformative redevelopment of the Bankstown Central shopping centre has been announced by the owners, Vicinity Centres, however as no development application has been submitted to date, the cumulative impact of any construction activities cannot be considered.

3.7.4 Draft Bankstown Complete Streets

The draft Bankstown Complete Streets project will be progressively implemented over the next 20 years. Of the projects having ‘high priority’, the conversion of the Appian Way to a shared space between Bankstown Station and Rickard Road and is identified as being a number 1 priority.

The northern portion of the works on Appian Way will be delivered as part of the BCCD works.

4 Summary

This CPTMP has been prepared for the construction of the Bankstown City Campus Development. Key features of the plan are summarised below:

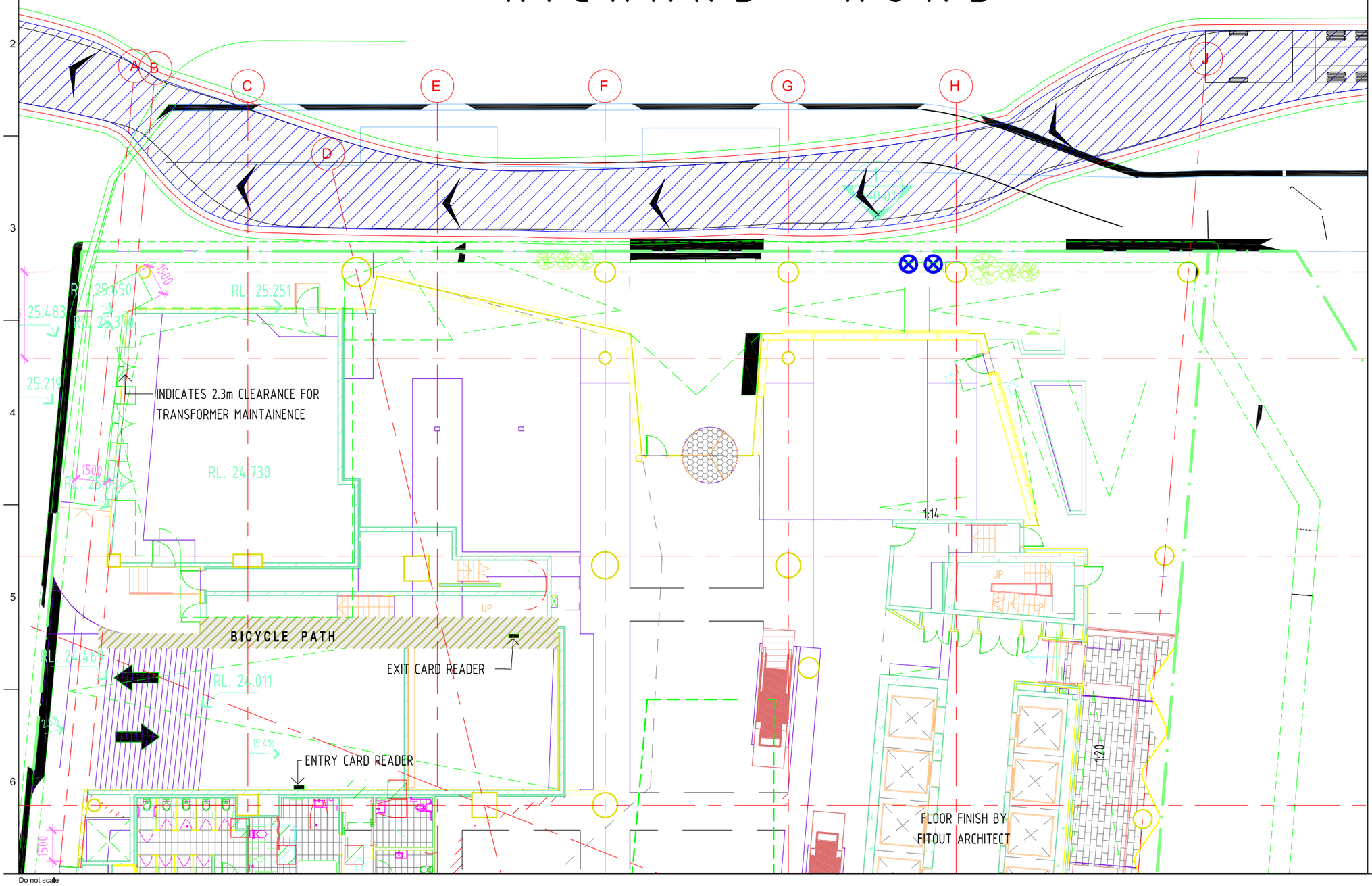
- The proposed construction vehicle access is at the northern boundary of the site, via Rickard Road (entry and exit – one-way route). This arrangement minimizes disturbances to existing accesses;
- Initially, no on-site parking will be provided for construction staff. Construction staff will be encouraged to use public transport. Any staff driving will need to avail of public parking in the surrounding area;
- Following the construction of the basement levels, this could be potentially used for contractor parking during later construction stages (subject to the appointed Contractors staging and methodology);
- It is expected that the western access road to the Bankstown Library Knowledge Centre and The Appian Way/Civic Drive will continue to be operational as per the existing situation (subject to the appointed Contractors staging and methodology);
- RMS certified traffic controllers are proposed be in place at site access and egress point to ensure the safe interaction of pedestrians and construction traffic;
- Construction vehicle traffic generation is expected to be approximately 75 trucks per day during the peak construction stages and 8 trucks per hour. This reduces to approximately 50 trucks per day during other stages; and
- A final Construction Pedestrian and Traffic Management Plan will be developed by the appointed Contractor and submitted to Council for approval following liaison with relevant stakeholders such as Council, TfNSW, RMS and neighbouring developments.

Appendix A

Construction Vehicle Access

A3

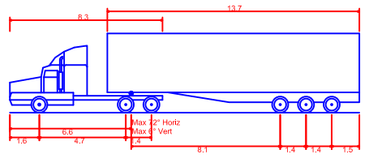
RICKARD ROAD



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



AV - Articulated Vehicle

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	12.500m

Issue	Date	By	Chkd	Appd
A	12/08/20	SZ	JT	JT

For Information

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Client
Walker Bankstown Corporation

Job Title
WSU BCC

Drawing Title
Construction vehicle access

Scale at A3 1:200

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
263785-00	**SKT001**	**A**

Do not scale

Appendix D

Response to Submissions

Reference Number	Author/ Agency	Matter	Response
1	DPIE	The design of vehicle access arrangements must be reviewed to ensure that all medium ridged vehicle movements do not conflict with kerbs and pedestrian environments (i.e. The Appian Way and basement entry ramp).	The kerb splays have been adjusted and Arup has reviewed and provided swept paths for medium rigid vehicles (MRVs)/kerb conflict at The Appian Way and the basement entry.
2	DPIE	An assessment of the adequacy and operational performance of the proposed pick-up/drop-off facility is to be provided in supporting a transport mode shift away from private vehicle usage. This assessment must also consider the potential use of the facility from other surrounding land uses and the impact of this on its operation in conjunction with the proposed university use.	Arup has provided additional analysis, commentary and swept paths to justify the adequacy and operational performance of the drop-off facility on The Appian Way.
3	TfNSW and RMS	It is noted that an area has been allocated on The Appian Way for pick up and drop off. However, no indication has been provided of the number of vehicle spaces within the zone. Nor has there been an analysis of the adequacy of the pick-up and drop off zone to cope with the amount of traffic that may be generated in the zone at the end of class times and other peak periods. There is concern that the loading zone on Rickard Road may be utilised as an ad hoc waiting bay should the pick up and drop off zone on The Appian Way prove to be inadequate for demand. It is noted that it is common at other educational facilities for vehicles to wait for passengers in such zones. Recommendation: The applicant is requested to: • Indicate the number of spaces available in the pick up and drop off zone on The Appian Way; • Provide an assessment of the number of vehicles likely to utilise the pick up and drop off zone at the end of class times and other peak periods, showing that the zone is adequate for the anticipated demand; and • Provide information on how the pick up and drop off zone will be managed to prevent vehicles waiting in the zone.	Arup has provided additional analysis, commentary and swept paths to justify the adequacy and operational performance of the drop-off facility on The Appian Way.

Reference Number	Author/ Agency	Matter	Response
4	TfNSW and RMS	TfNSW requests that the applicant be conditioned as follows: The applicant shall prepare a Travel Plan, in consultation with TfNSW, for the proposed development which must be approved by TfNSW prior to the issue of the first Occupation Certificate. The Travel Plan should: • Support both students and staff and any other tenants to prioritise access to the site by public and active transport and minimise the proportion of single-occupant car journeys to the site; • Include a Travel Access Guide – site accessibility by public and active transport and access arrangements for end of trip facilities and bicycle parking, should also include access for servicing; • Establish mode share targets for occupation and outline robust actions to achieve these targets; • Appoint a Travel Plan Coordinator to oversee the implementation of the Travel Plan; • Nominate the party/parties responsible for implementing the actions in the Travel Plan and its ongoing monitoring and review, including the delivery of actions and associated mode share targets; and • Include an annual review process, supported by a Travel Survey to determine if mode share targets and other actions of the Travel Plan are being achieved.	Applicant to prepare a Travel Plan post SSDA approval as a condition of consent.
5	TfNSW and RMS	Plans show that card readers will be used for access to the basement area. It appears from the plans that vehicles will need to travel to the contraflow direction to access the relevant card reader. This will present a safety issue when vehicles require access and egress at the same time. Recommendation: It is recommended that the design of the basement vehicle entry be reviewed and if necessary, re-designed to allow for a central median that will accommodate both entry and egress card readers, thus eliminating vehicle conflict.	The basement vehicle entry has been reviewed and re-designed to allow for simultaneous entry/exit of vehicles, plus a central median that will accommodate both entry and egress card readers. This has allowed vehicles to drive on the left side of the ramp. Arup have provided swept paths showing the operation of this arrangement.
6	TfNSW and RMS	The swept path diagrams provided (SKT0016) suggest a potential vehicle conflict point as vehicles simultaneously enter the access road from Rickard Road and exit the access road to Rickard Road. Recommendation: A swept path diagram should be provided showing that the two largest	Splays at the access road have been adjusted to permit simultaneous entry and exit of two MRVs. Arup have provided swept paths showing the operation of this arrangement.

Reference Number	Author/ Agency	Matter	Response
		vehicles expected to access the site are able to enter and exit simultaneously without conflict. If simultaneous entry and exit of the largest vehicles is not possible, the proponent should demonstrate how this conflict will be managed (eg potential splays at the access road could be modified to accommodate these movements).	
7	TfNSW and RMS	Drawing SKT0017 appears to show the swept path of the MRV encroaching on the shared pedestrian zone as it leaves the deceleration lane on Rickard Road and enters The Appian Way. Recommendation: The splays on The Appian Way should be reviewed and if required widened to prevent encroachment and a revised swept path diagram provided to show that this encroachment is eliminated.	Arup have reviewed the splays on The Appian Way and no widening is required to prevent this encroachment. Landscaping adjustments have been made to ensure no conflicts.

Reference Number	Author/ Agency	Matter	Response
8	ALDI (submission prepared by Milestone)	The proposed development involves construction of a 21 storey building over two basement car park levels on the development site. This will involve a lengthy construction period of 18 months and a significant on-site presence in terms of construction personnel. The Preliminary Construction Pedestrian and Traffic Management Plan (CPTMP) prepared by Arup dated 27 August 2019 submitted with the SSD addresses traffic management during the construction phase of the proposed development. Milestone notes the following from CPTMP relating to car parking implications for the development during the construction phase: *'Initially, no on-site parking will be provided for construction staff. Construction staff will be encouraged to use public transport. Any staff driving will need to avail of public parking in the surrounding area.'* The TMAP indicates that the draft Bankstown Complete Streets project estimated 865 on-street parking spaces within the Bankstown CBD. The final Bankstown Complete Streets project has been adopted by Council at the 22 October 2019 Council meeting and estimated there will be a total of 530 on-street parking spaces once all adopted street improvements are constructed. On-street parking spaces surrounding the development site are 15 minute, 30 minute and 1-2 hour time limited (refer to ALDI submission for context map). In light of the above factors, car parking associated with the construction phase of the proposed development will likely be located within ALDI's car park (133 car spaces) given its proximity, ease of access via three street frontages, its at-grade design and free parking period allowance. It is expected the parking of vehicles related to construction activity will commence early in the morning and lasts throughout the day. This has the potential to impact on the availability of car parking spaces within ALDI's car park as construction workers seek to park in a convenient area without time restrictions and low parking fares. It is likely many construction workers will drive to the site due to heavy tools and equipment that are required to be transported each day. As a result less car parking spaces will be available for use by ALDI customers who may therefore seek alternative arrangements for grocery shopping. The reduced availability of car parking for ALDI customers has the potential to have adverse impacts on the commercial viability of the ALDI store through reduced sales.	It is within ALDI's control to manage their own site, including the car park, and if required, install boom gates to ensure their parking is used by ALDI customers only. This will likely need to be considered in light of the Council strategy regardless of this proposed development. Given Council are removing parking spaces from the CBD, this is considered more of a widespread impact than the WSU site's parking management. Any concerns about this strategy should be raised directly with Council and not this applicant. On-street parking in surrounding streets is time restricted and hence cannot be used by long stay visitors of the site (i.e. staff and construction workers). It will likely only be used by short stay students. As per the preliminary CPTMP, construction workers will be discouraged from driving and encouraged to take public transport with measures such as storing tools on site. Stakeholders, including ALDI, will have the opportunity to consult with the Contractor (when appointed) on the detailed CPTMP.

Reference Number	Author/ Agency	Matter	Response
		Milestone also notes from the CPTMP that: 'A final Construction Pedestrian and Traffic Management Plan will be developed by the appointed Contractor and submitted to Council for approval following liaison with relevant stakeholders such as Council, TfNSW, RMS and neighbouring developments.' Milestone requests the final CPTMP clearly states that under no circumstances that construction staff are to use the ALDI car park. Milestone requires to review and comment on the final CPTMP prior to it's approval by the Department.	
9	ALDI (submission prepared by Milestone)	The proposal will result in the loss of 59 existing car parking spaces on the site that are currently used by the public and Council Staff. The proposal will provide 94 car spaces within the basement levels of the new building for future BCC staff use only. We understand that the Bankstown Development Control Plan 2015 does not specify a parking rate for tertiary educational establishments, neither does the Roads and Maritime Services' publication Guide to Traffic Generating Developments, Section 5 – Parking Requirements for Specific Land Uses (October 2002). The submitted TMAP states: 'With the introduction of Metro, and the CBD car parking review being undertaken by Council as part of the draft Bankstown Complete Streets Project, the provision of additional public parking in the city centre is not	The development proposes a parking strategy consistent with the Council Complete Streets strategy. Removing car parking on the site will result in less overall traffic generation, thereby encouraging the use of nearby public transport, especially given the lack of free all-day parking available nearby. This is observed in many centres including Sydney's CBD. A final Green Travel Plan should be conditioned in consultation with authorities, and prepared for the site to address concerns about how staff will be encouraged to travel to the site via non-car modes.

Reference Number	Author/ Agency	Matter	Response
		aligned with the future vision for the CBD. The proposed parking provision for the University / Education space is considered adequate in the context of the broader transport objectives for the Bankstown CBD'. Notwithstanding, it is considered the proposed 94 car spaces are insufficient to meet the parking requirements of the proposed BCC as it comprises only 14% of the total 650 staff employed. The TMAP states that a comprehensive Green Travel Plan will be prepared to inform staff and students of public transport options and encouraging use of public transport. However, given the limited car spaces on site for staff use only, students who drive to the BCC will seek alternative car parking arrangements outside the BCC site and use existing public parking spaces in the surrounding Bankstown CBD area, most likely within the ALDI car park which is a convenient parking location with an hour free parking period and ongoing low parking fares of $8 for 2-3 hours. Milestone expects staff will park outside the proposed development and most likely within the ALDI car park should the car parking of the development be fully occupied by other staff. Further, Council staff who use existing car park currently located at the development site will also seek alternative car parking arrangements and most likely within on-street spaces and the ALDI car park. It is a reasonable conclusion that the ALDI car park will be used to meet car parking demands of the proposed development. From an ALDI perspective this situation is unacceptable and inequitable as it will result in reduced availability of car parking for genuine ALDI customers. In addition this has the potential to adversely impact on the commercial viability of the ALDI Store through reduced sales.	While there may be some demand on free parking, such as ALDI, it is within ALDI's control to manage their carpark on their site. Such measures may also include agreements with Council for rangers to monitor time restrictions.
10	ALDI (submission prepared by Milestone)	Should the State Significant Development Application be supported by the Department we request the following: • The final CPTMP containing information relating 'under no circumstances that the construction staff can use the ALDI car park' to be provided by the applicant. • Milestone on behalf of ALDI to review and comment on the final CPTMP prior to it is approved by the Department. • Comprehensive Green Travel Plan containing information relating 'under	Noted. This can be conditioned by the Department.

Reference Number	Author/ Agency	Matter	Response
		no circumstances that the staff and students can use the ALDI car park' to be provided by the applicant.	
11	Name Withheld 1	Inadequate provision for vehicle parking for the indicated 10,000 students (up from 7,000 original estimate). Plus staff, serving or maintenance or 'retail' activity. These students will not all be arriving on a school bus nor by train. In this site, the CBC parking is severly restricted and will impaft on surrounding high volume demand. The first five floor levels should be allocated to vehicle parking, as these students belong to the proposed university, the university should provide for their own.	It is Council's strategy to remove parking and hence vehicle demand into the Bankstown CBD. As such, providing a large quantum of parking on the site is more likely to result in further traffic generation and potential traffic congestion in the centre.
12	Name Withheld 2	Also i am a bit concerned that they are relying on the existing car parking in the area and note that the existing roads are all operating well. Have you tried driving to that site from the south? Restwell is a standstill in the afternoon from school run until dinner time, and in the morning it is chapel street via Greenwood Ave that is at a standstill, yet neither of these roads has been considered in the assessment despite Condell Park and Revesby having been noted as key cathcments for the university students.	The parking in the surrounding area is being constrained as part of the Bankstown Complete Street strategy. This includes restrictions on all-day free parking. Therefore, the site will not be able to use all parking available. In the context of the existing surrounding traffic flows, the site is generating approximately 2% additional traffic at adjacent intersections. Given the traffic distribution assumed, the impacts would be negligible at intersections further from the site.
13	Name Withheld 4	Parking is hard to find as is, but construction will make parking harder since building will be erected in an existing car park area! Ive noticed 2 levels of car parking, there should be 2 levels of general public car parking 3 hour free parking and more parking levels for WSU students/teachers. I would of thought for a building of this size it should of had at least 4 levels if not more! Close by shopping center parking is inadequate as you drive around many times to find parking.	The parking in the surrounding area is being constrained as part of the Bankstown Complete Street strategy. This includes restrictions on all-day free parking. Therefore, the users of the site will not be able to use all parking available.

Reference Number	Author/ Agency	Matter	Response
14	Canterbury-Bankstown Council	The applicant must contribute to public domain works to improve pedestrian connections to public transport and shops. This infrastructure improvement is required to support the planning proposal and SSDA.	Arup have undertaken a static pedestrian assessment (using Fruin Level of Service) of key pedestrian routes to determine whether there is sufficient capacity on walking routes (existing scenario and future scenario including operational WSU BCC).
15	Canterbury-Bankstown Council	The SSDA must provide appropriate bike parking and associated end-of-trip facilities on the site.	Arup have provided additional details on the bike parking provision, in line with the NSW Planning for Walking and Cycling Guidelines.
16	Canterbury-Bankstown Council	The applicant must contribute to any parking infrastructure requirements. This infrastructure improvement is required to support the planning proposal and SSDA.	Arup have provided further justification for the proposed car parking provision based on mode share targets, aspirations noted in the Bankstown Complete Streets document and experience of similar scenarios. This is based on a strategic assessment rather than a detailed parking analysis.
17	Canterbury-Bankstown Council	Council does not support the use of The Appian Way and Civic Drive for construction traffic. The reason is The Appian Way and Civic Drive are required to be publicly accessible for pedestrian movement and vehicular movements to enter and service the Civic Tower during the construction stage. It is also important to protect the structural integrity of the basement car park and stormwater culverts (located below The Appian Way and Civic Drive) from the impacts of heavy trucks during the construction phase.	All potential access options for heavy vehicles during construction works have been assessed based on their feasibility, addressing impacts to pedestrians; site establishment and construction programme; and surrounding land uses. Advice has been received from Council advising that there are no load restrictions to The Appian Way.
18	DPIE	Consideration is to be given to the provision of additional end-of-trip facilities for students to encourage more active travel modes, noting the close proximity of many students living within two to five kilometres of the site.	Arup have assessed and provided explanation of the adequacy of proposed end-of-trip facilities. Students are more likely to be short-stay and use bicycle racks for quick and easy parking. Therefore, no provision of end-of-trip facilities for students has been allowed. Given students live within close proximity of the site, it is more likely they will go home between classes.