

Proposed School Campus Development.
48 Victoria Road and 2A-2B Gordon Street, Rozelle

Reference: 21.021r01v03 Date: November 2021



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# DOCUMENT VERIFICATION

Job Number	21.021						
Project	48 Victoria Rd and 2A-2B Gordon Street, Rozelle						
Client	St Aloysius College	St Aloysius College					
Revision	Date	Date Prepared By Checked By Signed					
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# 1. INTRODUCTION

TRAFFIX has been commissioned by the St Aloysius College to undertake a Transport and Accessibility Impact Assessment in support of a State Significant Development Application (SSD-27208140) relating to the proposed St Aloysius campus at 48 Victoria Road and 2A and 2B Gordon Street Rozelle.

As part of the State Significant Development Application process, the Secretary's Environmental Assessment Requirements (SEARs) have been issued for the proposal. This Transport and Accessibility Impact Assessment has been prepared to assess the traffic and access impacts of the proposal and respond to the relevant SEARs.

Under Clause 57 of State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017, the proposed development is of a scale and size that warrants referral to Transport for NSW (former Roads and Maritime Services). In addition, the SEARs process will require consultation with Council.

The report is structured as follows:

- Section 2: Addresses the SEARs that apply to the proposal.
- Section 3: Describes the site and its location.
- Section 4: Describes the existing traffic conditions of the site.
- Section 5: Describes the existing school characteristics.
- Section 6: Describes the proposed development.
- Section 7: Presents the parking requirements.
- Section 8: Discusses the traffic and transport impacts.
- Section 9: Discusses the green travel plan
- Section 10: Discusses the access and internal design aspects.
- Section 11: Presents the preliminary operational traffic management plan.
- Section 12: Presents the preliminary construction traffic management plan.
- Section 13: Presents the overall study conclusions.



# 2. SEARS RESPONSES

A response to each relevant requirement of the Secretary's Environmental Assessment Requirements (SEARs) is provided below, including references to sections of this report where applicable. Reference should also be made to the SEARs and the below matters relate specifically to Item 7:

Item 7: Transport and Accessibility

SEARS Requirements	Reference
Provide a transport and accessibility impact assessment, which includes	
<ul> <li>An analysis of the existing transport network, including the road hierarchy and any pedestrian, bicycle or public transport infrastructure, current daily and peak hour vehicle movements, and existing performance levels of nearby intersections.</li> </ul>	Refer to Section 4 and Section 8
<ul> <li>Details of the proposed development, including pedestrian and vehicular access arrangements (including swept path analysis of the largest vehicle and height clearances), parking arrangements and rates (including bicycle and end-of-trip facilities), drop-off/pick-up-zone(s) and bus bays (if applicable), and provisions for servicing and loading/unloading.</li> </ul>	Refer to Section 7 and Section 10
<ul> <li>Analysis of the impacts of the proposed development         (including justification for the methodology used),         including predicted modal split, a forecast of additional         daily and peak hour multimodal network flows as a result         of the development (using industry standard modelling),         potential queuing in drop-off/pick-up zones and bus bays         during peak periods, identification of potential traffic         impacts on road capacity, intersection performance and         road safety (including pedestrian and cyclist conflict), and</li> </ul>	Refer to Section 5 and Section 7



<ul> <li>any cumulative impact from surrounding approved developments.</li> <li>measures to mitigate any traffic impacts, including details of any new or upgraded infrastructure to achieve acceptable performance and safety, and the timing, viability and mechanisms (including proposed arrangements with local councils or government agencies) of delivery of any infrastructure improvements</li> </ul>	Refer to Section 8
in accordance with relevant standards.  • measures to promote sustainable travel choices for employees, students and visitors, such as connections into existing walking and cycling networks, minimising car parking provision, encouraging car share and public transport, providing adequate bicycle parking and high quality end-of-trip facilities, and implementing a Green Travel Plan.	Refer to Section 9
<ul> <li>a preliminary operational traffic and access management plan for the development, including drop-off/pick-up zones, bus bays and their operations.</li> </ul>	Refer to Section 11
Provide a brief Construction Traffic Management Plan detailing predicted construction vehicle movements, routes, access and parking arrangements, coordination with other construction occurring in the area, and how impacts on existing traffic, pedestrian and bicycle networks would be managed and mitigated.	Refer to Section 12



# 3. LOCATION AND SITE

#### 3.1 Victoria Road Site

The site has a total site area of approximately 1,330m<sup>2</sup> and consists of a two-storey building currently unoccupied. It has a southern frontage of 40 metres to Prince Street, a northern frontage of 35 metres to Victoria Road and an eastern frontage of 30 metres to Gordon Street It is bounded to the west by commercial and residential developments.

Vehicular access to the site is currently provided via Gordon Street at the eastern frontage of the site.

#### 3.2 Gordon Site

The site has a total site area of approximately 3,460m<sup>2</sup> and consists of a collection of buildings including the church. It has a northern frontage of 28 metres to Victoria Road and a southern frontage of 47 metres to Quirk Street, an eastern frontage of 57 metres to Maney Street and a western frontage of 87 meters to Gordon Street.

The school will occupy the existing classrooms on first floor of the central building, which were previously used by the Sydney Community College and the church crypt.

Vehicular access to the site is currently provided via Gordon Street on the western frontage of the site. It connects to the main road, Victoria Road along with Quirk Street.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**. Reference should also be made to the Photographic Record presented in **Appendix A** which provides an appreciation of the general character of roads and other key attributes in proximity to the site.



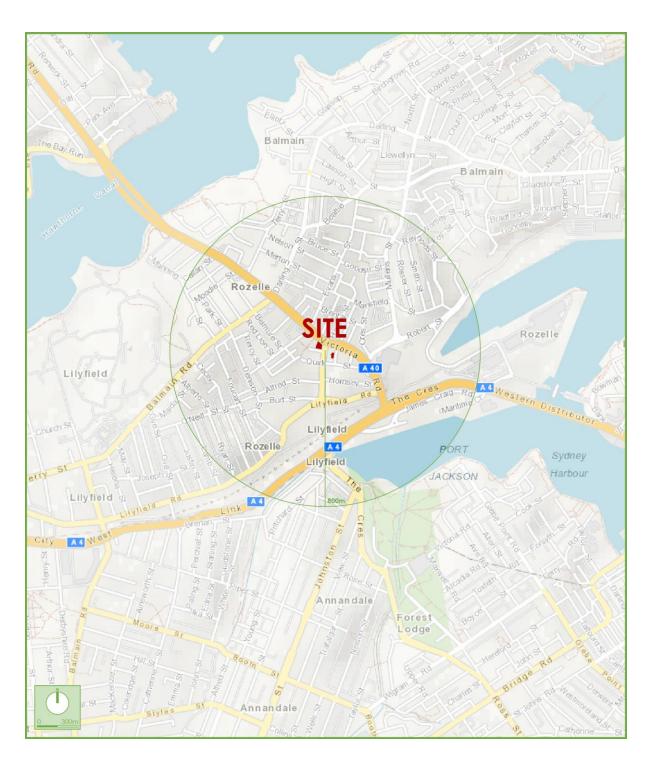


Figure 1: Location Plan



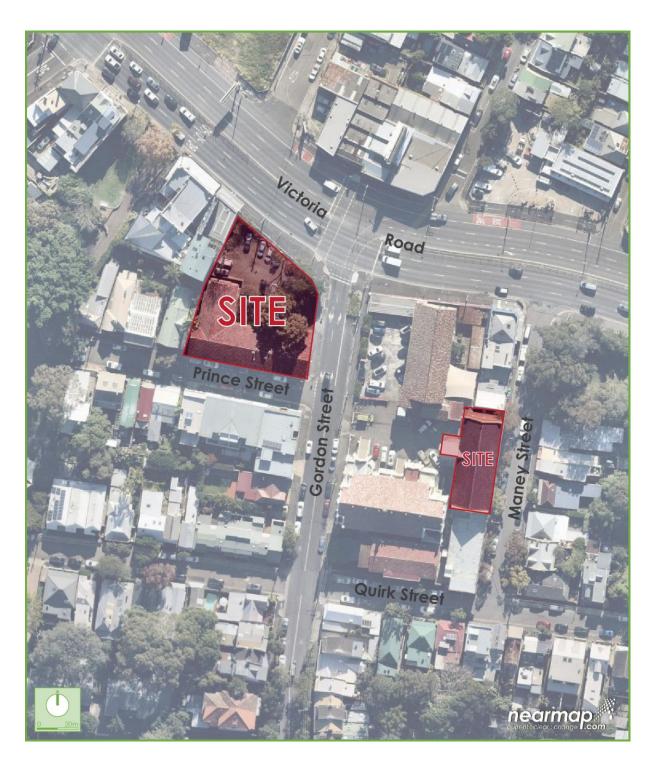


Figure 2: Site Plan



# 4. EXISTING TRAFFIC CONDITIONS

#### 4.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

Victoria Road:

a TfNSW Main Road (MR 165) that generally traverses east to west between the Western Distributor in the east and O'Connell Street in the west. In the vicinity of the site, Victoria Road is subject to a 60km/h speed zoning, accommodating three lanes of traffic in a westbound direction and four lanes of traffic in an eastbound direction, separated by a median. The westbound kerbside lane is subject to Clearway Restrictions between 6:00am-10:00am and 3:00pm-7:00pm Monday to Friday and between 8:00am-8:00pm Saturday and Sunday. The kerbside lane in the eastbound direction is a Bus Lane between 6:00am-10:00am Monday to Friday and is otherwise subject to Clearway Restrictions between 3:00pm-7:00pm Monday to Friday and 8:00am-8:00pm Saturday and Sunday.

Gordon Street:

an Unclassified Regional Road (7316) which traverses north to south between Victoria Road in the north and terminating south of Lilyfield Road. It is subject to a 50km/h speed zoning and generally carries a single lane of traffic in each direction. Gordon Street does not permit traffic to enter from Victoria Road. On-street parking is generally permitted along both kerbsides, subject to '2P' restrictions between 8:00am and 8:00pm except for residential permit holders.

Prince Street:

a local road that generally traverses east to west between Gordon Street in the east and ending as a cul de sac in the west. Prince Street is subject to a 50km/h speed zoning and allows for two-way traffic. On-street parking is permitted along both kerbsides, subject to '2P' restrictions between 8:00am and 8:00pm except for residential permit holders.

Maney Street:

a local road that traverses north to south between Victoria Road in the north and Quirk Street in the south. Maney Street is subject to a 50km/h speed zoning and allows for two-way flow of traffic. Movements at the intersection of Maney Street and Victoria Road are restricted to left-in and left out only. On-street parking is permitted along either side of the road,



subject to '2P' restrictions between 8:00am and 8:00pm except for residential permit holders.

Quirk Street:

a local road that traverses east to west between Victoria Road in the east and Gordon Street in the west. Quirk Street is subject to a 50km/h speed zoning and allows for two-way flow of traffic. Quirk Street does not permit traffic to enter from Victoria Road. On-street parking is permitted along either side of the road, subject to '2P' restrictions between 8:00am and 8:00pm except for residential permit holders.





Figure 3: Road Hierarchy



### 4.2 Key Intersections

The key intersections in the vicinity of the site are shown below and provide an understanding of the existing road geometry and alignment in the locality.

#### 4.2.1 Victoria Road and Gordon Street



Figure 4: Intersection of Victoria Road and Gordon Street

It can be seen from **Figure 4** that the intersection of Victoria Road and Gordon Street is a three-legged signalised intersection. The main attributes of each approach are outlined below.

#### Victoria Road

- The eastbound approach provides three through lanes and a single bus lane.
- The westbound approach provides three through lanes.
- A signalised pedestrian crossing along the western side of the intersection.

#### Gordon Street

- The northbound approach provides a left lane that permits both left and right turn movements and a right lane for right turn movements only.
- A signalised pedestrian crossing along the southern side of the intersection.



#### 4.2.2 Gordon Street and Quirk Street



Figure 5: Intersection of Gordon Street and Quirk Street

It can be seen from **Figure 5** that the intersection of Gordon Street and Quirk Street is a four-legged priority controlled intersection. The main attributes of each approach are outlined below.

- Each approach and departure is provided with a single lane of traffic.
- All approach lanes are unrestricted with all movements permitted.
- Quirk Street approaches are required to 'Give Way'.
- On street bicycle route is marked on Quirk Street.



#### 4.2.3 Quirk Street and Maney Street



Figure 6: Intersection of Quirk Street and Maney Street

It can be seen from Figure 6 that the intersection of Quirk Street and Maney Street is a three-legged priority controlled intersection. The main attributes of each approach are outlined below.

- Each approach and departure is provided with a single lane of traffic.
- All approach lanes are unrestricted with all movements permitted.
- Maney Street approach is required to 'Give Way'.
- On street bicycle route is marked on Quirk Street.

# 4.3 Public Transport

The existing bus services that operate in the locality are shown in **Figure 7**. It is evident that the development benefits from good bus services with 10 bus stops in either direction being situated within 400 metres of the site, the majority being along Victoria Road. These bus services are summarised as follows:

433 – Balmain Gladstone Park to Central Pitt St)



- 441 City Art Gallery to Birchgrove (Loop Service)
- 442 City QVB to Balmain East Wharf (Loop Service)
- 500X West Ryde to City Hyde Park (Express Service)
- 501 Parramatta to Central Pitt St
- 502- Cabarita Wharf to Drummoyne and City Town Hall
- 503- City Town Hall to Drummoyne (Loop Service)
- 504- Chiswick to City Domain
- 505- Woolwich to City Town Hall
- 506- Macquarie University to City Domain
- 507- Meadowbank to Gladesville and City Hyde Park

Students and staff accessing the development can take advantage of these bus services to access the development, noting the following:

- The closest stop for westbound services is 72 metres west of the site (Stop ID 203922); and
- The closest stop for eastbound services is 135 metres east of the site (Stop ID 203916).

In addition, Rozelle Bay Light Rail Station is located approximately 600 metres from site noting that the 433 bus route provides a convenient connection between the site and this light rail station. This station provides services on the L1 line, connecting the site to the Central Railway Station, Haymarket, Pyrmont Glebe, Leichhardt, Haberfield, Lewisham and Dulwich Hill.



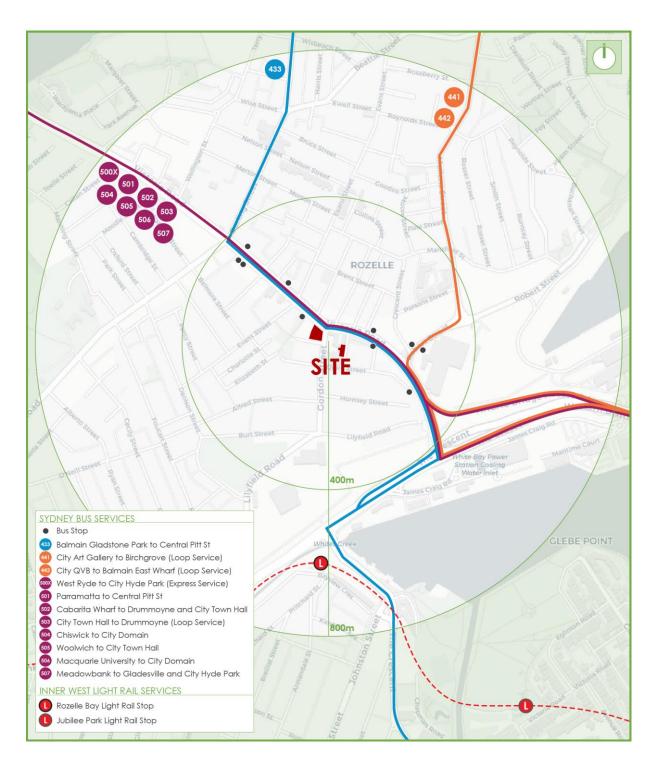


Figure 7: Public Transport



#### 4.3.1 Walking

The site is ideally placed with several pedestrian facilities available in the locality. There are existing pedestrian footpaths surrounding the site, with footpaths provided along both sides of Victoria Road, Gordon Street, Prince Street, Quirk Street and Maney Street.

A shared path is provided along the northern side of Victoria Road in close proximity to the site. This shared path provides an off-road cycling and walking route which stretches between the Anzac Bridge in the south and Day Street in Drummoyne in the north. The location of this shared path is shown in **Figure 8** below.

The signalised intersection of Victoria Road and Gordon Street provides signalised pedestrian crossings on the southern and western legs, providing safe and efficient connections to the wider footpath network and a connection between the two sites.

The existing pedestrian accesses for the two subject sites are located off Gordon Street. 2A - 2B Gordon Street, Rozelle has an existing pedestrian access located opposite the intersection with Prince Street and the pedestrian access for 48 Victoria Road, Rozelle is shared with the vehicular access, located close to the intersection of Victoria Road and Gordon Street.

#### 4.3.2 Cycling

The site is located in proximity to off-road shared paths and bicycle friendly roads available throughout the area. These cycleways can be used concurrently with other bicycle routes to provide connections to various areas. It is also noted that children up to the age of 16 can legally ride a bike on a footpath within NSW. The existing cycling facilities are presented in **Figure 8** above, with the nearby routes summarised as follows:

Separated Shared Paths:
The northern side of Victoria Road accommodates a

shared path. This path provides access to Sydney CBD, and

Drummoyne.

Low-Traffic On-road Routes: Gordon Street, Quirk Street, Elizabeth Street, Kenniff Street,

Belmore Street, Waterloo Street, Evan Street and Crescent

Street accommodate low-traffic on-road routes. These

routes provide access within the Rozelle and Lilyfield.



Wayfinding Signage Routes:

Lilyfield Road accommodates routes with wayfinding signage. These routes provide access to areas such as Lilyfield and the Sydney CBD.

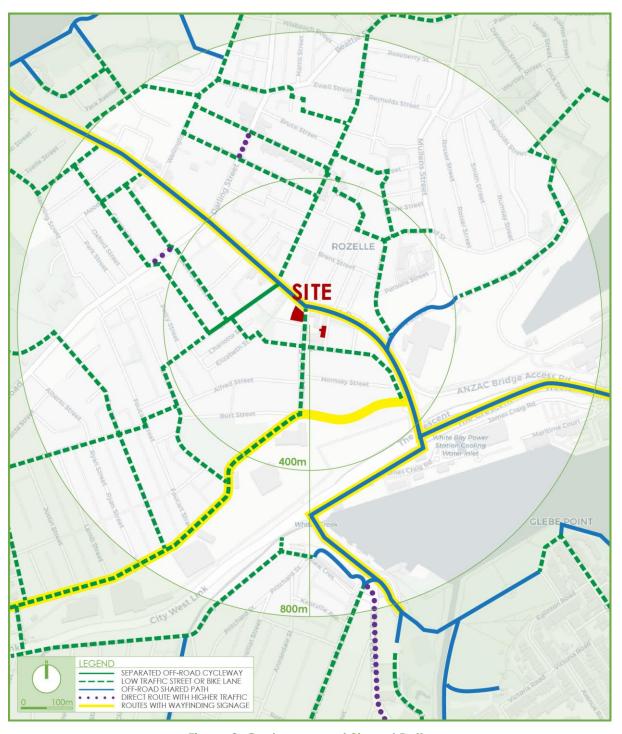


Figure 8: Cycleways and Shared Paths



# 5. EXISITNG SCHOOL CHARACTERISTICS

### 5.1 Existing School Characteristics

The existing campus for St Aloysius College is spread over three campuses located in Kirribilli, the Main Campus is located at 3-47 Upper Pitt Street, the Senior School campus is located at 1 - 5 Jeffreys Street and the Junior School campus is located at 29 Burton Street. The school currently has a total population of 1,260 students and 181 staff.

**Table 1** shows the existing catchment of the senior school based on the SA3 Region. It demonstrates most students live in the Chatswood-Lane Cove, Ku-ring-gai, North Sydney-Mosman areas on the North Shore. Other areas with significant populations include Manly, Warringah, Canada Bay, Leichhardt, Ryde-Hunters Hill and Strathfield-Burwood-Ashfield.

Table 1; Existing Student Catchment for Secondary School

SA3 Region	Percentage	SA3 Region	Percentage
Sydney Inner City	1%	Pittwater	0.1%
Botany	0%	Warringah	6.7%
Marrickville-Sydenham- Petersham	0%	Pennant Hills-Epping	1.8%
Eastern Suburbs - North	2%	Ryde-Hunters Hill	6.9%
Eastern Suburbs - South	2%	Auburn	0.4%
Bankstown	0%	Carlingford	0.4%
Canterbury	1%	Parramatta	0.1%
Hurstville	1%	Baulkham Hills	0.8%
Kogarah-Rockdale	0%	Blacktown	0.1%
Leichhardt	5%	Fairfield	0.1%
Canada Bay	7%	Sutherland-Menai-Heathcote	0.3%
Strathfield-Burwood-Ashfield	4%	Cronulla-Miranda-Caringbah	0.1%
Chatswood-Lane Cove	21%	Dural-Wisemans Ferry	0.1%
Hornsby	0%	Campbelltown	0.1%
Ku-ring-gai	16%	Penrith	0.1%
North Sydney-Mosman	15%	Rouse Hill-McGraths Hill	0.1%
Manly	6%	Mount Druitt	0.1%



#### 5.2 Travel Modes of Senior School

Student data was gathered of the existing school population for a traffic report for the Proposed Concept Plan Application prepared by Positive Traffic for the redevelopment of St Aloysius College's Kirribilli campus. The surveys were conducted on a single day with 1,009 student responses and 169 staff responses, which equates to response rates of 84% and 93%, respectively. Based on this existing travel mode data the average travel modes provided in **Table 2** were determined for Years 7-10.

Table 2: Average Existing Travel Modes for Years 7-10

Travel Mode	АМ	PM
Car Driver	0.2%	0.0%
Car passenger	22.1%	10.9%
Train	44.3%	39.0%
Bus	21.9%	42.3%
Ferry	10.8%	6.4%
Motorcycle	0.0%	0.0%
Walking	0.8%	1.3%
Bicycle	0.0%	0.2%



# 6. DESCRIPTION OF PROPOSED DEVELOPMENT

A detailed description of the proposed development is provided in the Statement of Environmental Effects prepared separately. In summary, the development for which approval is now sought is a change of use of two existing building to educational uses for a secondary school campus comprising of the following components:

- Onversion of two existing buildings into an educational establishment
- Maximum capacity a single year group of 180 students between years 7 to 10 to be relocated to the subject site
- Dup to 15 staff to be present on site at any one time.
- A shuttle bus between the existing school and the proposed campus to minimise parents dropping off and picking up students and provide convenient access for students with limited public transport options to and from Rozelle.
- Four (4) Parking spaces to be leased from the existing on-site car park for staff parking only.
- Servicing to be conducted from the existing car park at 2A and 2B Gordon Street as per current servicing arrangements for the other uses on the site. The 48 Victoria Road site will be provided with an area accommodating a B99 vehicle for occasional servicing.

The parking and traffic impacts arising from the development are discussed in **Section 5** and **Section 6**. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in **Appendix B**.



# 7. PARKING REQUIREMENTS

### 7.1 Council Requirement

The Leichhardt Council Development Control Plan (DCP) 2013, Part C1.11 – Parking, requires parking for mixed use developments to be determined between the minimum and maximum rates shown in **Table 3**:

Table 3: Council Parking Rates and Provision

Туре	No. of Staff	Minimum Parking Rate	Maximum Parking Rate	Minimum Spaces Required	Maximum Spaces Allowed
		<b>Educational Est</b>	ablishment (Non-Terti	ary)	
Staff	15	1 space per 4 Staff and pickup/ dropoff facility for parents/ carers  1 space per 2 Staff and pickup/ dropoff facility for parents/ carers		4	8
			Totals	4	8

It is evident from **Table 3** that the proposed development requires a minimum of 4 spaces and a maximum of 8 spaces for staff under Council's DCP. In response, the development provides four (4) spaces for staff leased from the existing on-site car park. Therefore, the development provides a compliant staff parking requirement in accordance with Council's DCP. The pickup and drop off parking requirement is assessed in the following section.

# 7.2 Drop Off/Pick Up Parking

The following section discusses the analysis of the travel modes and catchment of the existing school to determine the travel modes for the proposed campus. This is to determine a parking demand for student drop off and pick up and the shuttle bus demand.

#### 7.2.1 Modal and Catchment Analysis

As discussed in Section 5.2, enrolment data of the current school population was analysed to determine current travel patterns and the anticipated travel patterns. Directly applying the current travel modes to the proposed school population of 180 students results in the modal splits presented in **Table 4**.



Table 4: Expected Travel Modes for Years 7-10

Travel Mode	AM	No. of Students in AM	PM	No. of Students in PM
Car Driver	0.2%	0	0.0%	0
Car passenger	22.1%	40	10.9%	20
Train	44.3%	80	39.0%	70
Bus	21.9%	39	42.3%	76
Ferry	10.8%	19	6.4%	11
Motorcycle	0.0%	0	0.0%	0
Walking	0.8%	1	1.3%	2
Bicycle	0.0%	0	0.2%	0

The current student catchment data was used to determine the number of students that are currently ineligible for a free school travel pass for the proposed campus location. It was determined that 4% of students lived within a radius of the proposed campus to be ineligible for a free travel pass. This is equivalent to seven (7) students for a maximum population of 180 students. As a worst case scenario, it is assumed that all students who are ineligible for a travel pass, are dropped off and picked up at school.

For students currently dropped off the school, it is considered unlikely that parents will make the journey to Rozelle for pick up and drop off as it is a significant detour for parents. For students who live nearby and ineligible for a transport pass, approximately 7% of students based on the current catchment data, would be newly eligible for a transport pass and encouraged to use public transport. Therefore, some students currently dropped off and picked up may use public transport to get to the Rozelle campus.

For those students who may continue to be dropped off and picked up due to inaccessible public transport, the school will provide a coach to shuttle students between the Kirribilli campus and Rozelle campus in the morning and afternoon. Based on the percentages from the catchment data and travel modes this has been estimated at 31 students who will be dropped off at the existing school and use the shuttle to arrive at Rozelle during the morning arrival and 11 students during the afternoon.

The students who currently use public transport from the school will be eligible for a travel pass and with a number of bus routes along Victoria Road, including services directly from the



Sydney CBD most students will find public transport the most convenient mode with over 75% for the existing school currently using public transport. However for students from certain areas of Sydney the journey on public transport to Rozelle will not be as convenient as their current trip. This applies to the students of the northern Beaches and some areas of the Lower North Shore. The students in these areas is estimated at approximately 20% based on the catchment data. Therefore, it is assumed these students who currently use buses (other modes do not apply in these areas) will also use the shuttle to access the Rozelle campus. This has been estimated at 18 students in the morning and 29 students in the afternoon.

Regarding the ferry trips, based on the ferry services at Milsons Point and catchment data, most students would be using this service from areas along the Parramatta River including Balmain, Birchgrove, Greenwich, Woolwich, Drummoyne, Huntley's Point, Chiswick, Abbotsford and Cabarita. These areas have bus services with convenient access to Rozelle and therefore will not be expected to be dropped off or picked up or use the shuttle service.

Students who use trains to arrive at school are assumed to alter their journey to instead alight at Town Hall station and continue on one of the regular buses from the CBD to Rozelle along routes 441, 442, 500x, 502, 503, 504, 505, 506 and 507.

#### 7.2.2 Drop off and Pick Up Parking Requirement

Therefore, based on the above modal analysis the development is required to allow for seven (7) vehicle arrivals in a 30 minute duration prior to the school start time. A provision of three spaces would be considered sufficient to allow for the seven arrivals. However this cannot be accommodate within the existing car park due to the vehicular access not allowing for simultaneous movements and insufficient width of the parking spaces for high turnover parking. Therefore, the pick up and drop off will need to be accommodated on-street

To accommodate the expected demand for on-street pick up and drop off, an on-street parking survey was conducted on Thursday, 7 October 2021 between 7:00am-9:30am and 2:30pm-5:00pm. The graph in **Figure 9** below summarises the overall on-street parking availability within 150 metres of the proposed development with the full survey results presented in **Appendix C**.



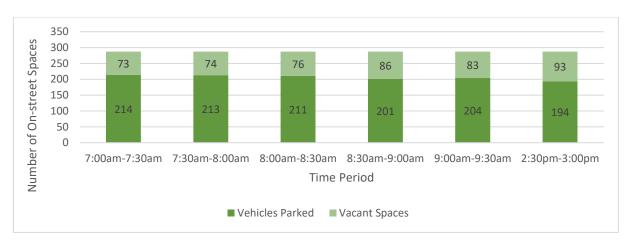


Figure 9: On-Street Parking Survey Summary

It should be noted that all streets surveyed within 150m of the site are subject to a '2P 8AM-6PM Monday to Friday' restrictions with residential parking (unlimited) for permit holders permitted on these streets.

Specifically, the results of the parking surveys indicated that the western side of Maney Street has a capacity for 11 on-street parking spaces with an average occupancy of six (6) spaces in the morning period and an average occupancy of five (5) spaces in the evening period. This result is an average availability of five (5) spaces in the morning period and six (6) spaces in the evening period. It is proposed that a length along the south-western side of Maney Street, near Quirk Street, accommodating three (3) on-street parking spaces is restricted to '5-minute parking' restriction for a half hour period in both the morning and evening, with all other times subject to the existing '2P' Parking restrictions and residential permit parking. The timing is subject to confirmation of the campus 'operational hours. This restriction will readily accommodate the seven vehicle arrivals expected to be dropped off and picked up at school. The proposed location is shown in Figure 10 with routes to and from the set down area.



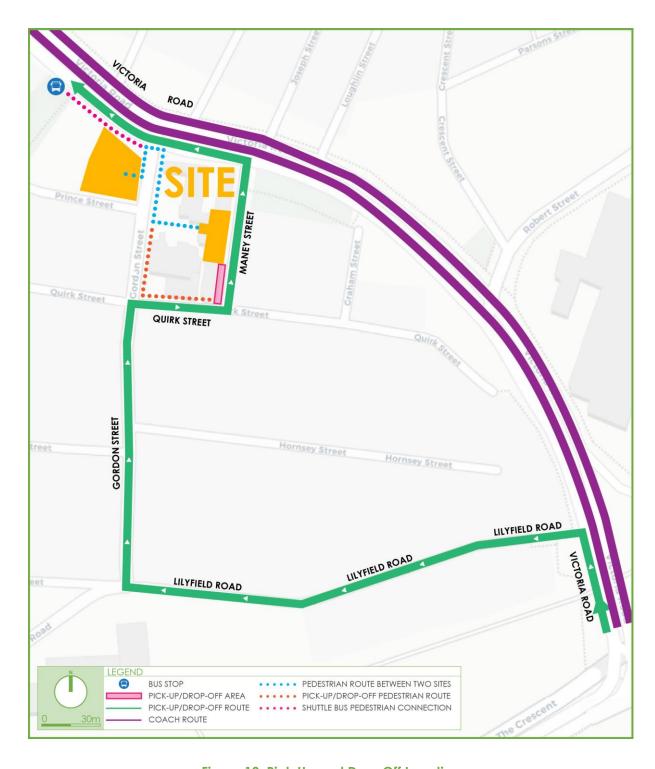


Figure 10: Pick Up and Drop Off Location



#### 7.3 Shuttle Buses and Coaches

Based on the analysis in Section 7.2, it is expected that 49 students in the morning and 39 students in the afternoon will be required to be transferred between the existing Kirribilli campus and the Rozelle campus. In response, a single private coach service will transfer students between the Kirribilli campus and the Rozelle campus in the morning and afternoon periods with a maximum capacity of approximately 60 passengers. It is proposed that pick-up and drop-off by the private coach, be conducted from the public bus stop located along the southern sides of Victoria Road at Evans Street (Stop ID: 203922), shown in **Figure 10**.

There are precedents of similar arrangements for private school developments using public bus stops as a pick-up and drop off point, noting that it would only occur once before school and once after school. This arrangement ensures that there is minimal impact on the local road network, and in turn less impact on residents living near the proposed school campus.

This arrangement is also proposed for occasional coaches that are used for excursions, noting that these trips would occur outside of network peak hours.

# 7.4 Accessible Parking

Council's DCP specifies an accessible parking rate for schools (Class 9b) of one (1) space for every 100 car parking spaces or part thereof. Therefore, a single accessible parking space is required. In response, one of the spaces eased from the existing car park will be an accessible parking space, which complies with Council's requirement.

# 7.5 Bicycle Parking

Council's DCP does not specify a bicycle parking rate with respect to Educational Establishments. Therefore, there is no minimum requirement for bicycle parking. Reference is made to planning guidelines for walking and cycling 2004.

The guidelines recommend that bicycle parking be provided at the following rates:

- Staff 3-5% of journey to work trips
- Students 5-10% of the student population

Application of the above rates to the 180 students and 15 staff results in a requirement for 10-19 bicycle parking spaces, including one (1) staff parking space. The development proposes



to provide a 10-space bicycle rack for students and staff to comply with the minimum bicycle parking requirement.

### 7.6 Refuse Collection and Servicing

It is proposed that waste collection for the school will be conducted from 2A and 2B Gordon Street where the school will be leasing four (4) parking spaces. Waste collection can occur outside of operational hours when these parking spaces are unoccupied, allowing sufficient area for a small rigid vehicle (SRV) to enter and exit in a forward direction.

The 48 Victoria Road site will have access for service vehicles up to a B99 vehicle to accommodate occasional servicing requirements including maintenance and food trucks for students.



# 8. TRAFFIC AND TRANSPORT IMPACTS

### 8.1 Existing Site Generation

The existing building at 48 Victoria Road currently accommodates a small commercial tenant with 3-4 staff. As a conservative measure this is assumed to generate no traffic. The classrooms at 2B Gordon Street have previously been used as classroom for the Sydney Community College however are currently disused. Therefore, a conservative assessment of the traffic generation has been conducted as no traffic generation has been taken into account for the existing site.

### 8.2 Development Trip Generation

The impacts of the proposed development on the external road network have been assessed having regard for the indicative yield scenarios as summarised in **Section 4** above. As the TfNSW Guideline to Traffic Generating Developments (2002) does not specify traffic generation rates for schools and the unique characteristics of the school a first principles assessment of the traffic generation has been conducted for the proposed development. The result of this assessment is summarised below.

#### 8.2.1 Staff

A total of four (4) parking spaces are proposed to be leased from the existing on-site car park and therefore it is assumed that four (4) trips are generated by staff during each peak hour. Noting that taxi/ride share services may be used by some staff to transfer between schools however this will mostly occur outside of peak periods between classes and via the coach shuttle in the morning and afternoon. As a conservative measure it is assumed that two additional trips (a single drop off/ pick up) will be generated by staff travelling to the school via other modes. This traffic generation is summarised as follows:

6 vehicle trips per hour during the morning peak period (5 in, 1 out); and

6 vehicle trips per hour during the afternoon peak period (1 in, 5 out).



#### 8.2.2 Students

A first principles analysis of the expected student travel modes has been conducted within Section 7.2. This analysis is based on existing student enrolment data determines that 4% of students live within a radius of the Rozelle site to be ineligible for a free school travel pass. Applying this percentage to the anticipated school population for the campus results in seven (7) students being ineligible for a travel pass. Conservatively, it is assumed that all seven (7) students would be dropped off/ picked up (noting that active travel modes have not been considered, although in practice they would likely be utilised by the students living within this radius). In addition, a single round trip will be conducted by the private coach in both the morning and afternoon, transporting students between campuses in the morning/afternoons. Therefore, the traffic generation that is expected to result from students is summarised as follows:

16 vehicle trips per hour during the morning peak period (8 in, 8 out); and

16 vehicle trips per hour during the evening peak period (8 in, 8 out).

#### 8.2.3 Combined Generation

The combined traffic generation of the staff and students of the proposed development can be summarised as follows:

22 vehicle trips per hour during the morning peak period (13 in, 9 out); and

22 vehicle trips per hour during the evening peak period (9 in, 13 out).

#### 8.3 Traffic Distributions

The proposed drop-off and pick-up area for students is located on Maney Street, on the southern side, adjacent to the subject site. Therefore, all student vehicle movements would be required to northbound along Gordon Street, then east along Quirk Street, North along Maney Street into the drop-off and pick-up area and continue their journey north onto Victoria Road to exit the local road network.

Similarly, staff parking spaces are located along Gordon Street and will therefore require a northbound approach along Gordon Street, noting that Gordon Street is one-way at the intersection with Victoria Road. Staff would exit the carpark, turning right onto Gordon Street and travelling northbound, turning left or right onto Victoria Road.



A single coach would travel westbound along Victoria Road in the morning peak and afternoon peak period to arrive at the bus stop and eastbound upon return to the Kirribilli campus (noting that the public bus stop on the southern side of Victoria Road will be used as the set down point for both mornings and afternoons).

Transport for NSW has raised concerns with the impacts of the proposed on the intersection of Victoria Road and Darling Street northwest of the site. Based on the values in **Figure 11** the impact of additional traffic generation from the proposed development is up to 9 vehicle trips in the morning peak and 11 vehicle trips in the afternoon site peak at this intersection. This is considered a minor impact relative to the volumes of traffic on Victoria Road and not expected to significantly impact this intersection. Therefore, this intersection has not been included as part of the modelling in the following section.





Figure 11: Traffic Distribution

# 8.4 Proposed Development Intersection Performance

Intersection traffic surveys were conducted at the three (3) key intersections described in **Section 4.2** on 7 October 2021 between 7:00am-9:30am and 2:30pm-5:00pm. This was used to establish the existing intersection performance of these sites.



With consideration of the effect of Covid-19 on traffic volumes, SCATS intersection volume data for the 17 October 2019 was obtained for the intersection of Gordon Street and Victoria Road. The SCATS through volumes were compared to survey data obtained for 7 October 2021. The analysis showed that the through volumes at the intersection of Gordon Street and Victoria Road were greater in the 2019 SCATS data in comparison to the 2021 survey data, as such a growth factor was derived for each leg of the intersection of Victoria Road and Gordon Street. This growth factor was then applied to the survey results. For the local road intersections, the growth rate for Gordon Street was applied to all approaches at the other two key intersections.

The traffic volumes in these surveys formed the base case volumes for software modelling undertaken to assess intersection performance characteristics under existing traffic conditions. The SIDRA Intersection 9 model produces a range of outputs, the most useful of which are the Degree of Saturation (DoS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LoS) criteria. These performance measures can be interpreted using the following explanations:

**DoS** - the DoS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DoS approaches 1, it is usual to attempt to keep DoS to less than 0.9. When DoS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. In this regard, a practical limit at 1.1 can be assumed. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DoS of 0.8 or less.

**AVD** - the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

**LoS** - this is a comparative measure which provides an indication of the operating performance of an intersection.



Table 5: RMS Level of Service Criteria for Intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
А	<14	Good Operation	Good Operation
В	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
С	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity, at signals, incidents will cause excessive delays  Roundabouts require other control mode	At capacity, requires other control mode

The traffic impacts arising from the proposed development during the critical morning peak period have been assessed by loading the distributed traffic volumes into the SIDRA Intersection model. The results of this software modelling are summarised in **Table 6** below, with detailed outputs provided in **Appendix D** for individual lanes and approaches.

Table 6: Existing and Proposed Intersection Performance

Intersection	Control	Scenario	Period	Degree of Saturation (DoS)	Average Delay	Level of Service
		Existing		0.749	11.0	Α
Victoria Road and	Signal	Proposed	AM	0.749	11.0	Α
Gordon Street	signai	Existing	PM	0.535	5.8	А
		Proposed	F/VI	0.536	5.9	А
	Priority*	Existing	АМ	0.166	6.4	Α
Gordon Street and		Proposed		0.173	6.5	Α
Quirk Street		Existing	PM	0.083	6.3	Α
		Proposed		0.087	6.3	Α
		Existing	A A 4	0.005	5.4	Α
Quirk Street and Maney Street	Priority*	Proposed	AM	0.009	5.4	Α
		Existing	5	0.009	5.4	Α
		Proposed	PM	0.013	5.4	Α



It can be seen that the additional development volumes only cause minimal increases in average delay at all intersection, noting that minimal additional traffic generation is expected due to the proposed development. A LOS 'A' is maintained during both the morning and evening peak periods for all intersection. As such, the development is considered supportable from a traffic planning perspective with no external improvements to the network required.



## 9. GREEN TRAVEL PLAN

## 9.1 Sustainable Transport

A Green Travel Plan can be developed at a later stage in response to a suitable condition of consent with the strategic goal of increasing sustainable transport. The encouragement of these alternative modes of transport will assist in reducing private vehicle trips, thus decreasing congestion, time, money and environmental impacts. Due to this, the aim of the proposed development is to encourage and support the existing and future sustainable transport services available within the vicinity of the site. This can be achieved by providing the staff and students of the proposed development, bicycle parking, end of trip facilities and travel plans.

#### 9.1.1 Green Travel Plan

A Green Travel Plan (GTP) can be prepared in response to a suitable condition of consent prior to CC stage. The development is located within close proximity of public bus stops located along Victoria Road. A GTP will provide a site-specific set of measures and initiatives to promote sustainable transport options such as walking, cycling, car sharing and public transport. It will assist in encouraging the staff and students of the proposed new school campus to use these options to replace all or part of their car journeys. The implementation of the GTP is expected to create a number of social, economic, environmental and health benefits for the residents. This GTP will comprise of the following:

- Targets generally includes the reduction of single occupant car trips to and/or from the proposed development for journey to work.
- Travel Data a prior estimate of the amount and types of trips to the proposed development is required, as well as an annual travel survey and review in order to estimate the change in travel behaviour of the residents.
- Measures an outline of specified tools and methods to achieve goals.

#### 9.1.2 Transport Initiatives

Consideration has been made to ensure that vehicle trips to and from the campus will be minimised. The campus will serve a year group between Years 7-10 to ensure that no student drivers will be parking in the vicinity of the site.



In addition, the school will promote the relocation as part of their educational experience, an opportunity to gain independent travel skills. The majority of students at the existing campus travel to school using public transport and it is envisaged that this would continue to occur at the proposed site. As part of the development of a Green Travel Plan, a TAG will be produced to distribute to students and staff and form as educational material, ensuring that they are aware of public and active transport modes to access the site.

As discussed in Section 7.2, an analysis was conducted of the existing school enrolments to determine the current travel patterns of students and the anticipated travel patterns for the proposed campus in Rozelle. The subject site is bordered by Victoria Road and therefore is easily accessible by a multitude of public bus routes that travel along this road, being in walking distance of the bus stop at Victoria Road at Evans Street (Stop ID: 203922). Information concerning service frequencies for all services throughout the week may be obtained by visiting Sydney Buses via the Transport Info website at: http://www.transportnsw.info.

The analysis of current enrolments also found that for a small percentage of students, accessing the Rozelle campus by public bus may not be feasible due to numerous transfers required, duration or no convenient transport routes available. For this small percentage of students, it would be more practical to continue to arrive at the Kirribilli campus which they currently access and then catch a private coach between the campuses. This arrangement will be managed by St Aloysius, ensuring that this service is available to encourage all students to arrive by public transport and complete their journey to Rozelle using the coach service where required.

#### 9.1.3 Pedestrians and Cycling

The site is surrounded by excellent cycling and walking infrastructure with footpaths provided along both sides of Victoria Road, Gordon Street, Prince Street, Quirk Street and Maney Street. Additionally, a shared path is provided along the northern side of Victoria Road, providing a connection from the site to Sydney CBD and Drummoyne.

The signalised intersection of Victoria Road and Gordon Street provides a southern and western signalised pedestrian leg which allows students to walk between sites in safe manner. It also provides a safe crossing opportunity across Victoria Road, should they travel to the site using public bus routes.



To encourage cycling as a mode of travel to school, end of trip facilities will be made available to both students and staff. This includes a provision of a 10 space bicycle rack which complies with the bicycle parking requirements that are anticipated for the school.

As the site is ideally placed with good access to various pedestrian and cycling routes that are located in the vicinity of the site, no additional infrastructure required to accommodate the needs of the development.



## 10. ACCESS AND INTERNAL DESIGN ASPECTS

#### 10.1 Site Vehicular Access

#### 10.1.1 2A and 2B Gordon Street Access

The existing vehicular access is not proposed to be modified and as there is no proposed increase in the parking provision on site there is no requirement for the existing access to be assessed as part of this application.

#### 10.1.2 48 Victoria Road Access

The existing access to the 48 Victoria Road site will be used for occasional servicing by vehicles up to the size of a B99 vehicle with all vehicles to enter and exit in a forward direction. Swept path analysis of this manoeuvre is provided in **Appendix E** for reference.

## 10.2 Internal Design

As the car park at 2A and 2B Gordon Street is existing and no changes are proposed as part of this application the internal does not need to be assessed as part of this application. A DA has recently been approved for the Theatre located at 2B Gordon Street which involves re-line marking of the carpark and including the provision of one (1) accessible space. This can be allocated to the school during operational hours as per the lease agreement, noting that the theatre will only operate performances on Friday nights and weekends, when the peak parking demand occurs for this development. Therefore, no overlapping parking demands are expected as a result of the proposed development. A mark up of the approved parking arrangement is provided in **Appendix F** for reference.

As new servicing requirements are proposed for 48 Victoria Road, this has been assessed. The servicing area complies with the requirements of AS 2890.1 (2004), and the following characteristics are noteworthy:

#### 10.2.1 Loading

The hardstand area provided for B99 vehicle provides sufficient width of 3.5m and length of 7.4.m to allow for loading and unloading of vehicles.



• The loading area will be provided with a minimum head height clearance of 2.2m to comply with the requiem of AS 2890.1 (2004)

## 10.3 Summary

In summary, the internal configuration of the car park has been designed in accordance with AS 2890.2 (2018). It is however envisaged that a condition of consent would be imposed requiring compliance with these standards and as such any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.



# 11. PRELIMINARY OPERATIONAL TRAFFIC AND ACCESS MANAGEMENT PLAN

## 11.1 Shuttle between Campuses

A 14.5 metre coach will be utilised by the school to shuttle a percentage of students between the Kirribilli and Rozelle campuses.

A staff member will be present on the bus to monitor students that are alighting the bus and will be responsible for marshalling students between the respective campuses and the coach. A collection point can be established within the school for students catching the coach in the afternoon, from which the teacher marshalling will walk the group onto the coach, ensuring that wait times of the coach at the public bus stop are minimised. The coach will be scheduled to arrive approximately 15 minutes after the school end time, to ensure that all students have sufficient time to be collected from the campus as a group. The routes for arrival and departure of the coach are shown in **Figures 12 and 13**.

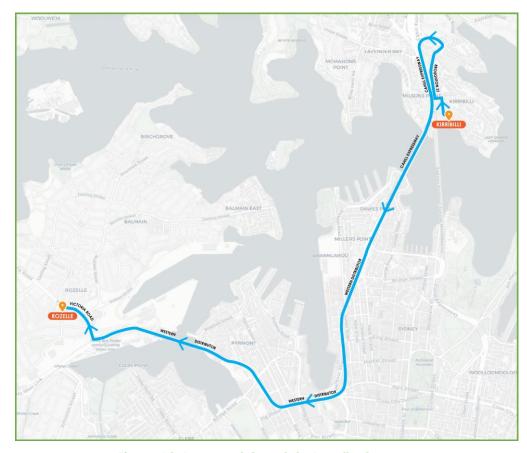


Figure 12: Proposed Coach to Rozelle Campus



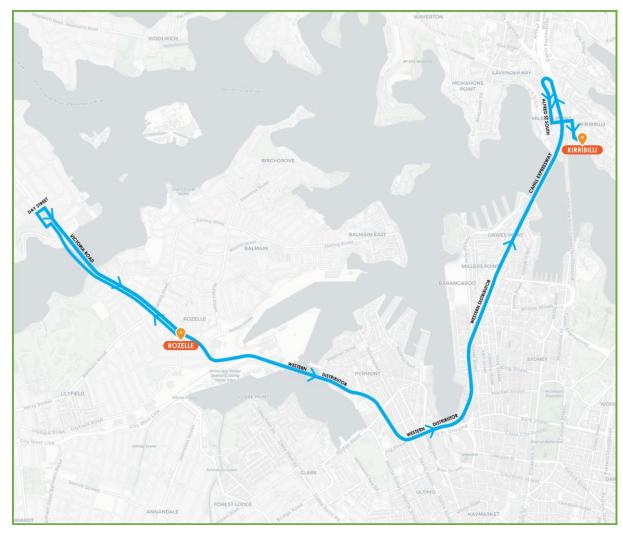


Figure 13: Proposed Coach from Rozelle Campus

## 11.2 Management of Student Arrival/Departure

A staff member will also be present at the intersection of Victoria Street and Gordon Street in both the morning and afternoon for a half hour period outside of school operational hours. This is to monitor any students that may be using public buses and walking across Victoria Road or Gordon Street using the signalised crossings located adjacent to the school. The staff member will also ensure that students do no congregate close to the road or impact other pedestrians.

## 11.3 Drop off and Pick Up Arrangements

It is proposed that three (3) on-street parking spaces located on the southern side of Maney Street, adjacent to the subject site are allocated as '5-minute parking' for a half hour period



before and after school. This time period for the on-street parking restriction would be subject to confirmation of the school start and finish times.

As discussed above in Section 7.2, on-street parking surveys were conducted in the vicinity of the site which found that Maney Street in this location has a capacity for 11 spaces on the western side of the street, of these spaces an average of five (5) spaces were unoccupied during the morning period and six (6) spaces unoccupied in the afternoon period. It is noted that the section of Maney Street is along the 2A and 2B Gordon Street site frontage to minimise impacts on residents. In addition, the proposed arrangement would only be applicable for a half hour every morning and afternoon, and outside of these times, this zone will continue to allow for 2 hour parking and residential permit parking.

Parents will be provided with information regarding the set down zone and specific routes for them to take to ensure efficient arrival and departure and minimise impacts on residents.

Students that utilise the proposed set down zone will be directed to walk south along Maney Street, west along Quirk Street, north along Gordon Street and west at the signalised intersection of Victoria Road and Gordon Street if accessing the western side of the campus. This will ensure that students are not walking along the footpath of Victoria Road to access the site, increasing pedestrian safety.

The location and routes for the above arrangements are shown in Figure 14, overleaf.

#### 11.4 Coaches

It is proposed that a single private coach service utilise the public bus stops located along the southern side of Victoria Road at Evans Street (Stop ID: 203922) in the morning and afternoon. The proposed route for this service is depicted in **Figure 14**.

This arrangement is also proposed for occasional coaches that are used for excursions, noting that these trips would occur outside of network peak hours and students could be managed by staff to ensure that they are waiting at the bus stop, prior to the coach's arrival, ensuring that boarding time is minimal.



#### 11.5 Pedestrian Access

Both properties have pedestrian access only from Gordon Street with no direct pedestrian access to Victoria Road. This is considered the safest arrangement for students and staff. The pedestrian access point are shown in Figure 14.



Figure 14: Drop off and Pick up Arrangements



## 11.6 Parking Arrangements

The school will be leasing four (4) parking spaces for staff including one accessible parking space. No student parking will be provided on site. It should be noted that the proposed Rozelle Campus will only be occupied by a grade between Years 7-10 to ensure that there will be no student drivers parking at this campus.

## 11.7 Servicing

All servicing and waste collection for the school will occur within the existing on-site carpark. General servicing will occur outside of school hours at a time when the four (4) leased car parking spaces are vacant and available as manoeuvring area. A swept path analysis has been conducted of a SRV for 2A and 2B Gordon Street and a B99 vehicle for 48 Victoria Road. This is presented in **Appendix E** and shows satisfactory movements.



# 12. PRELIMINARY CONSTRUCTION TRAFFIC & PEDESTRIAN MANAGEMENT PLAN

A detailed Construction Traffic Management Plan (CTMP) will be prepared and submitted to Council, in response to any Conditions of Consent stipulated following approval of the SSD. The below commentary addresses the overall management principles for the site during the construction process. It is noted that the preparation of a detailed CTMP requires significant input from the appointed builder and would heavily rely upon the construction methodology, which at this point cannot be confirmed.

The proposed development would however adhere to the general CTMP aspects as outlined below, which have been provided for information purposes.

## 12.1 Overview of Construction Program

#### 12.1.1 Times of Operation

Construction work hours are subject to the approval of the State Significant Development Application. A detailed CTMP would be prepared in response to a condition of consent once a builder is contracted, however following preliminary construction hours are proposed and summarised as follows:

Monday to Friday 7:00am to 6:00pm;

Saturday 8:00am to 1:00pm;

Sunday
Subject to Out of Hours Permit Approval; and

Shift/Night Works
Subject to Out of Hours Permit Approval.

#### 12.1.2 Overview of Works

Whilst the SEARs require detailed information regarding construction vehicle movements, limited information is able to be provided at this preliminary stage prior to a builder being appointed. Nevertheless, the following stages are expected to be addressed by the comprehensive CPTMP report in response to a suitable condition of consent:

- Structure;
- Fit out and Finishes.



### 12.2 Construction Vehicles

#### 12.2.1 Vehicular Access

Construction vehicles are expected to utilise the existing on-site carpark which is accessed from Gordon Street.

#### 12.2.2 Truck Routes

The proposed truck routes will be refined with the appointed builder prior to issue of the comprehensive CPTMP. The final truck routes will be provided to all drivers prior to attending the site, making use of main roads where possible. The proposed truck routes are presented in Figure 15 and Figure 16, with a copy of the routes provided to all drivers prior to attending the site.



Figure 15: Preliminary Truck Route - 2A-2B Gordon Street Site





Figure 16: Preliminary Truck Route – 48 Victoria Road Site

#### 12.2.3 Truck Sizes and Volumes

The maximum permissible vehicle and frequency of construction deliveries will be documented at a later stage and within a detailed CTMP report in response to a suitable condition of consent. The anticipated truck volumes should be estimated and discussed during future CTMP stages however minimal trucks movements are expected during construction of the campus. The majority of works associated with the proposed campus are associated with fit out and finishes work, being light vehicles and the installation of a lift which would involve a minor number of trucks.



## 12.3 Trucks Arriving to Site

The number of truck arrivals during construction is expected to be minimal with only minor structural works for the lift core. During this stage, all trucks will be linked via CB radio and/or hands-free mobile and will only be called to the site when required and when there is capacity within the site to accommodate the truck. This management arrangement of loading / unloading / deliveries will help minimise on-street queuing and will result in minimal disruptions to the surrounding road network.

During fit out and finishes all vehicles are expected to be accommodated on-the existing car parks on both sites to be made available for contractor vehicles where necessary.

## 12.4 Employee Parking

Employees will be encouraged to utilise public transport or carpool to and from site as no parking will be provided on-site for general employee parking. With the surrounding parking restrictions for on-street parking, no employees will be permitted to park on street further minimising the impact of the development on surrounding residential developments.

#### 12.5 Traffic Control Plans

A traffic control plan (TCP) will be prepared as part of a detailed CTMP to address any specific access arrangement that will impact traffic on Gordon Street, such as trucks installing the lift core. However, this will require further information form the builder to determine the specific access arrangement and may be subject to separate approvals. For all other construction works being contained on site a traffic control plan is not considered necessary for these works.

## 12.6 Swept Path Analysis

The construction will likely involve mostly smaller contractor vehicles, such as SRVs and B99 vehicles, for installation and deliveries involved with the fit out and finishes of the two buildings. Swept path analysis of these vehicles entering and exiting the site in a forward direction is provided in **Appendix E** for reference. Any larger vehicles required will be subject to specific traffic management arrangements as part of a detailed CTMP, which will require input from the builder.



## 13. CONCLUSIONS

The following points are noteworthy:

- The proposal seeks approval for the conversion of two existing buildings into an educational establishment for St Aloysius 48 Victoria Road and 2A and 2B Gordon Street Rozelle. It is proposed that this campus will have a maximum capacity of 180 students in a single year group between years 7 to 10 that will be relocated from the existing school located in Kirribilli. The proposed development will also accommodate up to 15 staff at any one time. An existing carpark is located on the site of 2A-2B Gordon Street, Kirribilli from which four (4) spaces will be leased by the school.
- The subject site is well connected to the public transport network with reliable access to regular bus services. These, along with existing pedestrian and cycle links, ensure the site is ideally situated for a secondary school development as it provides a good opportunity to encourage future staff/students to use sustainable transport modes.
- As part of the proposal, four (4) spaces will be leased by the school at the existing car park for 2A and 2B Gordon Street. These spaces will be restricted to staff only, which complies with Council's DCP requirements.
- In addition, the DCP requirements require the consideration of drop-off and pick-up facilities. Three (3) on-street parking spaces on Maney Street, near the intersection with Quick Street and located along the site frontage are proposed to be used as a set down area. A '5 minute parking' restriction is proposed for a half hour period before and after the school operational hours. The management measures that are proposed to accommodate this arrangement are discussed in detail within Section 11.4.
- A single coach service is proposed in the morning and afternoon to shuttle a proportion of the students between campuses to continue their trip home via Kirribilli. It is proposed that students are set down and picked up by the coach from the public bus stop at Victoria Road near Evans Street (Stop ID 203922). The management measures that are proposed to accommodate this arrangement are discussed in detail within Section 11.1.
- The traffic generation arising from the development equates to an additional 14 vehicle trips per hour during the morning and evening peak periods due to the proposed development. SIDRA modelling demonstrates that all intersections maintain a LOS 'A' during both the morning and evening peak periods with minimal increase in average delay. Therefore, all



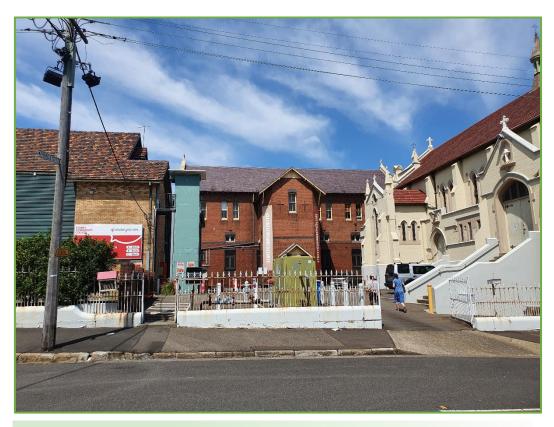
intersections are expected to operate satisfactorily with no upgrades or road improvements required to accommodate the proposed development.

• Waste collection for the site is proposed to be undertaken within the existing carpark located at 2A-2B Gordon Street, Rozelle. In addition, servicing the site located at 48 Victoria Road, Rozelle, this will be limited to a B99 vehicle.

This transport and accessibility impact assessment therefore demonstrates that the subject application is supportable on traffic planning grounds. TRAFFIX anticipates an ongoing involvement during the development approval process.

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APPENDIX A
Photographic Record



View looking east towards western boundary of 2A-2B Gordon Street, Rozelle.



View looking east along southern boundary of 2A-2B Gordon Street, Rozelle.



View looking south along Maney Street towards eastern boundary of 2A-2B Gordon Street.



View looking west along northern boundary of 48 Victoria Road, Rozelle.



View looking west at existing access for 48 Victoria Road, Rozelle.



View looking west along southern boundary of 48 Victoria Road, Rozelle.

## APPENDIX B

Reduced Plans

Modifications to existing lighting , fire detection and emergency lighting to comply

107 Maney Street 2a-2b Gordon St **Quirk Street** Victoria Road Gordon Street 48 Victoria Rd **Quirk Street** Prince Street

existing landscape. Refer to landscape architects

drawings

Minor modifications to

Minor repairs to asphalt

and new lin marking

Site Plan

© PMDL

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Oct 2021 1:500 Date

SAC Remote Site

PMDL MACHITECTURE INTERIORS MASTERPLANNING

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# APPENDIX C

Parking Survey Results



#### 48 Victoria Road - ROZELLE

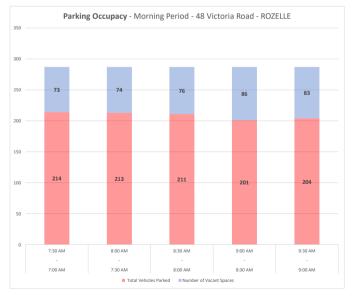
ZONE	UID	Street Name		Parking Restrictions	No. of Spaces			
Α	A1	Prince Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R1	11	Bays	3.83%	of Total Capacity
Α	A2	Prince Street	l	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R2	10	Bays	3.48%	of Total Capacity
В	B1	Gordon Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R3	6	Bays	2.09%	of Total Capacity
В	B2	Gordon Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R4	6	Bays	2.09%	of Total Capacity
В	B3	Gordon Street		2P 8 AM - 6 PM MON - FRI PERMIT	10	Bays	3.48%	of Total Capacity
В	B4	Gordon Street		HOLDERS ACCEPTED AREA R5 2P 8 AM - 6 PM MON - FRI PERMIT	9	Bays	3.14%	of Total Capacity
С	C1	Quirk Street		HOLDERS ACCEPTED AREA R6 2P 8 AM - 6 PM MON - FRI PERMIT	13	Bavs	4.53%	of Total Capacity
С	C2	Quirk Street		HOLDERS ACCEPTED AREA R7 2P 8 AM - 6 PM MON - FRI PERMIT	15	Bays	5.23%	of Total Capacity
	C2 C3			HOLDERS ACCEPTED AREA R8 2P 8 AM - 6 PM MON - FRI PERMIT	8			
С		Quirk Street		HOLDERS ACCEPTED AREA R9 2P 8 AM - 6 PM MON - FRI PERMIT		Bays	2.79%	of Total Capacity
С	C4	Quirk Street		HOLDERS ACCEPTED AREA R10 2P 8 AM - 6 PM MON - FRI PERMIT	25	Bays	8.71%	of Total Capacity
С	C5	Quirk Street		HOLDERS ACCEPTED AREA R11 2P 8 AM - 6 PM MON - FRI PERMIT	9	Bays	3.14%	of Total Capacity
D	D1	Maney Street		HOLDERS ACCEPTED AREA R12  2P 8 AM - 6 PM MON - FRI PERMIT	11	Bays	3.83%	of Total Capacity
D	D2	Maney Street		HOLDERS ACCEPTED AREA R13  2P 8 AM - 6 PM MON - FRI PERMIT	12	Bays	4.18%	of Total Capacity
Ε	E1	Graham Street		HOLDERS ACCEPTED AREA R14	10	Bays	3.48%	of Total Capacity
Е	E2	Graham Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R15	9	Bays	3.14%	of Total Capacity
F	F1	Evans Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R16	9	Bays	3.14%	of Total Capacity
F	F2	Evans Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R17	18	Bays	6.27%	of Total Capacity
F	F3	Evans Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R18	3	Bays	1.05%	of Total Capacity
G	G1	Kenniff Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R19	7	Bays	2.44%	of Total Capacity
G	G2	Kenniff Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R20	7	Bays	2.44%	of Total Capacity
Н	Н1	Elizabeth Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R21	3	Bays	1.05%	of Total Capacity
1	11	Jospeh Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R22	16	Bays	5.57%	of Total Capacity
J	J1	Hartley Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R23	11	Bays	3.83%	of Total Capacity
J	J2	Hartley Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R24	13	Bays	4.53%	of Total Capacity
K	K1	Mackenzie Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R25	19	Bays	6.62%	of Total Capacity
K	K2	Mackenzie Street		2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R26	17	Bays	5.92%	of Total Capacity
		Total Capacity		HOLDERS ACCEPTED AREA RZB	287	Bays	100.00%	of Total Capacity

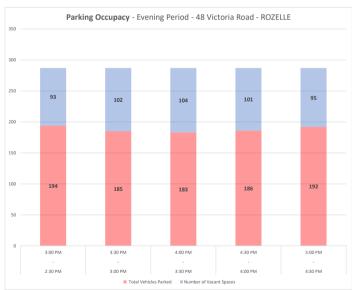




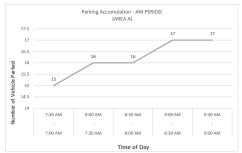
Location	48 Victoria Road
Suburb	ROZELLE
Client	TRAFFIX
Job No/Name	21058
Survey Duration	5 HOURS
Day/Date	Thursday, 7 October 2021

				•			AM PERIOD PM PERIOD										
Zone	HID	Street Name	Parking Configuration	Type	Parking Restriction	Capacity	7:00 AM	7:30 AM	8:00 AM	8:30 AM	9:00 AM		2:30 PM	3:00 PM	3:30 PM	4:00 PM	4:30 PM
Lone	OID	otroot Hamo	r arking configuration	.,,,,	T dirking recouncies	oupuoity	7:30 AM	8:00 AM	8:30 AM	9:00 AM	9:30 AM		3:00 PM	3:30 PM	4:00 PM	4:30 PM	5:00 PM
Α	A1	Prince Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R1	11	7	8	8	9	9		7	8	8	7	6
Α	A2	Prince Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R2	10	8	8	8	8	8		6	6	6	6	6
В	В1	Gordon Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R3	6	2	2	2	1	1		2	2	3	3	2
В	B2	Gordon Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R4	6	5	5	5	5	5		5	5	4	5	6
В	В3	Gordon Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R5	10	9	9	9	8	8		8	8	7	7	8
В	В4	Gordon Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R6	9	8	7	7	6	6		8	7	8	8	8
С	C1	Quirk Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R7	13	12	12	12	12	12		12	12	12	12	12
С	C2	Quirk Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R8	15	11	9	10	12	13		11	11	9	8	8
С	СЗ	Quirk Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R9	8	6	6	5	4	3		2	2	2	3	4
С	C4	Quirk Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R10	25	17	16	14	12	13		9	10	12	12	11
С	C5	Quirk Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R11	9	9	9	9	9	9		7	7	6	8	11
D	D1	Maney Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R12	11	6	6	5	6	5		5	5	4	4	6
D	D2	Maney Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R13	12	7	7	7	8	9		5	6	7	8	8
Е	E1	Graham Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R14	10	3	3	3	3	3		4	2	2	3	4
Е	E2	Graham Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R15	9	4	4	4	5	5		5	5	5	5	5
F	F1	Evans Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R16	9	8	9	9	8	8		6	6	6	6	7
F	F2	Evans Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R17	18	16	16	15	14	14		15	13	13	12	12
F	F3	Evans Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R18	3	2	3	3	3	2		2	2	2	2	2
G	G1	Kenniff Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R19	7	5	6	6	6	7		7	5	4	4	4
G	G2	Kenniff Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R20	7	6	6	6	5	5		4	4	3	2	2
Н	H1	Elizabeth Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R21	3	3	3	2	0	0		2	2	2	2	2
-1	11	Jospeh Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R22	16	12	13	13	12	12		13	11	11	8	7
J	J1	Hartley Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R23	11	10	10	10	9	9		8	8	8	9	9
J	J2	Hartley Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R24	13	12	11	11	11	11		11	11	11	11	9
K	K1	Mackenzie Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R25	19	12	11	13	12	12		15	14	15	16	17
К	K2	Mackenzie Street	Perpendicular	On-street	2P 8 AM - 6 PM MON - FRI PERMIT HOLDERS ACCEPTED AREA R26	17	14	14	15	13	15		15	13	13	15	16
			287	214	213	211	201	204		194	185	183	186	192			
			Number of Vacant Space	s			73	74	76	86	83		93	102	104	101	95
			% of Capacity Used		74.6%	74.2%	73.5%	70.0%	71.1%		67.6%	64.5%	63.8%	64.8%	66.9%		



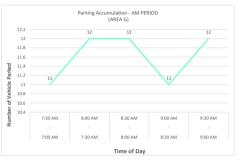


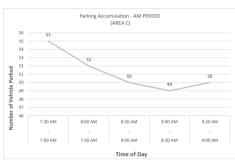


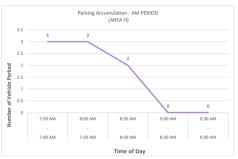




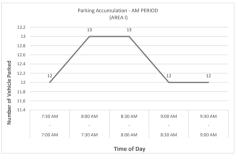


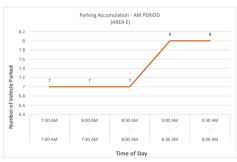


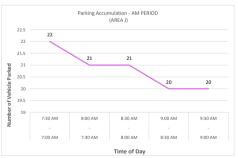












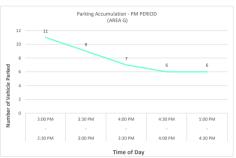








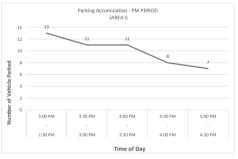






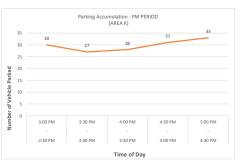












## APPENDIX D

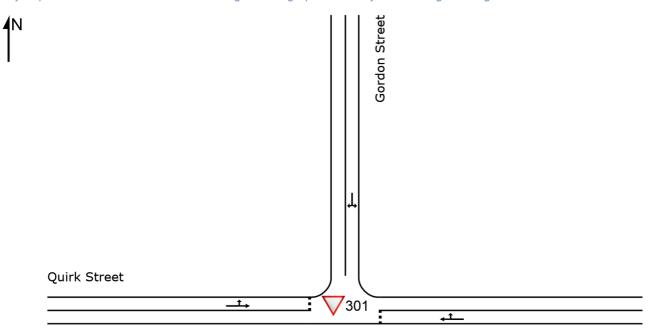
SIDRA Outputs

## **▽** Site: 301 [301\_EXAM\_Quirk St x Maney St (Site Folder: General)]

Quirk Street x Maney Street Existing AM Peak 8:00am - 9:00am Site Category: (None) Give-Way (Two-Way)

#### Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Quirk Street

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com Organisation: TRAFFIX PTY LTD | Licence: NETWORK / 1PC | Created: Wednesday, 3 November 2021 5:40:08 PM Project: T:\Synergy\Projects\21\21.185\Modelling\21.185\mo

#### **USER REPORT FOR SITE**

#### **All Movement Classes**

Project: 21.185m01v01 St Aloysius Rozelle

**Template: Movement Summaries** 

#### Site: 101 [101\_EXAM\_Gordon St x Victoria Rd (Site Folder: General)]

Gordon Street x Victoria Road

Existing

AM Peak 7:00am - 8:00am Site Category: (None)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: TCS Phasing Reference Phase: Phase A Input Phase Sequence: A, B **Output Phase Sequence: A, B** 

Vehi	Vehicle Movement Performance														
Mov Turn ID		INPUT VOLUMES		DEMAND FLOWS [Total HV]		Deg. Satn	Aver. Level of Delay Service		95% B <i>A</i> QUE [ Veh.	ACK OF EUE Dist ]	Prop. E Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed	
		[ Total veh/h	HV ] veh/h	[ Total veh/h	%	v/c	sec		veh	m m		Nate	Cycles	km/h	
South	South: Gordon Street														
1	L2	52	3	55	5.8	0.711	70.4	LOS E	10.6	76.4	1.00	0.85	1.07	12.6	
3	R2	244	6	257	2.5	<b>*</b> 0.711	70.4	LOS E	10.7	76.3	1.00	0.85	1.07	17.3	
Appr	oach	296	9	312	3.0	0.711	70.4	LOS E	10.7	76.4	1.00	0.85	1.07	16.4	
East:	Victor	ia Road													
5	T1	1249	109	1315	8.7	0.300	4.4	LOSA	8.2	60.7	0.30	0.27	0.30	48.8	
Appr	oach	1249	109	1315	8.7	0.300	4.4	LOSA	8.2	62.7	0.30	0.27	0.30	48.8	
West	: Victo	ria Road													
11	T1	3229	121	3399	3.7	<b>*</b> 0.749	8.2	LOSA	39.1	280.0	0.57	0.54	0.57	42.1	
Appr	oach	3229	121	3399	3.7	0.749	8.2	LOSA	39.1	280.0	0.57	0.54	0.57	42.1	
All Vehic	cles	4774	239	5025	5.0	0.749	11.0	LOSA	39.1	280.0	0.52	0.49	0.53	38.0	

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

\* Critical Movement (Signal Timing)

#### Site: 102 [102\_PRAM\_Gordon St x Victoria Rd (Site Folder: General)]

Gordon Street x Victoria Road Proposed

AM Peak 7:00am - 8:00am Site Category: (None)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: TCS Phasing Reference Phase: Phase A Input Phase Sequence: A, B Output Phase Sequence: A, B

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [ Total veh/h		DEM. FLO [ Total veh/h		Deg. Satn v/c		Level of Service	95% BA QUE [ Veh. veh		Prop. E Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Gordon Street														
1 3	L2 R2	52 244	3 6	55 257	5.8 2.5	0.711 * 0.711	70.4 70.4	LOS E LOS E	10.6 10.7	76.4 76.3	1.00 1.00	0.85 0.85	1.07 1.07	12.6 17.3
Appro	oach	296	9	312	3.0	0.711	70.4	LOS E	10.7	76.4	1.00	0.85	1.07	16.4
East:	Victor	ia Road												
5	T1	1257	110	1323	8.8	0.302	4.4	LOSA	8.3	61.2	0.30	0.27	0.30	48.8
Appro	oach	1257	110	1323	8.8	0.302	4.4	LOSA	8.3	63.3	0.30	0.27	0.30	48.8
West	: Victo	ria Road												
11	T1	3230	122	3400	3.8	<b>*</b> 0.749	8.1	LOSA	39.1	280.0	0.57	0.54	0.57	42.1
Appro	oach	3230	122	3400	3.8	0.749	8.1	LOSA	39.1	280.0	0.57	0.54	0.57	42.1
All Vehic	eles	4783	241	5035	5.0	0.749	11.0	LOSA	39.1	280.0	0.52	0.49	0.53	38.0

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

\* Critical Movement (Signal Timing)

### Site: 103 [103\_EXPM\_Gordon St x Victoria Rd (Site Folder: General)]

Gordon Street x Victoria Road Existing

PM Peak 4:00pm - 5:00pm Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

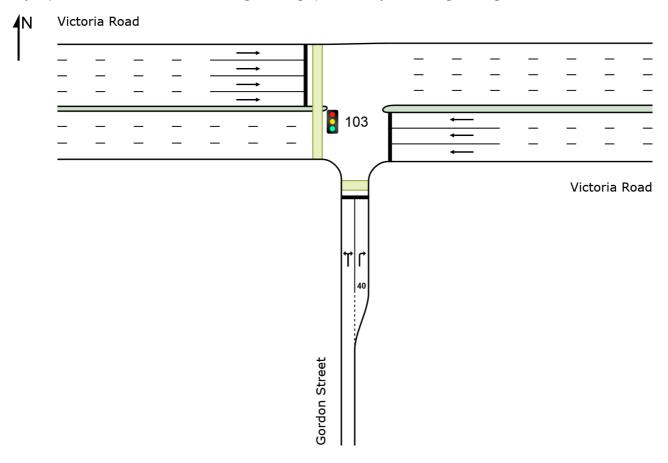
Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: TCS Phasing Reference Phase: Phase A Input Phase Sequence: A, B Output Phase Sequence: A, B

#### Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



#### Site: 103 [103\_EXPM\_Gordon St x Victoria Rd (Site Folder: General)]

Gordon Street x Victoria Road

Existing

PM Peak 4:00pm - 5:00pm Site Category: (None)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: TCS Phasing Reference Phase: Phase A Input Phase Sequence: A, B Output Phase Sequence: A, B

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [ Total veh/h		DEM. FLO [ Total veh/h		Deg. Satn v/c		Level of Service	95% BA QUE [ Veh. veh		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South	South: Gordon Street													
1	L2 R2	49 91	1 1	52 96	2.0 1.1	0.442 * 0.442	71.5 71.5	LOS F LOS F	4.9 5.0	34.9 35.0	0.99 0.99	0.77 0.77	0.99 0.99	12.5 17.1
Appro	oach	140	2	147	1.4	0.442	71.5	LOS F	5.0	35.0	0.99	0.77	0.99	15.5
East:	Victor	ia Road												
5	T1	2405	80	2532	3.3	* 0.535	4.2	LOSA	17.9	127.2	0.35	0.32	0.35	49.3
Appro	oach	2405	80	2532	3.3	0.535	4.2	LOSA	17.9	131.1	0.35	0.32	0.35	49.3
West	: Victo	ria Road												
11	T1	2012	85	2118	4.2	0.341	3.2	LOS A	8.8	63.1	0.27	0.24	0.27	51.3
Appro	oach	2012	85	2118	4.2	0.341	3.2	LOSA	8.8	64.1	0.27	0.24	0.27	51.3
All Vehic	eles	4557	167	4797	3.7	0.535	5.8	LOSA	17.9	131.1	0.33	0.30	0.33	45.7

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

\* Critical Movement (Signal Timing)

#### Site: 104 [104\_PRPM\_Gordon St x Victoria Rd (Site Folder: General)]

Gordon Street x Victoria Road Proposed

PM Peak 4:00pm - 5:00pm Site Category: (None)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: TCS Phasing Reference Phase: Phase A Input Phase Sequence: A, B Output Phase Sequence: A, B

Vehi	Vehicle Movement Performance														
Mov ID	Turn	INP VOLU [ Total veh/h		DEM, FLO [ Total veh/h		Deg. Satn v/c		Level of Service	95% BA QUE [ Veh. veh		Prop. I Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h	
South	South: Gordon Street														
1	L2	51	1	54	2.0	0.454	71.6	LOS F	5.1	35.9	0.99	0.77	0.99	12.4	
3	R2	93	1	98	1.1	* 0.454	71.6	LOS F	5.1	36.0	0.99	0.77	0.99	17.1	
Appro	oach	144	2	152	1.4	0.454	71.6	LOS F	5.1	36.0	0.99	0.77	0.99	15.4	
East:	Victor	ia Road													
5	T1	2413	81	2540	3.4	<b>*</b> 0.536	4.2	LOSA	18.0	128.0	0.35	0.32	0.35	49.3	
Appro	oach	2413	81	2540	3.4	0.536	4.2	LOSA	18.0	131.9	0.35	0.32	0.35	49.3	
West	: Victo	ria Road													
11	T1	2013	86	2119	4.3	0.341	3.2	LOSA	8.8	63.1	0.27	0.24	0.27	51.3	
Appro	oach	2013	86	2119	4.3	0.341	3.2	LOSA	8.8	64.2	0.27	0.24	0.27	51.3	
All Vehic	eles	4570	169	4811	3.7	0.536	5.9	LOSA	18.0	131.9	0.33	0.30	0.33	45.6	

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

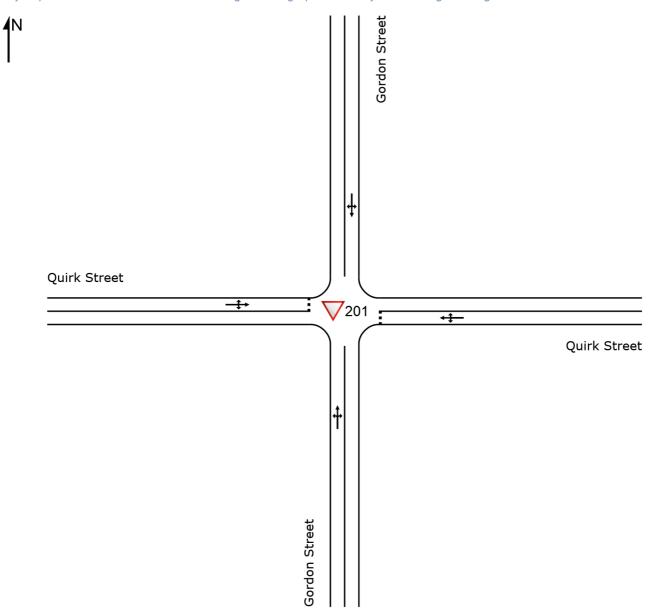
\* Critical Movement (Signal Timing)

## **▽** Site: 201 [201\_EXAM\_Gordon St x Quirk St (Site Folder: General)]

Gordon Street x Quirk Street Existing AM Peak 8:00am - 9:00am Site Category: (None) Give-Way (Two-Way)

#### Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



# V Site: 201 [201\_EXAM\_Gordon St x Quirk St (Site Folder: General)]

Gordon Street x Quirk Street Existing AM Peak 8:00am - 9:00am Site Category: (None) Give-Way (Two-Way)

Vehi	cle M	ovemen	t Perfor	rmance										
Mov ID	Turn	INP VOLU [ Total veh/h		DEM, FLO [ Total veh/h		Deg. Satn v/c		Level of Service	95% BA QUI [ Veh. veh	ACK OF EUE Dist ] m	Prop. E Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South	h: Gord	don Stree	t											
1	L2	6	3	6	50.0	0.166	5.0	LOSA	0.1	0.9	0.00	0.04	0.00	41.5
2	T1	274	3	288	1.1	0.166	0.0	LOSA	0.1	0.9	0.00	0.04	0.00	49.0
3	R2	17	0	18	0.0	0.166	4.7	LOSA	0.1	0.9	0.00	0.04	0.00	47.1
Appr	oach	297	6	313	2.0	0.166	0.4	NA	0.1	0.9	0.00	0.04	0.00	48.6
East:	Quirk	Street												
4	L2	18	0	19	0.0	0.028	4.6	LOSA	0.1	0.7	0.01	0.54	0.01	43.3
5	T1	2	0	2	0.0	0.028	4.5	LOSA	0.1	0.7	0.01	0.54	0.01	42.0
6	R2	11	0	12	0.0	0.028	6.4	LOSA	0.1	0.7	0.01	0.54	0.01	33.3
Appr	oach	31	0	33	0.0	0.028	5.2	LOSA	0.1	0.7	0.01	0.54	0.01	39.8
North	n: Gord	lon Street	t											
7	L2	1	0	1	0.0	0.003	4.4	LOSA	0.0	0.1	0.20	0.20	0.20	48.0
8	T1	3	0	3	0.0	0.003	0.3	LOSA	0.0	0.1	0.20	0.20	0.20	50.6
9	R2	1	0	1	0.0	0.003	4.9	LOSA	0.0	0.1	0.20	0.20	0.20	39.9
Appr	oach	5	0	5	0.0	0.003	2.1	NA	0.0	0.1	0.20	0.20	0.20	47.9
West	:: Quirk	Street												
10	L2	6	0	6	0.0	0.011	5.4	LOSA	0.0	0.3	0.35	0.54	0.35	22.1
11	T1	3	0	3	0.0	0.011	4.4	LOSA	0.0	0.3	0.35	0.54	0.35	43.6
12	R2	2	0	2	0.0	0.011	6.4	LOSA	0.0	0.3	0.35	0.54	0.35	39.2
Appr	oach	11	0	12	0.0	0.011	5.3	LOSA	0.0	0.3	0.35	0.54	0.35	31.2
All Vehic	cles	344	6	362	1.7	0.166	1.0	NA	0.1	0.9	0.02	0.11	0.02	46.3

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.

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

# V Site: 202 [202\_PRAM\_Gordon St x Quirk St (Site Folder: General)]

Gordon Street x Quirk Street Proposed AM Peak 8:00am - 9:00am Site Category: (None) Give-Way (Two-Way)

Vehi	cle M	ovemen	t Perfoi	rmance										
Mov ID	Turn	INP VOLU [ Total veh/h		DEM, FLO [ Total veh/h		Deg. Satn v/c		Level of Service	95% BA QUI [ Veh. veh	ACK OF EUE Dist ] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South	n: Gor	don Stree	t											
1	L2	6	3	6	50.0	0.173	5.0	LOSA	0.2	1.3	0.01	0.06	0.01	41.5
2	T1	278	3	293	1.1	0.173	0.0	LOSA	0.2	1.3	0.01	0.06	0.01	48.9
3	R2	24	0	25	0.0	0.173	5.0	LOSA	0.2	1.3	0.01	0.06	0.01	48.1
Appr	oach	308	6	324	1.9	0.173	0.5	NA	0.2	1.3	0.01	0.06	0.01	48.6
East:	Quirk	Street												
4	L2	18	0	19	0.0	0.029	4.6	LOSA	0.1	0.7	0.01	0.54	0.01	43.2
5	T1	2	0	2	0.0	0.029	4.6	LOSA	0.1	0.7	0.01	0.54	0.01	42.0
6	R2	11	0	12	0.0	0.029	6.4	LOSA	0.1	0.7	0.01	0.54	0.01	33.3
Appr	oach	31	0	33	0.0	0.029	5.2	LOSA	0.1	0.7	0.01	0.54	0.01	39.7
North	ı: Gorc	Ion Street	t											
7	L2	1	0	1	0.0	0.003	4.4	LOSA	0.0	0.1	0.20	0.20	0.20	48.0
8	T1	3	0	3	0.0	0.003	0.3	LOS A	0.0	0.1	0.20	0.20	0.20	50.6
9	R2	1	0	1	0.0	0.003	4.9	LOSA	0.0	0.1	0.20	0.20	0.20	39.9
Appr	oach	5	0	5	0.0	0.003	2.1	NA	0.0	0.1	0.20	0.20	0.20	47.9
West	: Quirk	Street												
10	L2	6	0	6	0.0	0.011	5.5	LOSA	0.0	0.3	0.36	0.54	0.36	22.1
11	T1	3	0	3	0.0	0.011	4.5	LOSA	0.0	0.3	0.36	0.54	0.36	43.6
12	R2	2	0	2	0.0	0.011	6.5	LOSA	0.0	0.3	0.36	0.54	0.36	39.2
Appr	oach	11	0	12	0.0	0.011	5.4	LOSA	0.0	0.3	0.36	0.54	0.36	31.2
All Vehic	cles	355	6	374	1.7	0.173	1.1	NA	0.2	1.3	0.02	0.12	0.02	46.4

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

# V Site: 202 [203\_EXPM\_Gordon St x Quirk St (Site Folder: General)]

Gordon Street x Quirk Street Existing PM Peak 3:00pm - 4:00pm Site Category: (None) Give-Way (Two-Way)

Vehi	cle M	ovemen	t Perfo	mance										
Mov ID	Turn	INP VOLU [ Total veh/h		DEM/ FLO [ Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist ] m	Prop. E Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South	n: Gor	don Stree	t											
1 2	L2 T1	5 132	0 0	5 139	0.0	0.083 0.083	4.6 0.0	LOS A LOS A	0.1 0.1	0.6 0.6	0.00 0.00	0.07 0.07	0.00 0.00	47.2 48.4
3	R2	12	0	13	0.0	0.083	4.7	LOSA	0.1	0.6	0.00	0.07	0.00	46.8
Appr	oach	149	0	157	0.0	0.083	0.5	NA	0.1	0.6	0.00	0.07	0.00	48.1
East:	Quirk	Street												
4	L2	6	0	6	0.0	0.008	5.5	LOSA	0.0	0.2	0.00	0.58	0.00	46.8
5	T1	1	0	1	0.0	0.008	4.7	LOSA	0.0	0.2	0.00	0.58	0.00	45.8
6	R2	3	0	3	0.0	0.008	6.2	LOSA	0.0	0.2	0.00	0.58	0.00	36.2
Appr	oach	10	0	11	0.0	0.008	5.7	LOSA	0.0	0.2	0.00	0.58	0.00	43.6
North	n: Gord	lon Street	t											
7	L2	1	0	1	0.0	0.002	4.2	LOSA	0.0	0.0	0.19	0.34	0.19	47.7
8	T1	1	0	1	0.0	0.002	0.3	LOSA	0.0	0.0	0.19	0.34	0.19	49.0
9	R2	1	0	1	0.0	0.002	4.2	LOSA	0.0	0.0	0.19	0.34	0.19	39.6
Appr	oach	3	0	3	0.0	0.002	2.9	NA	0.0	0.0	0.19	0.34	0.19	45.8
West	: Quirk	Street												
10	L2	2	0	2	0.0	0.003	5.9	LOSA	0.0	0.1	0.23	0.53	0.23	22.9
11	T1	1	0	1	0.0	0.003	4.7	LOSA	0.0	0.1	0.23	0.53	0.23	45.1
12	R2	1	0	1	0.0	0.003	6.3	LOSA	0.0	0.1	0.23	0.53	0.23	40.8
Appr	oach	4	0	4	0.0	0.003	5.7	LOSA	0.0	0.1	0.23	0.53	0.23	33.0
All Vehic	cles	166	0	175	0.0	0.083	1.0	NA	0.1	0.6	0.01	0.11	0.01	47.1

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

# V Site: 204 [204\_PRPM\_Gordon St x Quirk St (Site Folder: General)]

Gordon Street x Quirk Street Proposed PM Peak 3:00pm - 4:00pm Site Category: (None) Give-Way (Two-Way)

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [ Total veh/h		DEM/ FLO' [ Total veh/h		Deg. Satn v/c		Level of Service	95% BA QUE [ Veh. veh		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Sout	h: Gor	don Stree	t											
1	L2	5	0	5	0.0	0.087	4.6	LOSA	0.1	0.9	0.01	0.09	0.01	47.0
2	T1	132	0	139	0.0	0.087	0.0	LOSA	0.1	0.9	0.01	0.09	0.01	48.0
3	R2	19	0	20	0.0	0.087	5.0	LOSA	0.1	0.9	0.01	0.09	0.01	47.9
Appr	oach	156	0	164	0.0	0.087	8.0	NA	0.1	0.9	0.01	0.09	0.01	48.0
East:	Quirk	Street												
4	L2	6	0	6	0.0	0.008	5.5	LOSA	0.0	0.2	0.00	0.58	0.00	46.7
5	T1	1	0	1	0.0	0.008	4.7	LOSA	0.0	0.2	0.00	0.58	0.00	45.7
6	R2	3	0	3	0.0	0.008	6.3	LOSA	0.0	0.2	0.00	0.58	0.00	36.2
Appr	oach	10	0	11	0.0	0.008	5.7	LOSA	0.0	0.2	0.00	0.58	0.00	43.6
North	n: Gord	Ion Street	t											
7	L2	1	0	1	0.0	0.002	4.2	LOSA	0.0	0.0	0.19	0.34	0.19	47.7
8	T1	1	0	1	0.0	0.002	0.3	LOSA	0.0	0.0	0.19	0.34	0.19	49.0
9	R2	1	0	1	0.0	0.002	4.2	LOSA	0.0	0.0	0.19	0.34	0.19	39.6
Appr	oach	3	0	3	0.0	0.002	2.9	NA	0.0	0.0	0.19	0.34	0.19	45.8
West	:: Quirk	Street												
10	L2	2	0	2	0.0	0.003	5.9	LOSA	0.0	0.1	0.23	0.53	0.23	22.9
11	T1	1	0	1	0.0	0.003	4.7	LOSA	0.0	0.1	0.23	0.53	0.23	45.1
12	R2	1	0	1	0.0	0.003	6.3	LOSA	0.0	0.1	0.23	0.53	0.23	40.7
Appr	oach	4	0	4	0.0	0.003	5.7	LOSA	0.0	0.1	0.23	0.53	0.23	33.0
All Vehic	cles	173	0	182	0.0	0.087	1.2	NA	0.1	0.9	0.01	0.13	0.01	47.0

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.

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

## **USER REPORT FOR SITE**

#### **All Movement Classes**

Project: 21.185m01v01 St Aloysius Rozelle

### Site: 101 [101\_EXAM\_Gordon St x Victoria Rd (Site Folder: General)]

**Template: Layouts** 

Gordon Street x Victoria Road Existing AM Peak 7:00am - 8:00am Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

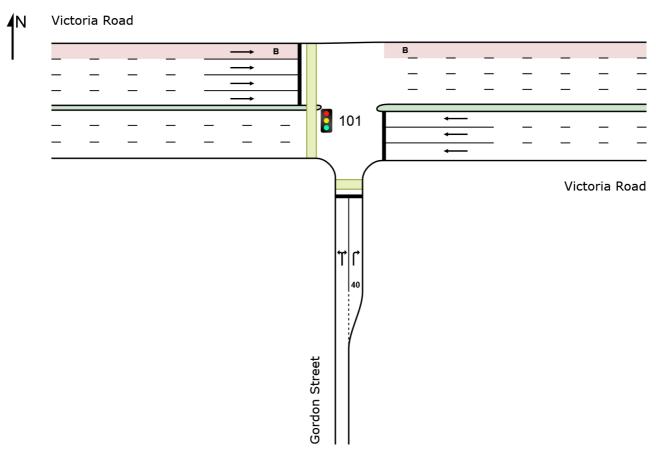
Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: TCS Phasing Reference Phase: Phase A Input Phase Sequence: A, B Output Phase Sequence: A, B

#### Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



# ∇ Site: 301 [301\_EXAM\_Quirk St x Maney St (Site Folder: General)]

Quirk Street x Maney Street Existing AM Peak 8:00am - 9:00am Site Category: (None) Give-Way (Two-Way)

Vehi	cle M	ovemen	t Perfor	rmance										
Mov ID	Turn	INP VOLU	IMES	DEM. FLO	WS	Deg. Satn		Level of Service	QUE	ACK OF EUE	Prop. Que	Effective Stop		Aver. Speed
		[ Total veh/h	HV ] veh/h	[ Total veh/h	HV ] %	v/c	sec		[ Veh. veh	Dist ] m		Rate	Cycles	km/h
East:	Quirk	Street												
5	T1	2	0	2	0.0	0.002	3.2	LOSA	0.0	0.1	0.03	0.49	0.03	37.7
6	R2	1	0	1	0.0	0.002	4.7	LOSA	0.0	0.1	0.03	0.49	0.03	39.8
Appro	oach	3	0	3	0.0	0.002	3.7	LOSA	0.0	0.1	0.03	0.49	0.03	38.4
North	: Gord	don Street	t											
7	L2	2	0	2	0.0	0.003	5.4	LOSA	0.0	0.0	0.00	0.60	0.00	42.7
9	R2	3	0	3	0.0	0.003	5.4	LOSA	0.0	0.0	0.00	0.60	0.00	23.6
Appro	oach	5	0	5	0.0	0.003	5.4	NA	0.0	0.0	0.00	0.60	0.00	31.7
West	: Quirk	Street												
10	L2	5	0	5	0.0	0.005	3.9	LOSA	0.0	0.1	0.03	0.52	0.03	25.4
11	T1	3	0	3	0.0	0.005	2.7	LOSA	0.0	0.1	0.03	0.52	0.03	45.3
Appro	oach	8	0	8	0.0	0.005	3.4	LOSA	0.0	0.1	0.03	0.52	0.03	32.7
All Vehic	eles	16	0	17	0.0	0.005	4.1	NA	0.0	0.1	0.02	0.54	0.02	33.6

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.

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

# V Site: 302 [302\_PRAM\_Quirk St x Maney St (Site Folder: General)]

Quirk Street x Maney Street Proposed AM Peak 8:00am - 9:00am Site Category: (None) Give-Way (Two-Way)

Vehi	cle Mo	ovemen	t Perfor	rmance										
Mov ID	Turn	INP VOLL	JMES	DEM. FLO	WS	Deg. Satn		Level of Service	QUI	ACK OF EUE	Prop. I Que	Effective Stop	Aver. No.	Aver. Speed
		[ Total veh/h	HV ] veh/h	[ Total veh/h	HV ] %	v/c	sec		[ Veh. veh	Dist ] m		Rate	Cycles	km/h
East:	Quirk	Street												
5	T1	2	0	2	0.0	0.002	3.2	LOSA	0.0	0.1	0.02	0.49	0.02	37.7
6	R2	1	0	1	0.0	0.002	4.8	LOSA	0.0	0.1	0.02	0.49	0.02	39.8
Appro	oach	3	0	3	0.0	0.002	3.7	LOSA	0.0	0.1	0.02	0.49	0.02	38.5
North	: Gord	on Stree	t											
7	L2	2	0	2	0.0	0.003	5.4	LOSA	0.0	0.0	0.00	0.60	0.00	42.7
9	R2	3	0	3	0.0	0.003	5.4	LOSA	0.0	0.0	0.00	0.60	0.00	23.6
Appro	oach	5	0	5	0.0	0.003	5.4	NA	0.0	0.0	0.00	0.60	0.00	31.7
West	: Quirk	Street												
10	L2	12	0	13	0.0	0.009	3.9	LOSA	0.0	0.3	0.03	0.53	0.03	25.2
11	T1	3	0	3	0.0	0.009	2.7	LOSA	0.0	0.3	0.03	0.53	0.03	44.9
Appro	oach	15	0	16	0.0	0.009	3.7	LOSA	0.0	0.3	0.03	0.53	0.03	29.0
All Vehic	les	23	0	24	0.0	0.009	4.1	NA	0.0	0.3	0.02	0.54	0.02	31.0

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.

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

# ∇ Site: 302 [303\_EXAM\_Quirk St x Maney St (Site Folder: General)]

Quirk Street x Maney Street Existing PM Peak 3:15pm - 4:15pm Site Category: (None) Give-Way (Two-Way)

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [ Total veh/h		DEM. FLO [ Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist ] m	Prop. E Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East:	Quirk	Street												
5 6	T1 R2	6 1	0 0	6 1	0.0	0.005 0.005	3.2 4.8	LOS A LOS A	0.0 0.0	0.1 0.1	0.02 0.02	0.47 0.47	0.02 0.02	38.2 40.2
Appr	oach	7	0	7	0.0	0.005	3.4	LOSA	0.0	0.1	0.02	0.47	0.02	38.5
North	n: Gord	on Street	t											
7	L2	1	0	1	0.0	0.002	5.4	LOSA	0.0	0.0	0.00	0.60	0.00	42.6
9	R2	3	0	3	0.0	0.002	5.4	LOSA	0.0	0.0	0.00	0.60	0.00	23.5
Appr	oach	4	0	4	0.0	0.002	5.4	NA	0.0	0.0	0.00	0.60	0.00	28.6
West	: Quirk	Street												
10	L2	4	1	4	25.0	0.009	3.9	LOSA	0.0	0.2	0.04	0.50	0.04	24.8
11	T1	9	0	9	0.0	0.009	2.6	LOSA	0.0	0.2	0.04	0.50	0.04	46.3
Appr	oach	13	1	14	7.7	0.009	3.0	LOSA	0.0	0.2	0.04	0.50	0.04	39.4
All Vehic	cles	24	1	25	4.2	0.009	3.5	NA	0.0	0.2	0.03	0.51	0.03	37.2

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

## ∇ Site: 304 [304\_PRAM\_Quirk St x Maney St (Site Folder: General)]

Quirk Street x Maney Street Proposed PM Peak 3:15pm - 4:15pm Site Category: (None) Give-Way (Two-Way)

Vehi	cle Mo	ovemen	t Perfor	mance										
Mov ID	Turn	INF VOLU [ Total veh/h		DEM FLO [ Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist ] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East:	Quirk	Street												
5 6 Appro	T1 R2 oach	6 1 7	0 0 0	6 1 7	0.0 0.0 0.0	0.005 0.005 0.005	3.2 4.8 3.4	LOS A LOS A	0.0 0.0 0.0	0.1 0.1 0.1	0.02 0.02 0.02	0.47 0.47 0.47	0.02 0.02 0.02	38.2 40.2 38.5
North	n: Gord	on Stree	t											
7 9 Appro	L2 R2 oach	1 3 4	0 0 0	1 3 4	0.0 0.0 0.0	0.002 0.002 0.002	5.4 5.4 5.4	LOS A LOS A NA	0.0 0.0 0.0	0.0 0.0 0.0	0.00 0.00 0.00	0.60 0.60 0.60	0.00 0.00 0.00	42.6 23.5 28.6
West	: Quirk	Street												
10 11 Appro		11 9 20 31	1 0 1	12 9 21 33	9.1 0.0 5.0 3.2	0.013 0.013 0.013 0.013	3.9 2.7 3.3 3.6	LOS A LOS A NA	0.0 0.0 0.0	0.4 0.4 0.4	0.04 0.04 0.04 0.03	0.51 0.51 0.51 0.51	0.04 0.04 0.04 0.03	25.1 45.6 34.1 34.5

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

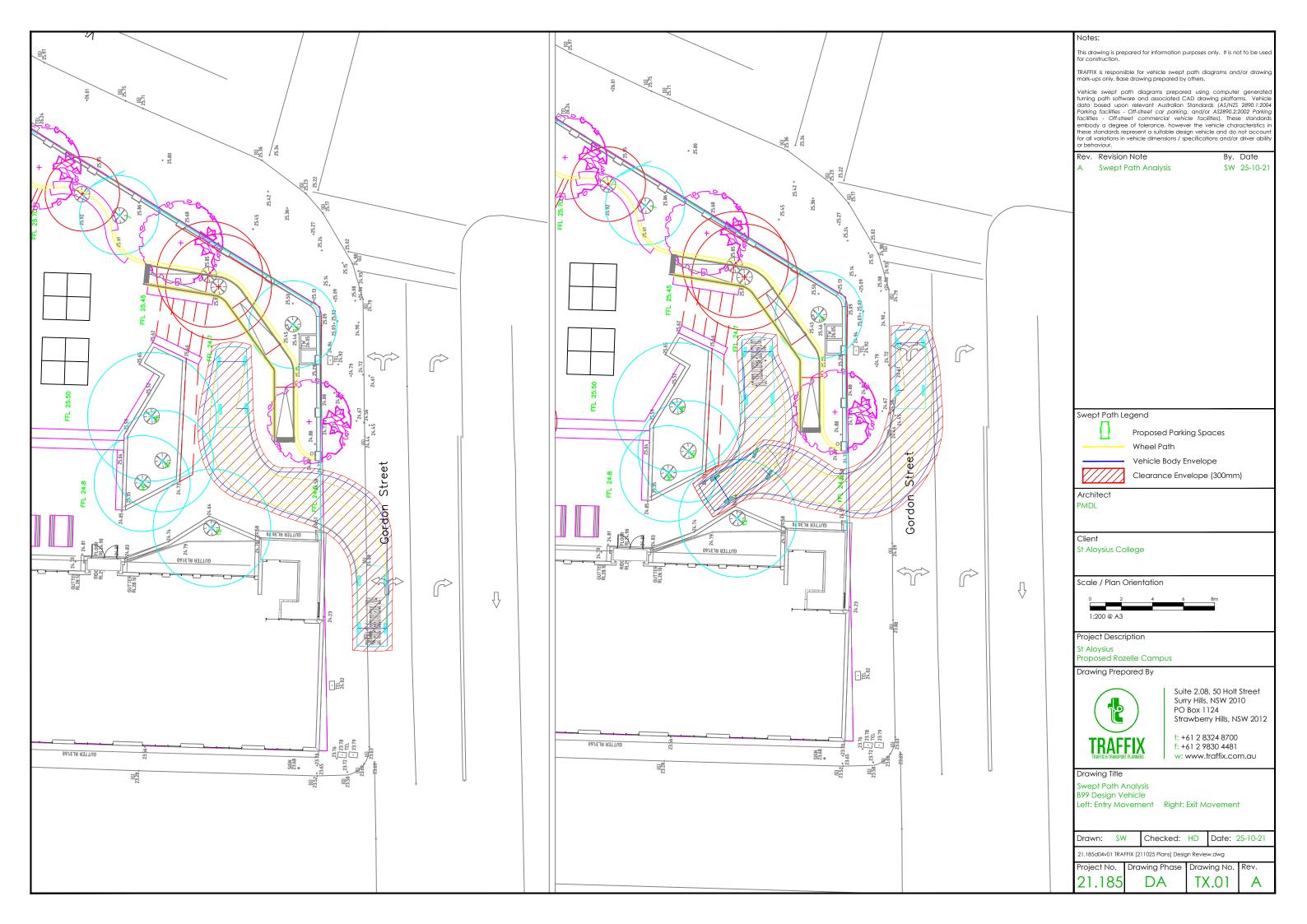
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com Organisation: TRAFFIX PTY LTD | Licence: NETWORK / 1PC | Created: Wednesday, 3 November 2021 5:39:23 PM Project: T:\Synergy\Projects\21\21.185\Modelling\21.185m01v01 St Aloysius Rozelle.sip9

# APPENDIX E

Swept Path Analysis



APPENDIX F
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Car Park Mark Up

