

Traffic Impact Assessment;

SGS Weigall Sports Complex

For Sydney Grammar School (C/o
Jattca)

7 October 2020

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Document Control

SGS Weigall Sports Complex, Traffic Impact Assessment

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1. Executive Summary

The traffic and parking assessment presented in this report relates to the proposal by Sydney Grammar School to construct a sports complex, known as the SGS Weigall Sports Complex (the Complex), within the Weigall Sports Fields property in Rushcutters Bay.

The Complex will be constructed within a parcel of land adjacent to Neild Avenue in the south-west corner of the sports fields. The building will accommodate various sporting spaces including a swimming pool and hall with spectator seating. A small staff car park is proposed adjacent to the building, which will also accommodate drop-off and pick-up activity during weekdays, and service vehicle access to the building.

The primary car park for the Complex will comprise a split level, 2-storey car park within the south-eastern corner of the sports fields, having access from Alma Street.

The location and design of the car park was established following an extensive assessment of options within the sport fields property. In response to constraints and spatial requirements, the proposed location has been established as being able to deliver the appropriate quantum of parking, while retaining the existing sports field areas and enabling the south-west site to accommodate the Complex with suitable setbacks and a reduced mass.

Vehicle access will be provided via an existing gate located at the northern end of Alma Street. It is acknowledged that this will introduce traffic activity to Alma Street during sporting events that occur on some Saturdays through the Summer and Winter sports seasons and this assessment has carefully assessed the impact and capacity of the local road network to accommodate this activity.

Through consultation with the community and observations of the typical weekday and weekend operation of the road network, it is acknowledged that traffic associated with the existing SGS Prep school generates queuing activity within the road network during weekdays. While this is being managed by SGS employees with the aim of maximising efficiency of the drop-off and pick-up activity, the limitations of space within the local roads is evident. In that regard, the location and design of the car park has been determined so that it will be used as a queueing area. The existing drop-off arrangement will be retained, but carers will be able to enter the car park to queue.

Traffic modelling has been undertaken to identify the impact of the development on the surrounding road network. It is noted that all surrounding intersections currently operate at a 'very good' or 'good' Level of Service, and the development has been shown to not negatively impact on this. It is acknowledged that the adjacent Hakoah Club and Maccabi Tennis Club is planning a redevelopment, but the cumulative impact also shows no detrimental effects on the surrounding road network.

Considering the above, the development of the sports complex is supported from a traffic perspective.

2. Introduction

2.1 Project Summary

ptc. has been engaged by Jattca on behalf of the Sydney Grammar School to prepare a Traffic Impact Assessment (TIA) to accompany a State Significant Development Application (SSDA) for the development of a Sports Complex at the Weigall Sports Fields in Rushcutters Bay.

The Senior School cannot accommodate its sport program on SGS properties and relies on external facilities, which are limited and logistically difficult to manage. SGS is finding it increasingly difficult to accommodate sport programs and popular and dominant sports have limited offerings due to student demand and limited or no facilities.

The SGS Weigall Sports Complex would meet the sport and Personal Development, Health and Physical Education (PDHPE) needs of the SGS community and reduce reliance on external facilities enabling greater supervision and protection of students. It would update the SGS sporting facilities, provide all-weather sporting facilities for Edgecliff Preparatory School and accommodate an increased swimming and basketball sport program. The SGS tennis program would be relocated away from Weigall.

The location of the subject site is outlined in Figure 1.



Figure 1 - Site location

2.2 Response to SEARs

SEARs Requirement	ptc. Response
<p>General Requirements</p> <p>Adequate baseline data consideration of the potential cumulative impacts due to other developments in the vicinity (completed, underway or proposed) and measures to avoid, minimise and if necessary, offset predicted impacts, including detailed contingency plans for managing any significant risks to the environment.</p>	Refer to Section 7.3
<p>2. Policies</p> <p>Address the relevant planning provisions, goals and strategic planning objectives in Future Transport Strategy 2056, Sydney's Cycling Future 2013, Sydney's Walking Future 2013 and Sydney's Bus Future 2013.</p>	Refer to Green Travel Plan prepared by ptc.
<p>7. Transport and Accessibility</p> <p>Accurate details of the current daily and peak hour vehicle, existing and future public transport networks and pedestrian and cycle movement provided on the road network located adjacent to the proposed development.</p>	Refer to Section 4, Section 6.5, Section 7 and to Green Travel Plan prepared by ptc.
Details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips.	Refer to Section 7.3
The adequacy of existing public transport or any future public transport for infrastructure within the vicinity of the site, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand of the proposed development.	Refer to Section 4 and Green Travel Plan prepared by ptc.
Measures to integrate the development with the existing/future public transport network.	Refer to Green Travel Plan prepared by ptc.
The impacts of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for, and details of, upgrades or road improvement works, if required (Traffic modelling is to be undertaken using SIDRA network modelling for current and future years).	Refer to Section 7.3, Section 7.4 and Section 7.5
The identification of infrastructure required to ameliorate any impacts on traffic efficiency and road safety impacts associated with the proposed development, including details on improvements required to affected intersections, additional school bus routes along bus capable roads (i.e. minimum 3.5m wide travel lanes), additional bus stops or bus bays.	The proposed impact does not trigger the requirement to upgrade surrounding infrastructure.

Details of travel demand management measures to minimise the impact on general traffic and bus operations, including details of a location specific sustainable travel plan (Green Travel Plan) and the provision of facilities to increase the non-car mode share for travel to and from the site.	Refer to Green Travel Plan prepared by ptc.
The proposed walking and cycling access arrangements and connections to public transport services.	Refer to Section 6.4 and Section 6.5
The proposed access arrangements, including car and bus pick-up/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks, including pedestrian crossings and refuges and speed control devices and zones.	Refer to Section 6
Proposed bicycle parking provision, including end of trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance.	Refer to Section 6.5.2
Proposed number of on-site car parking spaces for teaching staff and visitors and corresponding compliance with existing parking codes and justification for the level of car parking provided on-site.	Refer to Section 6.1
An assessment of the cumulative on-street parking impacts of cars and bus pick-up/drop-off, staff parking and any other parking demands associated with the development.	Refer to Section 5
Compliance with Council's off-street parking requirements.	Refer to Section 6.1
An assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures and personal safety in line with CPTED.	Refer to Section 6.5.1
Details of event and parking management for school and external events.	Refer to Section 6
Emergency vehicle access, service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times)	Refer to Section 6.3 and Construction Traffic Management Plan prepared by ptc.
The consideration of any future bicycle/pedestrian corridors including the Paddington Greenway project.	Refer to Green Travel Plan prepared by ptc.
The preparation of a preliminary Construction Traffic and Pedestrian Management Plan to demonstrate the proposed management of the impact in relation to construction traffic addressing the following:	Refer to Construction Traffic Management Plan prepared by ptc.

- | | |
|---|--|
| <ul style="list-style-type: none"> i. assessment of cumulative impacts associated with other construction activities (if any) ii. an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process iii. details of anticipated peak hour and daily construction vehicle movements to and from the site iv. details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle v. details of temporary cycling and pedestrian access during construction vi. demonstrate how pedestrian and cycle rider movements along footways and cycleways are maintained at all times during construction activities. Should the development require closure to either facility, detail the adequate safety and diversion measures out in place to limit time delay and detour distances vii. details of any crane locations and road closures and viii. details of any potential impacts to the bus network. | |
|---|--|

2.3 Scope of the Report

This report presents the following considerations in relation to the traffic and parking assessment of the proposal:

- Section 1: Executive Summary;
- Section 2: Introduction and response to SEARs;
- Section 3: Background information on the development site and the proposal;
- Section 4: A description of the existing transport characteristics of the locality serving the development property;
- Section 5: A description of the proposed site utilisation and general arrangements;
- Section 6: Assessment of the proposed parking provision in the context of the relevant planning control requirements, while taking into consideration the site utilisation;
- Section 7: Determination of the traffic activity associated with the development proposal and the adequacy of the surrounding road network; and
- Section 8: Assessment of the proposed vehicular access, car park and servicing arrangements, in the context of the AS2890 series.

3. Background Information

3.1 Site Context

The State Significant Development Application (SSDA) site is part of the Weigall Playing Fields located on Neild Avenue at Rushcutters Bay.

Weigall is bordered by the following infrastructure (refer to Figure 2):

- Neild Avenue to the west (Neild Avenue is classified as a collector road and also forms part of the State Road MR625 managed by Roads and Maritime Services);
- State Rail land and the Eastern Suburbs Railway viaduct to the north;
- White City (Hakoah Club and Maccabi Tennis Club), SGS Edgecliff Preparatory School, Vialoux Avenue, Alma Street and residential development to the south;
- Residential development to the south and north-east;
- A Sydney Water stormwater channel which traverses the site;
- A right-of-way from Alma Street, benefiting the site, which crosses the site formerly known as White City.



Figure 2 - Site Context

3.2 Land Zoning

In regard to zoning, the subject site lies within a private recreation (RE2) zone and is surrounded by the following key features (refer to Figure 3):

- Mixed use (B4) zones to the west, comprising mostly residential buildings along Neild Avenue;
- Private Recreation (RE2) zone to the west, which comprises a private tennis club;
- Public recreation (RE1) zones north of the New S Head Road corridor;
- Infrastructure (SP2) zones to the south; and
- The greater residential precinct, surrounding the site, comprising typically low density (R2) and medium density (R3) residential zones.

The proposal relates to the following sites:

- Lot 1 DP 633259
- Lot 2 DP 547260

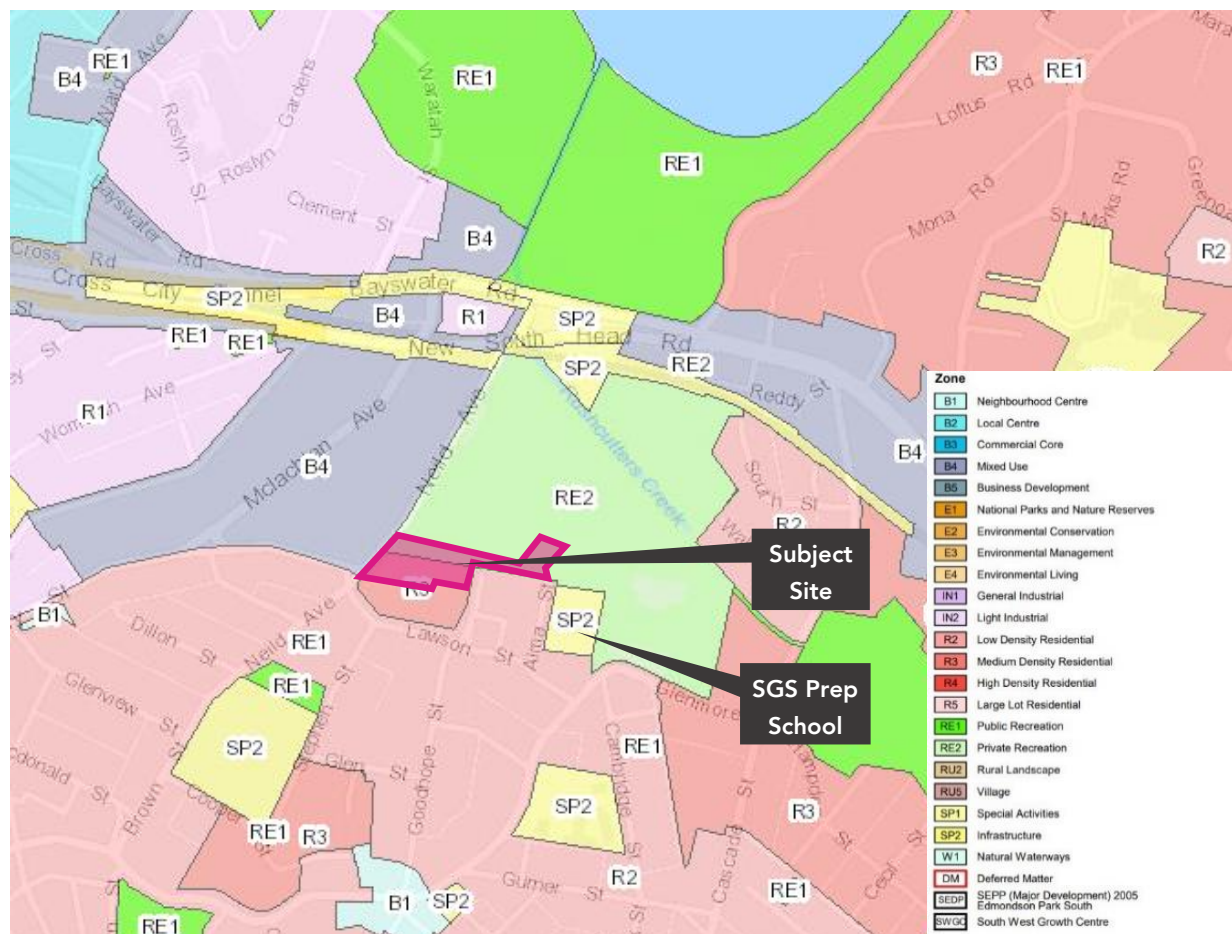


Figure 3 - Local Land Use Map (Source: NSW Planning Viewer)

3.3 Current Use

Weigall accommodate SGS's sports facilities (cricket, rugby, football, tennis and basketball), pavilion buildings, various grandstands and amenities:

- Weigall 1-3: Rugby fields, cricket, football
- Weigall 4: New soccer fields, car parking
- Weigall 5: Tennis courts, basketball courts, car parking
- Weigall Pavilion: Change rooms, storage, function area, kitchen
- Across the site: Grandstands, amenities.

The SSDA site comprises part of Weigall 3 and all of Weigall 5, as shown in Figure 4.

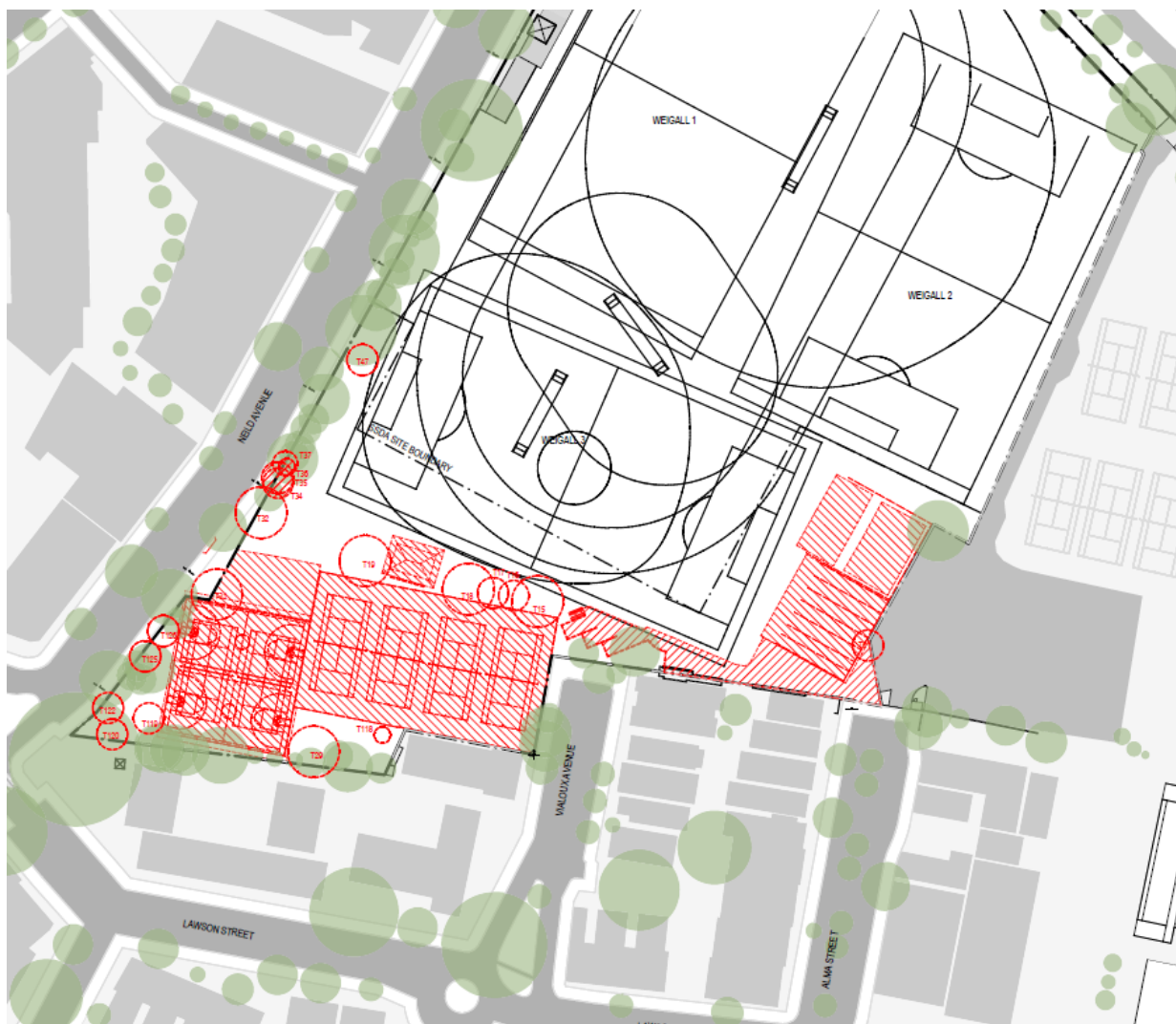


Figure 4 - Current Use of Weigall

3.4 Development Proposal

The development includes the following scope:

- Demolition of the following existing structures and buildings (which are not heritage significant) at the southern edge of the SGS Weigall Sports Ground:
 - Multipurpose/tennis courts and associated fencing;
 - Barry Pavilion;
 - The existing cricket nets off Alma Street; and
 - Paved car park near Neild Avenue.
- Construction of the SGS Weigall Sports Complex comprising the following:
 - Building 1 - Sports facilities building accommodating the following facilities:
 - Ground floor: Main pool, programme pool, terrace/assembly facing Weigall, entry foyer, offices, change rooms, back of house, services and external car parking (5 spaces) and loading
 - Mezzanine floor: spectator terrace and services
 - First floor: Multipurpose sports hall 01 – basketball and volleyball, Multipurpose sports hall 02 –cardio, weights, taekwondo, fencing, PDHPE, change rooms, storage and services
 - Level 2: Multipurpose room 04; Multipurpose sports hall 03 –cardio, weights, taekwondo, fencing, PDHPE, storage and services
 - Driveway entry from Neild Avenue (comprising relocation of the existing driveway southwards with existing driveway potential retained for maintenance access)
 - Building 2 – Car park comprising an ancillary car park of one/two split levels accommodating 93 spaces with an additional 4 spaces on grade, accessed from an existing entry from Alma Street (located on the existing cricket nets site). The lower ground level includes the flexibility to be used as an extension of the existing playing fields
 - Parking for a total of 102 cars comprising:
 - Building 1: 5 spaces
 - Building 2: 97 car spaces (93 within the building and four at grade)
 - Landscaping of the site including tree removal/retention/replacement, paths, fencing and lighting
 - Building identification signage
 - New kiosk substation.
- Use of the completed building as an educational establishment with external/community use of the proposed facilities that coordinates with the programming of the SGS.

The proposal does not include any of the following:

- General learning areas (GLA)
- An increase in the existing student or staff population.

The development is shown in the below figures and in **Attachment 1**.

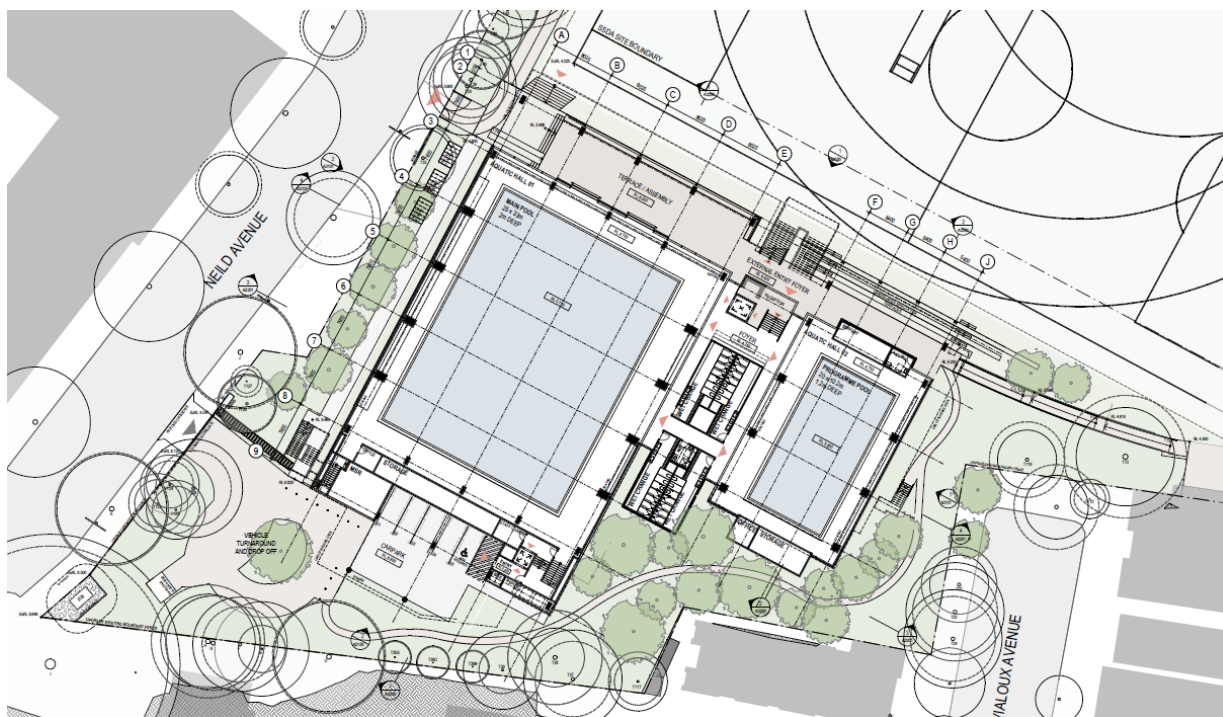


Figure 5 - Proposed Development – Building 1

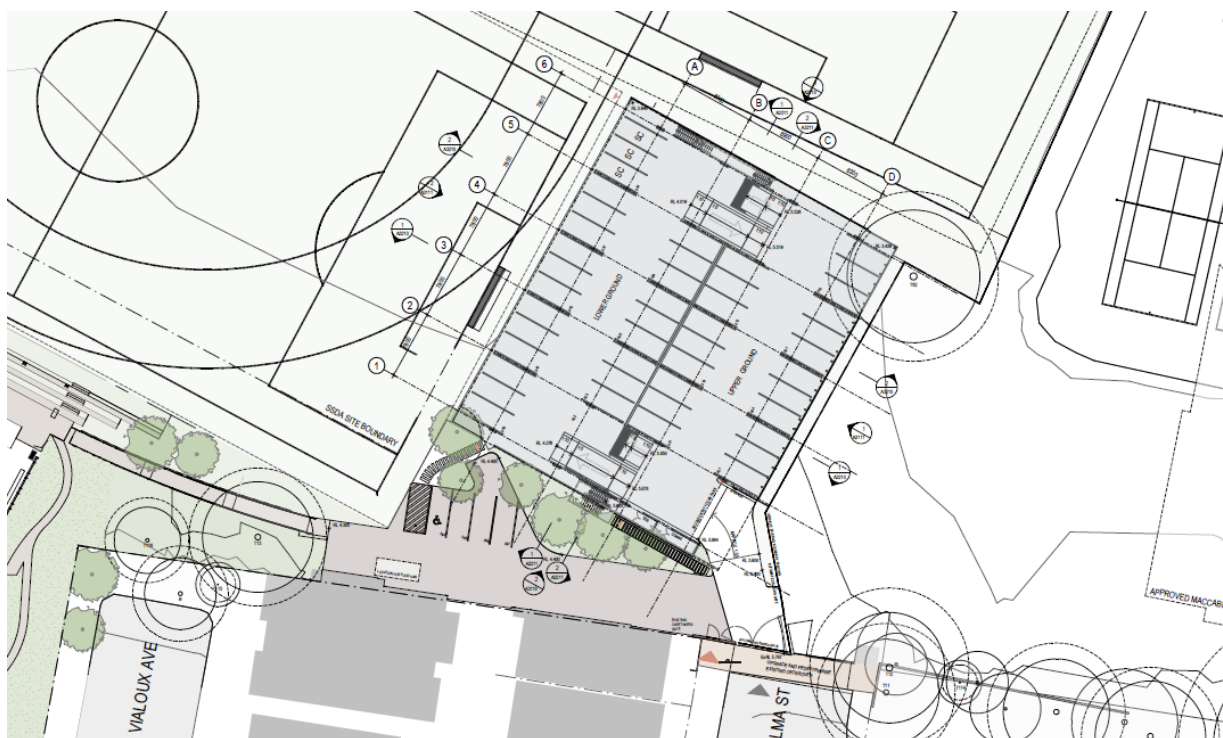


Figure 6 - Proposed Development – Building 2

4. Existing Transport Facilities

4.1 Road Hierarchy

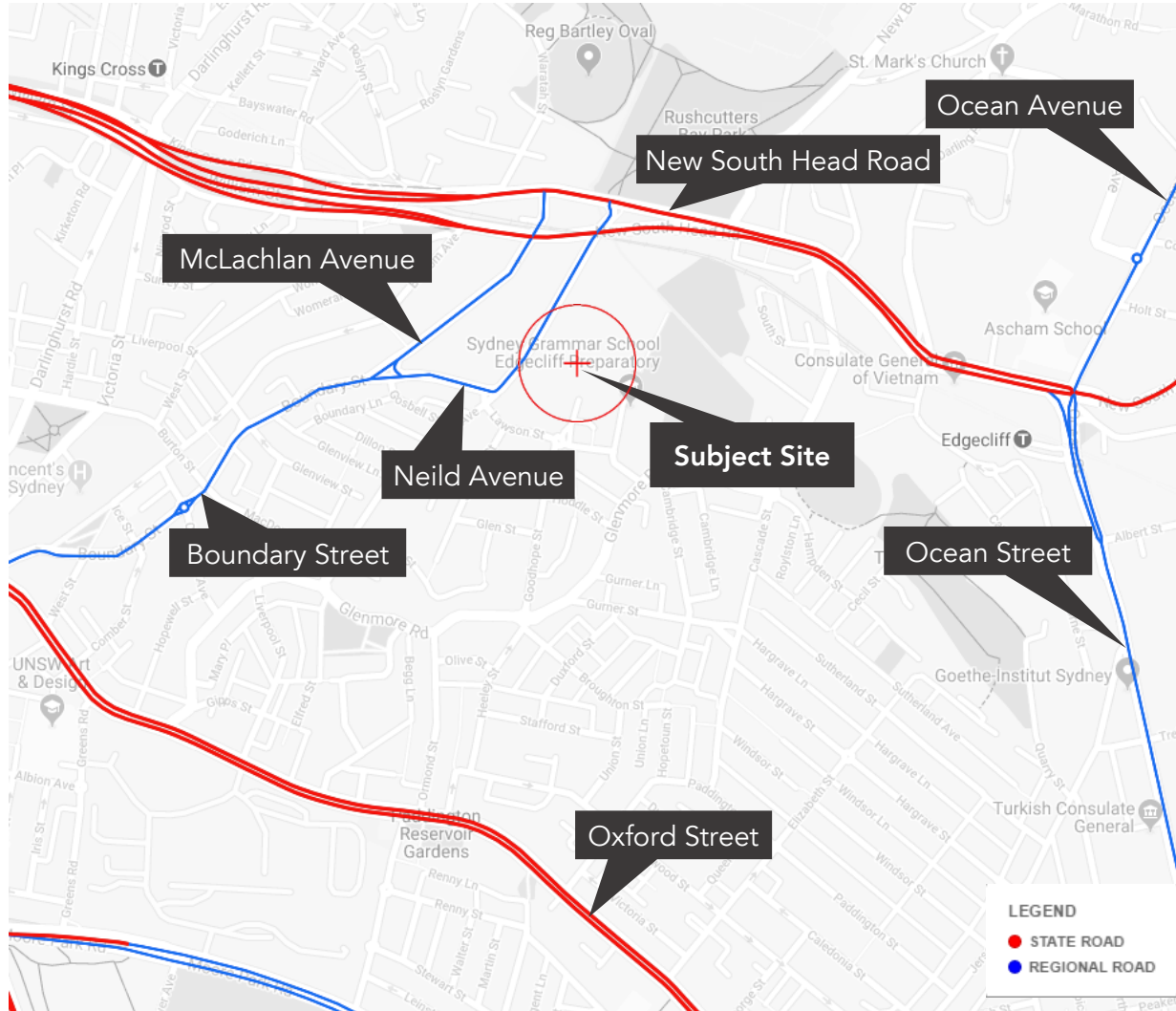


Figure 7 - Road Hierarchy (Source: RMS State and Regional Roads)

The NSW administrative road hierarchy comprises the following road classifications, which align with the generic road hierarchy as follows:

- State Roads - Freeways and Primary Arterials (RMS Managed);
- Regional Roads - Secondary or sub arterials (Council Managed, Part funded by the State); and
- Local Roads - Collector and local access roads (Council Managed).

4.1.1 Existing Road Network

Table 1 - Existing Road Network - New South Head Road

New South Head Road	
Road Classification	State Road
Alignment	East - West
Number of Lanes	3 lanes in each direction
Carriageway Type	Divided
Carriageway Width	18 metres
Speed Limit	60 kph
School Zone	No
Parking Controls	No Stopping
Forms Site Frontage	No



Figure 8 - New South Head Road Eastbound

Table 2 - Existing Road Network - Neild Avenue

Neild Avenue	
Road Classification	Regional Road
Alignment	North – South
Number of Lanes	2 lanes
Carriageway Type	Undivided
Carriageway Width	13.5 metres
Speed Limit	50 kph
School Zone	No
Parking Controls	Unrestricted along site frontage
Forms Site Frontage	Yes



Figure 9 - Neild Avenue Southbound

Table 3 - Existing Road Network - Vialoux Avenue

Vialoux Avenue	
Road Classification	Local Road
Alignment	North – South, no through road
Number of Lanes	2 lanes
Carriageway Type	Undivided
Carriageway Width	12.5 metres
Speed Limit	40 kph
School Zone	No
Parking Controls	2P 8:00am-11:00pm Mon-Sat Residential Parking Scheme
Forms Site Frontage	Yes



Figure 10 - Vialoux Avenue Northbound

Table 4 - Existing Road Network - Alma Street

Alma Street	
Road Classification	Local Road
Alignment	North – South, no through road
Number of Lanes	2 lanes
Carriageway Type	Divided
Carriageway Width	13.5 metres
Speed Limit	40 kph
School Zone	Yes
Parking Controls	2P 8:00am-11:00pm Mon-Sat Residential Parking Scheme
Forms Site Frontage	Yes



Figure 11 - Alma Street Northbound

Table 5 - Existing Road Network - Walker Avenue

Walker Avenue	
Road Classification	Local Road
Alignment	East - West
Number of Lanes	2 lanes
Carriageway Type	Divided
Carriageway Width	12.5 metres
Speed Limit	40 kph
School Zone	No
Parking Controls	2P 8:00am-11:00pm Mon-Sat Residential Parking Scheme
Forms Site Frontage	Yes



Figure 12 - Walker Avenue Westbound

Table 6 - Existing Road Network - Glenmore Road

Glenmore Road	
Road Classification	Local Road
Alignment	North - South
Number of Lanes	2 lanes
Carriageway Type	Undivided
Carriageway Width	9.0 metres
Speed Limit	40 kph
School Zone	No
Parking Controls	2P 8:00am-8:00pm Mon-Fri Residential Parking Scheme and No Parking
Forms Site Frontage	No



Figure 13 - Glenmore Road Southbound

4.2 Public Transport

The locality has been assessed in the context of available forms of public transport that may be utilised by prospective staff and students. When defining accessibility of public transport, the NSW Guidelines to Walking & Cycling (2004) suggests that 400m-800m is a comfortable walking distance.

The area of the comfortable walking distance together with public transport options is shown in Figure 14.

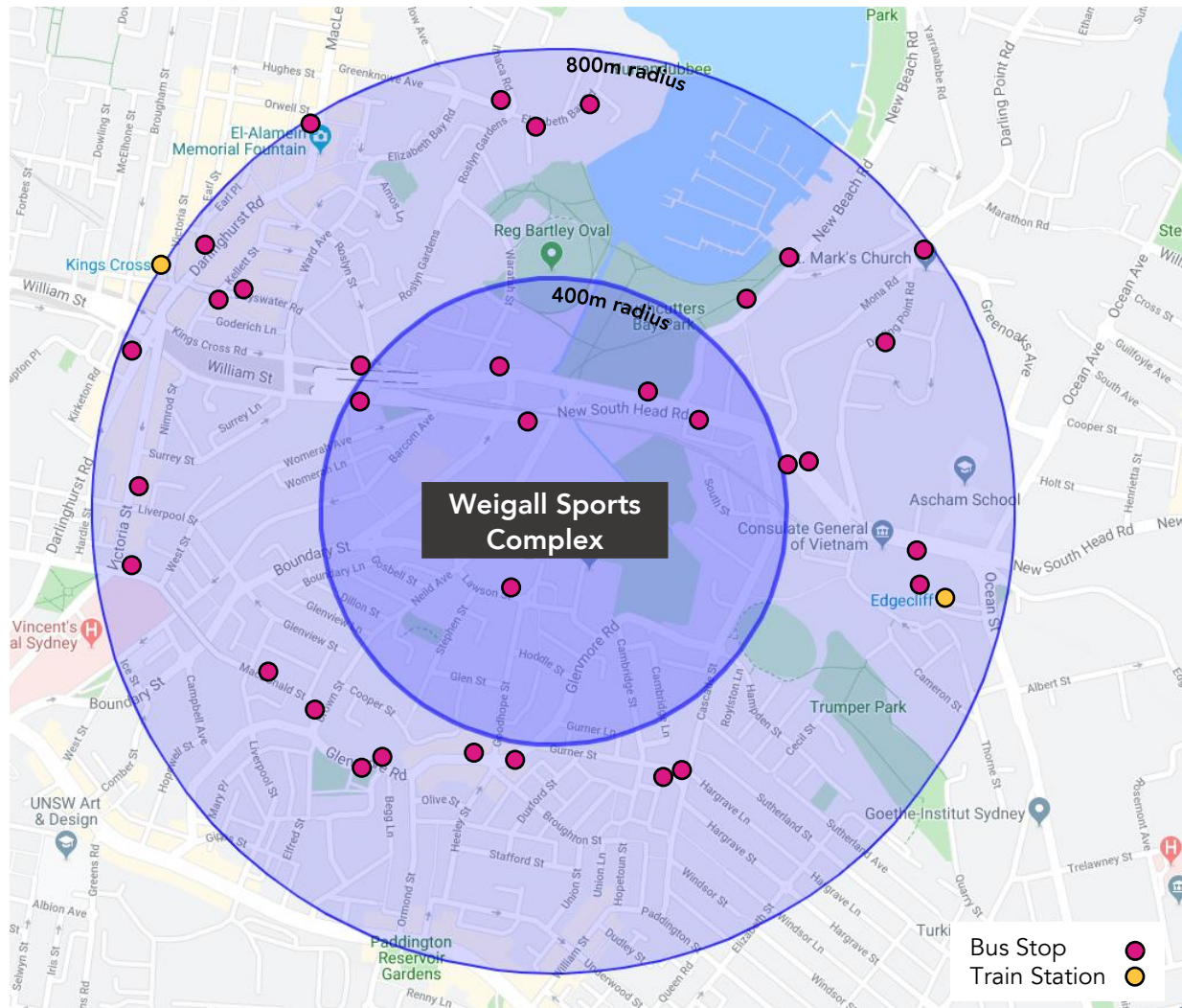


Figure 14 - Public transport accessibility (bus stops in pink, train stations in yellow)

4.2.1 Train Services

Edgecliff Station is located approximately 700m from the development site, which is within the comfortable walking distance.

The Station serves the T4 Eastern Suburbs & Illawarra Line. The T4 Line provides frequent services with trains arriving approximately 5-10 minutes during the peak and 10 minutes in the off-peak periods. The service is provided every 15 minutes throughout the weekends.

It is envisaged that due to the frequent services and the proximity of the station to the subject site, trains will be an attractive alternative mode of transport for prospective staff and students.

4.2.2 Bus Services

The subject site is well serviced with multiple bus stops within a comfortable walking distance. A summary of the available bus routes is presented in Table 7 which services the site.

Table 7 - Bus Route Summary

Bus Route	Coverage (to and from)	Service Frequency
200	Chatswood - Bondi Junction	Mon-Fri: Every 20-30 min
300	Kings Cross - Central Railway Square (NightRide Express)	Mon-Fri: Every 10-20 min Sat: Every 10-20 min Sun & Public Holidays: Every 10-20 min
311	City Millers Point - Central Railway Square via Darlinghurst & Potts Point	Mon-Fri: Every 15-20 min Sat: Every 30 min Sun & Public Holidays: Every 30 min
324	City Walsh Bay - Watsons Bay via Old South Head Road	Mon-Fri: Every 10-30 min Sat: Every 10-20 min Sun & Public Holidays: Every 30 min
325	City Walsh Bay - Watsons Bay via Vaucluse Road	Mon-Fri: Every 30 min Sat: Every 20-30 min Sun & Public Holidays: Every 20-30 min
328	Bondi Junction - Darling Point via Edgecliff (Loop Service)	Mon-Fri: Every 60 min Sat: Every 60 min Sun & Public Holidays: Every 60 min
333	City Circular Quay - North Bondi via Bondi Junction	Mon-Fri: Every 5-10 min Sat: Every 5-10 min Sun & Public Holiday: Every 5-10 min
340	Bondi Junction - Chatswood	Mon-Fri: Every 10-15 min Sat: Every 15-20 min Sun & Public Holidays: Every 15-30 min
352	Bondi Junction - Marrickville via Oxford Street, Crown Street & King Street	Mon-Fri: Every 20-30 min Sat: Every 30 min Sun & Public Holidays: Every 30 min
388	Paddington - Bondi Junction	Mon-Fri: 1 service available at 9:20am
389	Bondi Junction - Pyrmont	Mon-Fri: Every 10-15 min Sat: Every 15 min Sun & Public Holidays: Every 15 min
440	Rozelle - Bondi Junction	Mon-Fri: Every 10-20 min Sat: Every 10-20 min Sun & Public Holidays: Every 20-30 min

4.3 Active Transport

4.3.1 Cycling Infrastructure

The existing cycling infrastructure in the vicinity of the subject site is illustrated in Figure 15. The subject site is provided with on-road cycling infrastructure with low to moderate difficulty. Hence, it is anticipated that cycling would be a suitable alternative mode of transport for local staff and students travelling to the subject site.

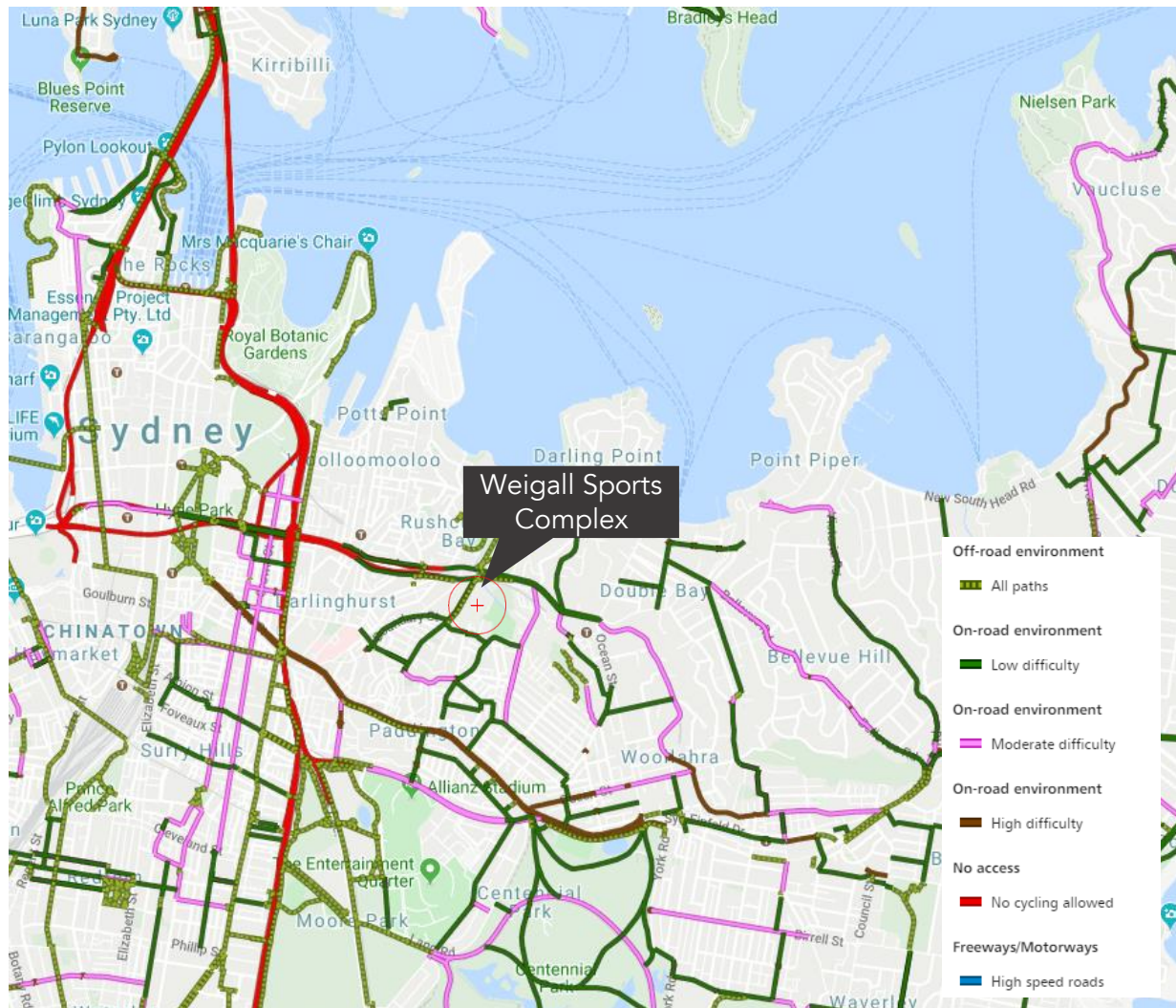


Figure 15 - Cycling infrastructure (Source: RMS Cycleway Finder)

4.3.2 Walking

The subject site is located in a residential area and is predominantly surrounded by residential streets. Hence, sufficient pedestrian infrastructures are available with pedestrian walkways on both sides of the streets and pram ramps and crossings available. Hence, for local staff and students, it is deemed that walking is a viable active mode of transport.

5. Site Utilisation

The parking rates and traffic generation for developments are typically defined in the Woollahra Development Control Plan 2015 or can be found in the RMS Guide to Traffic Generating Developments. The documents provide rates for individual sports amenities however no reference is made to a multi-purpose sports complex for a school. Therefore, calculations were undertaken based on first principles by taking into consideration the proposed utilisation of the complex. It is noted that most of the sports activities are already being offered by the School but occur at various locations, such as Cook & Phillip Park Pool, Prince Alfred Pool, City of Sydney Basketball Association Perry Park and NSW Fencing Centre Alexandria.

A utilisation schedule has been prepared and agreed with SGS, which outlines the current and proposed activities within Weigall, their times and durations as well as the anticipated attendance numbers. It has been determined that there are four distinct activity periods based on this data, which generate different parking and traffic demands. It is noted that each scenario provides varying impacts on the surrounding road network. The following subsections provide a high-level description of each distinct scenario with detailed analysis in relation to transport and parking provided in Section 6 and the impact on traffic in Section 7.

The full utilisation schedule is shown in **Attachment 2**.

5.1 Before School

The School currently provides a variety of before-school activities at external facilities. The proposal involves the construction of a sports complex such that the following activities are able to be accommodated within the subject site:

Summer Season

- Basketball
- Swim Squad
- Swim Fitness
- Water Polo
- Weights & Cardio

Winter Season

- Volleyball
- Futsal

The activities generally occur between Mondays and Fridays between 6:30 AM – 8:00 AM. The proposed utilisation schedule for before-school activities are summarised in Figure 16 and Figure 17 for summer and winter seasons respectively.

Proposed Utilisation Profile - WSC - Morning - School Days - Summer														
Sport	Event	Attendees	Event / Session Profile								Attendance Profile / session			
			Event day/s					Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total/ Session
			M	Tu	W	Th	Fr							
Basketball - Specialty	Training	Players	60	60	60	60	60	6:30 AM - 8:00 AM	60	1	60	60	5	65
		Staff	5	5	5	5	5							
Swim Squad	Training	Players	30		30			6:30 AM - 8:15 AM	105	1	90	30	2	32
		Staff	2		2									
Swim Fitness	Training	Players		30		30		7:00 AM - 8:15 AM	75	1	90	30	2	32
		Staff		2		2								
Water Polo	Training	Players		22		22		6:30 AM - 8:00 AM	90	1	90	22	2	24
		Staff		2		2								
Weights + Cardio	Training	Players	60	60	60	60	60	6:30 AM - 8:00 AM	90	1	90	60	3	63
		Staff	3	3	3	3	3							

Figure 16 - Proposed Utilisation Profile - Morning - School Days - Summer

Proposed Utilisation Profile - WSC - Morning - School Days - Winter																
Sport	Event	Attendees	Event / Session Profile											Attendance Profile /		
			Event day/s					Event start - end		Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total/ Session	
			M	Tu	W	Th	Fr									
Volleyball	Training	Players	20	20	20	20	20	6:30 AM	-	8:00 AM	90	1	90	20	2	22
		Staff	2	2	2	2	2									
Futsal	Training	Players		60			60	6:30 AM	-	8:00 AM	90	1	60	60	5	65
		Staff		5		5	5									

Figure 17 - Proposed Utilisation Profile - Morning - School Days - Winter

Students currently travel to the external facilities using various modes of transport. However, the School provides school operated buses to transport students to the main campus upon completion of the activities. It is anticipated that the current operations will be retained following the completion of this project. The following considerations have been made:

- Students will arrive at Weigall either by a private vehicle (drop-off by parents), public transport or walking. Based on information provided by the client, it is assumed that this mode split will be approximately 30% : 70%;
- A car occupancy rate of 1.2 students per car for the private drop-off is assumed;
- Students are transported back to the main campus located in Darlinghurst by SGS buses upon completion of all sporting activities;
- The arrival time needs to be taken into consideration as not all sporting activities commence concurrently. For example, Swim Fitness begins at 7:00 AM, as opposed to other sporting activities that commence at 6:30 AM;
- For conservative reasons, it is assumed that all teachers / trainers will arrive by a private vehicle with an occupancy rate of 1 staff per vehicle.

The parking and traffic generation associated with before-school activities are further discussed in Section 6.1.1 and Section 7.3.1 respectively. The SGS bus transportation requirements and operation are described in Section 6.4.1.

5.2 During School

The students attend physical education classes during school hours. These classes are currently held at Weigall and other locations, but it is proposed to accommodate all school sporting activities at the new sports complex.

The classes during school hours occur throughout all school terms and commence at 8:40 AM and finish at 3:00 PM.

The proposed schedule for physical education classes and the anticipated attendance numbers are shown in Figure 18. It is noted that the below scenario represents the worst-case scenario whereby all PE classes occur concurrently. However, it is anticipated that the sessions are staggered, which will reduce the number of students that will need to be transported at any one time.

Proposed Utilisation Profile - WSC - During School Days													
Sport	Event	Event / Session Profile									Attendance Profile / session		
		Event day/s					Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total/ Session
		M	Tu	W	Th	Fr							
Summer													
Physical Education	Classes	234	234	234	234	234	8:40 AM - 3:00 PM	380	3	80	75	3	78
Physical Education	Classes	234	234	234	234	234	8:40 AM - 3:00 PM	380	3	80	75	3	78
Physical Education	Classes	108	108	108	108	108	8:40 AM - 3:00 PM	380	2	80	52	2	54
Winter													
Physical Education	Classes	100	100	100	100	100	8:40 AM - 3:00 PM	380	4	80	24	1	25

Figure 18 - Proposed Utilisation Profile - During School Days

Students are currently transported by SGS buses between the main school campus and the other sporting locations, and this transport arrangement is proposed to be retained for PE classes that are to occur at Weigall. The operation is proposed to be as follows:

- SGS buses pick up students from the main campus in Darlinghurst;
- They arrive before 8:40am at Weigall and drop off the first group of students;
- The buses return to the main campus, pick up the second group of students and arrive back at Weigall;
- After the second drop-off at Weigall, the buses pick up the first group and bring them back to the main campus;
- The third and fourth steps are repeated twice, until the third and last group is transported back to the main school.

The parking and traffic generation during school times are discussed in more detail in Section 6.1.2 and Section 7.3.2 respectively. The SGS bus transportation requirements and operation are described in Section 6.4.2.

5.3 After School

SGS provides a variety of after-school activities at both Weigall and various other locations. It is proposed to relocate Basketball, Fencing, Futsal, Swim Fitness, Swim Squad, Volleyball, Weight training to the new complex at Weigall with the option of accommodating Water Polo.

Weigall currently accommodates Cricket training, which is proposed to be retained. However, Tennis will be removed from Weigall. This needs to be considered when calculating parking and traffic generations.

The after-school activities are predominantly scheduled for sessions throughout Monday – Thursday between the hours 3:00 PM – 5:00 PM.

The proposed new schedules for after-school activities are shown in Figure 19 and Figure 20 for summer and winter seasons respectively.

Proposed Utilisation Profile - WSC - Afternoon - School Days - Summer														
Sport	Event	Attendees	Event / Session Profile							Attendance Profile / session				
			Event day/s					Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total/ Session
			M	Tu	W	Th	Fr							
Basketball Open to All Boys	Training	Players	60	60	60	60		3:15 PM - 5:00 PM	105	1	85	60	5	65
		Staff	5	5	5	5								
Fencing (beginners)	Training	Players	10	10	10	10		3:15 PM - 5:00 PM	105	1	105	10	2	12
		Staff	2	2	2	2								
Taekwondo	Training	Players	20	20	20	20		3:15 PM - 4:40 PM	85	1	85	20	2	22
		Staff	2	2	2	2								
Swim Fitness	Training	Players	20		20			3:15 PM - 5:00 PM	105	1	105	20	2	22
		Staff	2		2									
Water Polo	Training	Players		22		22		3:15 PM - 5:00 PM	105	1	105	22	2	24
		Staff		2		2								
Weights + Cardio	Training	Players	60	60	60	60	60	3:15 PM - 5:00 PM	105	1	105	60	4	64
		Staff	4	4	4	4	4							

Figure 19 - Proposed Utilisation Profile - Afternoon - School Days - Summer

Proposed Utilisation Profile - WSC - Afternoon - School Days - Winter														
Sport	Event	Attendees	Event / Session Profile							Attendance Profile / session				
			Event day/s					Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total/ Session
			M	Tu	W	Th	Fr							
Volleyball	Training	Players	70	70	70	70		3:15 PM - 5:00 PM	105	1	105	70	2	72
		Staff	2	2	2	2								
Fencing	Training	Players		30		30		3:15 PM - 5:00 PM	105	1	105	30	3	33
		Staff		3		3								
Fencing	Training	Players	60		60			3:15 PM - 5:00 PM	105	1	105	60	5	65
		Staff	5		5									
TKD	Training	Players	30	30	30	30		3:15 PM - 4:00 PM	45	1	45	30	2	32
		Staff	2	2	2	2								
Weights + Cardio	Training	Players	60		60			3:15 PM - 5:00 PM	105	1	105	60	4	64
		Staff	4		4									

Figure 20 - Proposed Utilisation Profile - Afternoon - School Days – Winter

Students will be transported to Weigall by SGS buses before the afternoon sports activities commence. The students are able to either return to the main campus via the SGS buses or make their own way home which is only permissible by prior arrangement. The following considerations have been made:

- All students are transported from the main campus in Darlinghurst to Weigall by SGS buses;
- The School will provide coaches to transport students from Weigall to the main campus upon completion of all after-school activities. The coaches will depart Weigall after 5:00 PM. It is projected that 40% of the students will use this mode of transport to travel back to the main campus;
- The remaining students will depart Weigall either by a private vehicle (pick-up by parents), or by public transport at a mode split of 50% : 50%. It is noted that this method of transport is permissible on prior arrangements only;
- A car occupancy rate of 1.2 SGS students per car for the private pick-up is assumed;
- The departure time needs to be taken into consideration as not all sporting activities finish at the same time. For example, Taekwondo finishes at 4:40 PM, as opposed to other sporting activities that finish at 5:00 PM;
- For conservative reasons, it is assumed that all teachers / trainers will arrive by a private vehicle with an occupancy rate of 1 staff per car.

The parking and traffic generation during after-school activities are discussed in more detail in Section 6.1.3 and Section 7.3.3 respectively. The SGS bus transportation requirements and operation are described in Section 6.4.3.

5.4 Weekend Events

The school participates in basketball competitions during the summer and volleyball competitions during winter, where SGS students compete against other schools. The SGS currently hosts and is anticipated to continue hosting up to 14 different schools as part of interschool sports activities throughout the summer months and up to 14 throughout winter months, with the events occurring on Saturdays during school terms. The competitions are scheduled between 8:00 AM and 3:00 PM, with 5-7 sessions per day.

It is noted that large multi school events will not take place at the proposed sports complex but will be held at Sydney Olympic Park Aquatic Centre.

The complex is proposed to be open for Fencing, Water Polo and Weights training in conjunction with the basketball and volleyball competitions.

The proposed utilisation schedule at the sports complex on weekends is shown in Figure 21 and Figure 22 for summer and winter seasons respectively.

The following factors should be noted:

- Basketball in summer and volleyball in winter are the only major competitions that will be held at this location. The tournaments include a number of games between two schools at each event. As there are several sessions per day, a turnaround of players / spectators can be expected;
- The basketball function is assumed to be attended by players and spectators that had already arrived, meaning that they should not be considered twice;
- It is noted that the different sports activities shown in the utilisation schedule occur during different times.

Proposed Utilisation Profile - WSC - Weekends - Summer										
Sport	Event	Event Profile					Attendance Profile / session			
		Events / year	Event start - end	Event Duration (mins)	No. of Sessions per Event	Session duration (mins)	Players / Session	Officials - Staff / Session	Spectators / Session	Total / Session
Basketball	Comp	14	8:00 AM - 3:00 PM	420	7	60	80	8	60	148
Basketball	Function	14	1:30 PM - 2:30 PM	60	1	60	50	6	60	116
Weights (Rehab)	Training	14	8:00 AM - 10:00 AM	120	1	120	20	3	0	23
Fencing (Beginners)	Training	14	8:00 AM - 10:00 AM	120	1	120	10	2	0	12
Water Polo		14	7:00 AM - 12:00 PM	300	1	5	44	4	20	68

Figure 21 - Proposed Utilisation Profile - Weekends - Summer

Proposed Utilisation Profile - WSC - Weekends - Winter										
Sport	Event	Event Profile					Attendance Profile / session			
		Events / year	Event start - end	Event Duration (mins)	No. of Sessions per Event	Session duration (mins)	Players / Session	Officials - Staff / Session	Spectators / Session	Total / Session
Volleyball	Comp	14	8:00 AM - 3:00 PM	420	5	90	72	8	30	110
Winter Tennis	Comp	Not occurring at Weigall					Not occurring at Weigall			
Weights (Rehab)		14	8:00 AM - 10:00 AM	120	1	120	20	3	0	23

Figure 22 - Proposed Utilisation Profile - Weekends - Winter

6. Transport and Parking Assessment

Neither the RMS Guide to Traffic Generating Developments nor the Woollahra Development Control Plan 2015 provide specific parking rates for a multi-purpose sports complex for a school. Therefore, parking calculations have been undertaken based on first principles by taking in consideration the proposed utilisation of the complex and the current transport management between the school and the various locations of sporting facilities. The following sections describe the proposed transport and parking operation while taking in consideration the four activity periods discussed in Section 5.

6.1 Parking and Pick-up & Drop-off

6.1.1 Before School

The following considerations regarding parking requirements have been made as per assumptions made in Section 5.1:

- No parking is required for students for the following reasons:
 - Students will arrive to Weigall via a private drop-off or public transport;
 - All students will be transported to the main campus via an SGS bus upon completion of all before-school sporting activities;
- Staff will require parking spaces;
- Sufficient area is required to accommodate the private drop-off activity.

The maximum parking and drop-off requirements in the before-school scenario has been derived while taking into consideration the cumulative impact of activities on different weekdays. The detailed calculations are compiled in **Attachment 3** and the potential maximum requirements are summarised in Table 8.

Table 8 - Car Parking Requirement – Before School

	Max Parking Requirement Players / Staff	Max Private Pick-up / Drop-off Requirement
Before School – Summer	- / 12	38 vehicles => 4 spaces*
Before School – Winter	- / 7	20 vehicles => 3 spaces*

* Note: Assuming the following: out of the total number of students 30% of the students get dropped-off by a private vehicle; there is a 1.2 SGS students per car occupancy rate; the number of required drop-off spaces is based on a Poisson distribution analysis (30 minute time period, 60 second service time per vehicle).

The sports complex requires 12 parking spaces for teachers / trainers and 4 drop-off spaces during the morning period.

6.1.2 During School

No parking is required during school times, as all students and teachers / trainers will be transported between Weigall and the main campus by SGS buses.

6.1.3 After School

The following considerations regarding parking requirements have been made with regards to the assumptions made in Section 5.3:

- No parking is required for students for the following reasons:
 - All students will be transported from the main campus via SGS buses to the after-school activities at Weigall;
 - After the sports activities, it is assumed that 40% of students will be transported back to the main campus via SGS buses;
 - Remaining students will make their own way home via a private pick-up or public transport;
- Staff will require parking spaces;
- Sufficient area is required to accommodate the private pick-up activity.

The maximum parking and drop-off requirements in the after-school scenario has been derived while taking into consideration the cumulative impact of activities on different weekdays. The detailed calculations are compiled in **Attachment 3** and the potential maximum requirements are summarised in Table 9.

Table 9 - Car Parking Requirement – After School

	Max Parking Requirement Players / Staff	Max Private Pick-up / Drop-off Requirement
After School – Summer	- / 15	43 vehicles => 6 spaces* (new students)
After School – Winter	- / 13	48 vehicles => 6 spaces* (new students) **

* Note: Assuming the following: 40% of students depart Weigall by SGS buses; 50% of remaining students get picked-up by a private vehicle; there is a 1.2 SGS students per car occupancy rate; the number of required drop-off spaces is based on a Poisson distribution analysis (30 minute time period, 120 second service time per vehicle).

** The provision of 6 spaces results in a queuing chance of 6.78% with an average length of queue of 0.15 cars.

The new sports complex requires 15 parking spaces for teachers / trainers and 6 pick-up spaces for the additional students.

It is assumed that cricket trainers will continue parking at the car park near the cricket fields.

The existing cricket players are anticipated to retain the current method of pick-up with only the students using the Complex to utilise the proposed pick up and drop off facility on Neild Avenue.

6.1.4 Weekend Events

The car parking requirement has been based on a first principle assessment in conjunction with the proposed utilisation schedule of the sports complex. The car parking demand calculation is shown in Figure 23 and Figure 24 for summer and winter respectively.

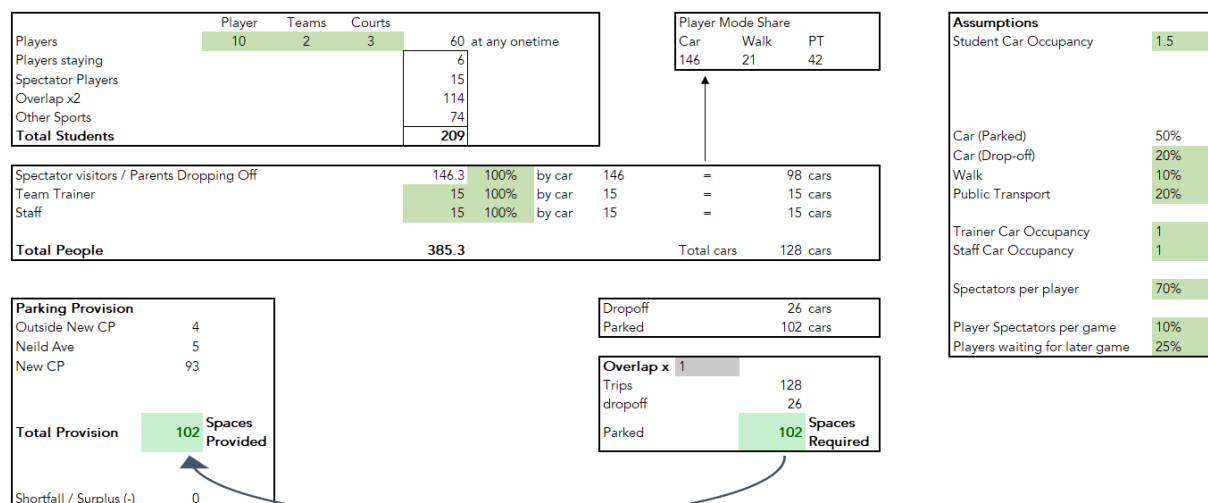


Figure 23 - Car Parking Requirement Calculation - Weekend Events – Summer

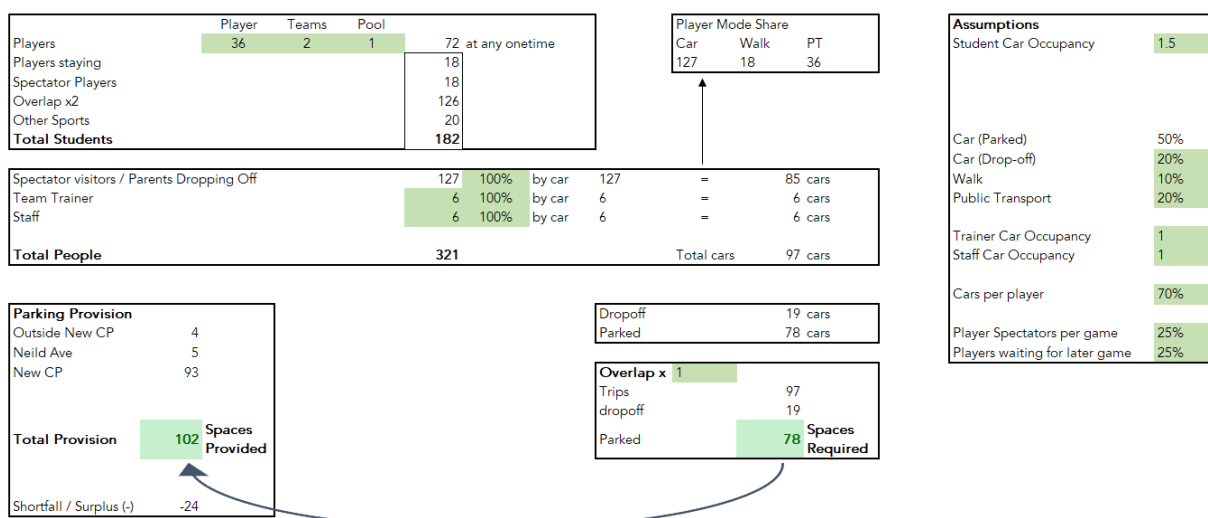


Figure 24 - Car Parking Requirement Calculation - Weekend Events – Winter

The analysis has been undertaken to determine the potential maximum parking demand that the proposed development will generate. The analysis revolves around the number of players, spectators and staff that will travel to and from the site.

The site will predominantly be occupied by players participating in basketball or volleyball activities dependent on the season. The total number of players takes into consideration the anticipated number of players, which varies depending on the sport and the number of courts available.

The duration of the games is approximately 1 hour, and these are scheduled to occur back-to-back throughout the morning and afternoon periods. It is anticipated that the players and spectators will arrive within a 30-minute period prior to start of games and leave within a 30-minute period post games, as conceptually shown in Figure 25. Therefore, the potential overlap between two different sessions has been

taken into consideration within the parking analysis. It is anticipated that some players will participate in multiple games and therefore will not generate additional parking demand. It is also noted that other sports including Fencing, Water Polo and Weights will occur throughout the weekends and the accumulation of players associated with these sports has also been taken into consideration (refer to Figure 26).

The number of spectators and parents attending the games has been assumed to be 70% of the total maximum number of players in attendance at any one time. This is considered to be a conservative approach in comparison to the spectator number stated in the proposed utilisation profile.

It is anticipated that players travelling to and from the site via private vehicles will generally be accompanied by a spectator. Therefore, the parking demand calculation focuses on the number of spectators and parents dropping off the players rather than the number of players. A car occupancy rate of 1.5 has been assumed for the purpose of this analysis.

The staff and trainer numbers in attendance have also been assumed in conjunction with the utilisation schedule. A conservative approach has been taken where a car occupancy rate of 1.0 was used to calculate the potential parking demand for staff and trainers.

The players travelling to and from Weigall via private vehicles would generally either park their vehicles on-site or be dropped off. The distribution between parking and drop off has been assumed to be 50% and 20% respectively.

Based on the above considerations, the sports complex requires a total of 102 and 78 parking spaces in the summer and winter seasons respectively.

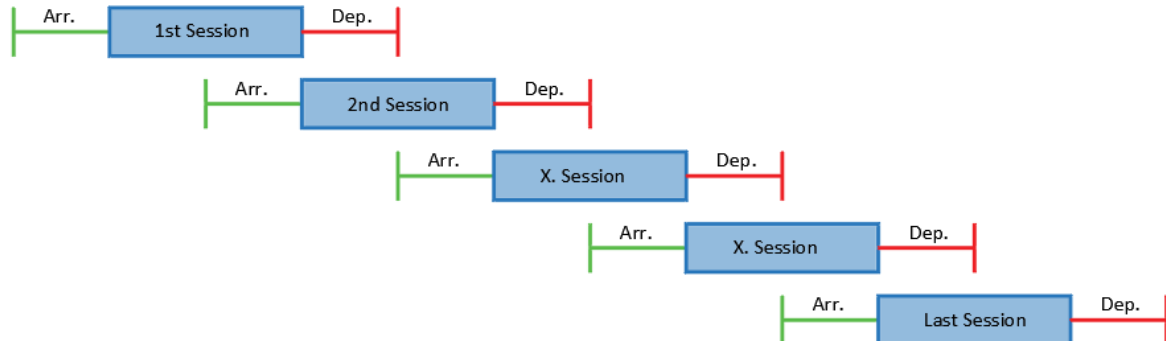


Figure 25 - Conceptual Sports Session Schedule

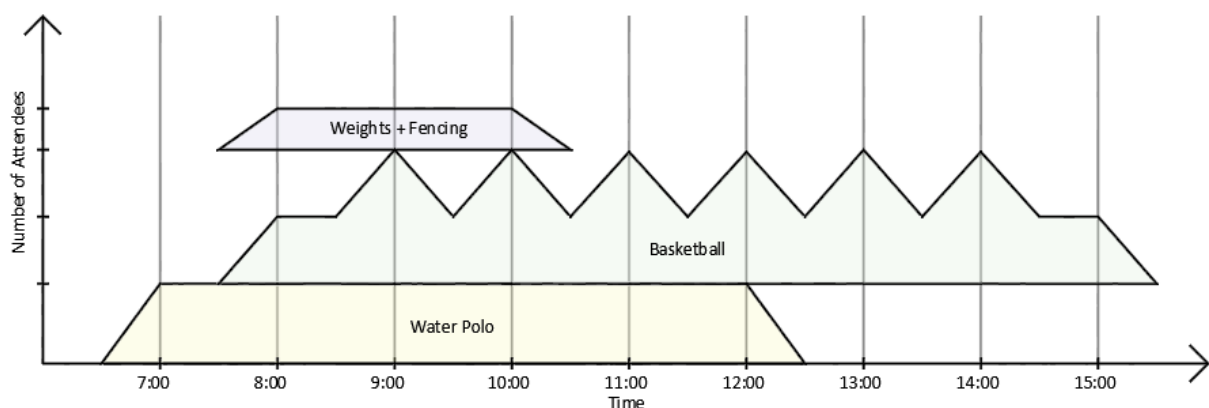


Figure 26 - Attendee Accumulation on Saturdays

6.1.5 Car Parking Summary

The proposed development is anticipated to generate a maximum total parking demand of 102 car parking spaces during the summer season with 78 spaces required in the winter season, as discussed in Section 6.1.4.

A summary of the anticipated maximum parking and pick up / drop off requirements for all scenarios are summarised in Table 10.

Table 10 - Car Parking Requirement - Summary

	Max Parking Requirement Players / Staff	Max Private Pick-up / Drop-off Requirement
Before School	- / 12	38 vehicles => 4 spaces
During School	- / -	-
After School	- / 15	48 vehicles => 6 spaces (new students)
Weekend Events	102 in summer 78 in winter	26 vehicles => 4 spaces
TOTAL / MAX:	102	Up to 6 spaces

The parking demand throughout the weekdays is anticipated to be generated by staff and the analysis indicates that up to 15 car parking spaces will be required. During the weekends, the parking demand is generated by spectators and players and has been determined to be 102 parking spaces in summer and 78 in winter.

Students travelling to and from Weigall via private vehicles will require a pick-up and drop-off facility. The analysis indicates that approximately 38 private vehicles will use this facility in the morning and 48 private vehicles during the afternoon period throughout the weekdays. A Poisson distribution analysis has been undertaken to calculate the appropriate number of pick-up / drop-off spaces to accommodate the potential demand that the site will generate, with the assumption that the pick-up / drop-off operation occurs within a 30 minute time period and 60 seconds service time for drop-off and 120 seconds for pick-up.

The results indicate that 6 pick-up / drop-off spaces are required to accommodate the 48 private vehicles travelling to the Weigall site to pick-up the students during the afternoon period.

6.1.6 Accessible Car Parking

The Woollahra Development Control Plan (DCP) 2015 does not provide a parking rate for accessible parking spaces for a sports complex, therefore reference is made to Building Code of Australia Part D3.5.

Considering the sports complex as being a building class 9b) "School", the following rate is stipulated:

- 1 space for every 100 carparking spaces or part thereof.

Therefore, considering a total parking requirement of 102 spaces, 2 accessible parking spaces need to be provided.

6.1.7 Motorcycle Parking

The Woollahra Development Control Plan (DCP) 2015 stipulates the following:

- Developers shall provide a minimum of 1 motorcycle parking space per 10 car spaces for all types of development.

Considering the total car parking requirement of 102 spaces, the development would need to provide 11 motorcycle spaces.

However, it is noted that the car parking requirement for this development is driven by the events on the weekends. The players need to carry their sporting gear and they will be accompanied by parents / friends. It is therefore considered unlikely that many attendees would choose a motorcycle as a mode of transport. However, in order to promote alternative mode shares, it is proposed that 6 motorbike spaces are provided.

6.1.8 Parking Summary

A summary of the required and proposed parking numbers is provided in Table 11.

Table 11 - Car Parking Requirement and Provision - Summary

	Car Parking Players / Staff	Max Private Pick-up / Drop-off Requirement	Accessible Parking Spaces	Motorcycle Parking
Before School	- / 12	38 vehicles => 4 spaces	1	1
During School	- / -	-	-	-
After School	- / 15	48 vehicles => 6 spaces (new students)	1	1
Weekend Events	102 in summer 78 in winter	26 vehicles => 4 spaces	3	11
TOTAL / MAX Required:	102	Up to 6 spaces	2	11
Provided:	93 in Building 2 - Car Park 5 off Neild Avenue 4 Outside Building 2 - Car Park 102 car parking spaces	Can be accommodated within the pick-up and drop-off area on Neild Avenue	2	6

The anticipated parking demand generated by the weekend activity attendees has been calculated in Section 6.1.4. The calculations indicate that the proposed development will generate 102 and 78 car parking demand in the summer and winter seasons respectively. In response, the proposal involves the provision of 93 car parking spaces within the new car park facility on Alma Street, 4 car parking spaces are provided outside the car park and 5 car parking spaces in the car park area on Neild Avenue. This results in a total car parking provision of 102 spaces.

The highest calculated parking demand (102 car parking spaces) will be generated during the summer season on the weekends as discussed in Section 6.1. Therefore, the proposed measures indicate that the development has sufficient capacity to accommodate the anticipated parking demand.

The proposal involves the provision of a total of 2 accessible parking spaces in accordance with the requirements stipulated in the BCA.

The development proposes to provide 6 motorcycle spaces which is under the stipulated provision. However, the proposed development will predominantly be used by students coached to the sports complex throughout the weekdays. Therefore, it is envisaged that the use of motorcycles as a mode of transport is deemed unlikely. During the weekend events, players are assumed to generally travel with their spectators by car and therefore, the use of motorbikes is assumed to be minimal. Taking the nature of the proposed development into consideration, it is anticipated that the proposed provision of 6 motorcycle spaces will be sufficient to service the site.

6.2 Car Parking and Pick-up & Drop-off Discussion

6.2.1 Car Park Location

An analysis has been undertaken to identify a suitable location for the car park entry and exit. Table 12 summarises the pros and cons of potential entry points.

Table 12 - Car Park Location Discussion

Potential Access Point	Pros	Cons
Alma Street	Existing Access Driveway Provides resolution for current queuing issues during pick up times at the Preparatory School	Traffic increase along the residential street It is noted that the street also provides access to the Preparatory School and the Hakoah Club
Neild Avenue	Most convenient ingress route from New South Head Road	SEPP requirements stipulate that access is to be provided on non-classified roads if possible Ground conditions not conducive to provision of an underground car park (i.e. high-water table, acid sulphates)
Vialoux Avenue		Significant level difference from the potential access to the proposed car park Traffic increase along the residential only street
Walker Avenue	Existing access driveway	Requires extensive internal roadway works to provide connection to car park location Traffic increase along the residential only street

The main car park access off Neild Avenue has been ruled out based on the SEPP requirements. The potential provision of an access off Vialoux Avenue is not spatially viable due to the significant level difference. The access off Walker Avenue would require the provision of internal roadways, which can otherwise be used for other purposes (education, landscaping, etc.). It is also envisaged that the provision of an access on either Vialoux Avenue or Walker Avenue would face community resistance as both streets are currently servicing residents only.

While Alma Street will experience an increase in traffic volume, it is noted that this road already offers a viable access to Weigall as well as to the residential properties, school and the tennis club. It is also noted that the proposed facility will assist in mitigating issues related to the existing queuing during pick up times at the Preparatory School.

6.2.2 Building 1 Pick-up and Drop-off Operation

The proposal involves the construction of a dedicated pick-up and drop-off facility within the proposed Building 1 car park on Neild Avenue. The facility will be able to accommodate 6 vehicles at the same time, which, based on calculations described in Section 6.1, will be sufficient to accommodate all pick-up and drop-off demand. Associated with the sports complex. The proposed facility will be used by parents performing pick up and drop off duties before and after school hours and also throughout the weekends.



Figure 27 - Queuing Capacity within Building 1 Car Park

6.2.3 Prep School Pick-up and Drop-off Operation

The Preparatory School is currently provided with a pick-up and drop-off zone located along Alma Street. The zone consists of approximately 7 car parking spaces and site observations indicate that the existing zone is insufficient in accommodating the demand generated by the Preparatory School, as is the case with all inner city schools, with extensive queue lengths observed along Alma Street and beyond.

The Building 2 car park provides the opportunity to lengthen the queuing length by re-directing vehicles associated with these activities into the parking facility. This will increase the queuing capacity by approximately 135 metres which is equivalent to 22 vehicles.

The proposed pick-up /drop-off operations will require the SGS staff to manage the traffic flow along Alma Street. The appointed staff is to direct all vehicles associated with the Preparatory School into the Building 2 car park to minimise the queuing on-street.

The proposed pick up and drop off operations using the Building 2 car park is shown in Figure 28.



Figure 28 - Queuing Capacity within Building 2 Car Park

6.3 Delivery Vehicles

6.3.1 Soil Delivery

The existing sports fields are resurfaced twice per year. The required soils are delivered to the subject site via trucks and are currently deposited at the existing car park on Neild Avenue. It is proposed to relocate this arrangement such that the delivery occurs with access from Alma Street, directly adjacent to the proposed car park post construction.

The heavy vehicle is to enter the site in a forward direction, undertake a 3-point turn adjacent to the proposed car park and exit the site in a forward direction.

A swept path assessment has been undertaken using a 9.155m long heavy rigid vehicle to confirm that the vehicle is able to perform the necessary manoeuvres wholly within the designated area.

6.3.2 General Waste

The proposed refuse collection area is within the Building 1 car park. The heavy vehicle is to enter the site in a forward direction from Neild Avenue, perform a 3-point turn within the proposed car park and reverse through the proposed car park to the refuse collection area. The vehicle is to exit the site in a forward direction.

A swept path assessment has been undertaken using a 10.52m long waste collection vehicle to confirm that the proposed design of the car park is able to accommodate the necessary manoeuvres of the heavy vehicle to perform its duties.

6.3.3 Green Waste

The proposed location of the green waste bin is located within the Building 1 car park. The front loader waste collection vehicle is to enter the site in a forward direction and perform a right turn manoeuvre to place the waste collection vehicle directly in front of the green waste bin. The vehicle is to undertake a reverse manoeuvre into the direction of the car park and exit the site in a forward direction upon completion of its duties.

A swept path assessment has been undertaken using a 10.52m long vehicle to confirm that the proposed design of the car park is able to accommodate the manoeuvres of the heavy vehicle.

6.4 SGS Bus Facilities and Accessibility

The School currently uses the Bus Zone located on the eastern side of Neild Avenue located north of the subject site. The existing Bus Zone has the capacity to accommodate 2 buses at any one time. The School will continue to use the existing Bus Zone to transport the students to and from the main campus to the subject site. As indicated in calculations in **Attachment 3**, with the current SGS bus occupancy of 58 passengers, more than two (2) buses will be required with the increased number of students. The School will ensure that no more than 2 buses will be parked at the bus zone, by undertaking either or a combination of the following measures:

- SGS buses are to perform pick up and drop off duties at staggered times, e.g. 8:10 AM and 8:20 AM to ensure only two buses associated with the proposed development will be present at any one time; and/or
- The School will hire buses with an increased capacity.

The proposed use of the Bus Zone varies dependent on the time of day at which this occurs. The proposed usage of the Bus Zone is described below.

6.4.1 Before School

The proposed development will result in a total of 172 students requiring transport from Weigall to the main campus upon completion of all before-school activities. Therefore, the School will provide three (3) SGS buses to transport all students from the Weigall site to the main campus.

The detailed calculations are compiled in **Attachment 3**.

6.4.2 During School

The relocation and addition of the sporting activities will result in a maximum of 234 students occupying the proposed development per session in summer. This results in the requirement of five (5) SGS buses with a capacity of 58 passengers or four (4) SGS buses with a capacity of 75 passengers to successfully transport the students to and from the main campus.

Therefore, the PE classes are proposed to occur at staggered times such that the number of students that are to be transported to and from the School does not exceed the capacity of two (2) SGS buses at any one time.

6.4.3 After School

The proposed development will result in approximately 220 students requiring a mode of transport from the main campus to Weigall for after-school activities. However, the existing sports activities need to be taken into consideration, which results in a total of approximately 403 students needing a bus transfer. The School is to provide up to seven (7) SGS buses with a capacity of 58 passengers or six (6) SGS buses with a capacity of 75 passengers to successfully accommodate the anticipated number of students travelling to the Weigall site. With pick-up and drop-off times staggered by 5 or 10 minutes, the school will ensure that no bus queuing will be observed at the bus zone.

The arrival times are to be staggered such that only two (2) SGS buses are occupying the existing Bus Zone at any one time. It is anticipated that 5 minute intervals will be sufficient for SGS buses to perform drop off duties. The proposed methodology will transport 403 students from the main campus to the Weigall site within the span of 20 minutes.

It is anticipated that 161 students (40%) of the students will require transportation from Weigall to the main campus upon completion of all sporting activities. Therefore, the School will provide three (3) SGS buses to transport the students from the Weigall site to the main campus.

The detailed calculations are compiled in **Attachment 3**.

6.5 Active Transport Facilities and Accessibility

6.5.1 Pedestrian Access

The main pedestrian access will be provided off Neild Avenue and a secondary access off Alma Street.

For students arriving by SGS buses, the Bus Zone is located directly north of the subject site on Neild Avenue. The students can use the existing pedestrian amenities along Neild Avenue to safely walk from the Bus Zone to the Weigall site.

As per the existing arrangement, students from the SGS Preparatory School will use the pedestrian path on the eastern side of Alma Street, continue along the path on the northern side of Alma Street and enter via the pedestrian gate provided directly adjacent to the proposed access driveway for the Building 2 car park. It is noted that students will only travel to and from the proposed sports complex under supervision from staff.

It is recommended that the existing driveways serving the Weigall property and the adjacent Hakoah Club car park be upgraded to provide an improved pedestrian environment whereby the priority of pedestrians along the footpath is promoted. Acknowledging that pedestrians have the right of way across the driveways, good design of these facilities can greatly influence driver behaviour and the readability of the footpath. This includes the use of materials and higher profile crossovers to force reduced vehicle speeds. Examples are present throughout Sydney, including the following driveway in North Sydney.



Compared to the existing driveways, which have a low profile, this type of arrangement elevates pedestrians above the road level and provides a more continuous pathway.

The path of travel for students to and from the Preparatory School to the sports complex is illustrated in Figure 29.

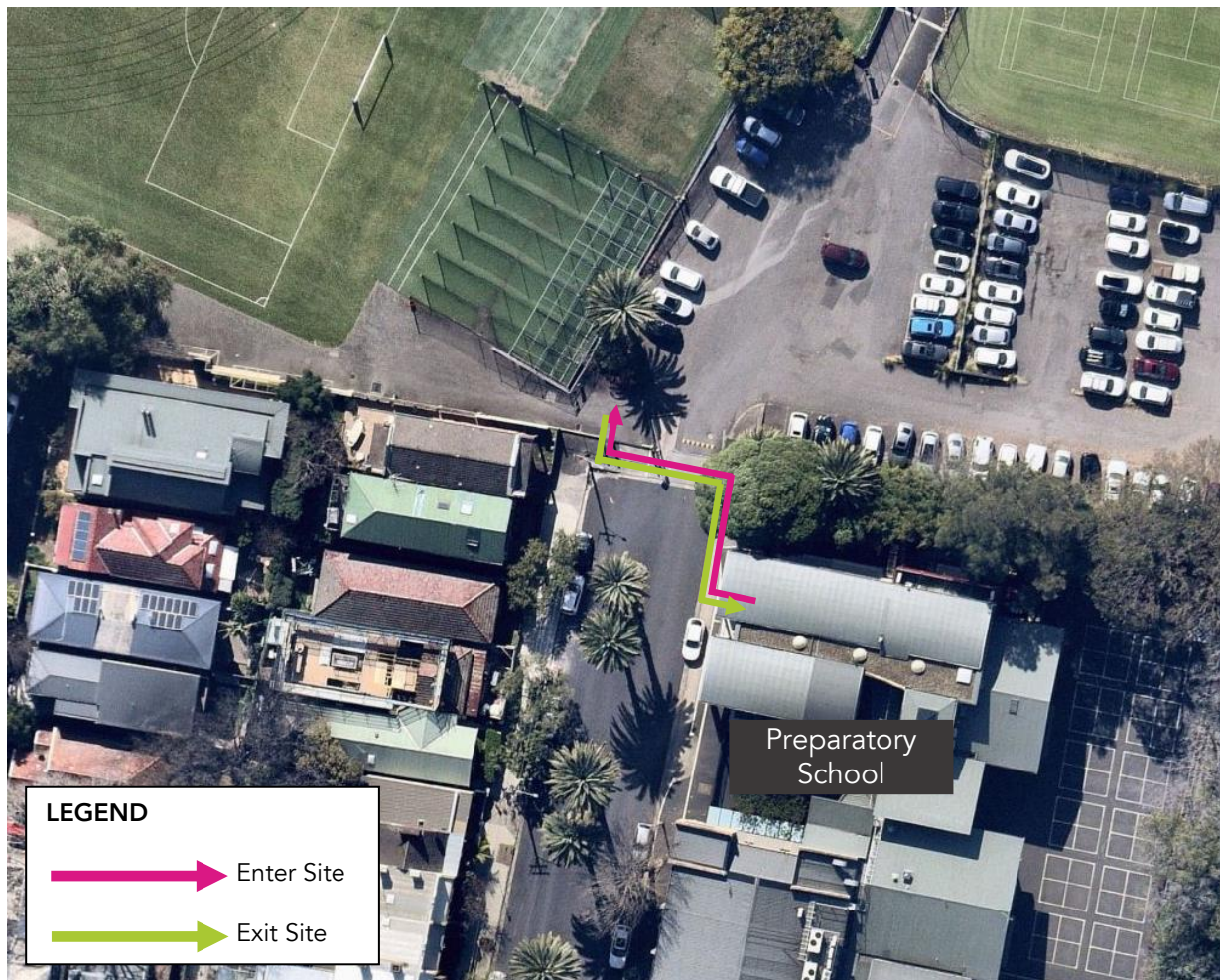


Figure 29 - Pedestrian Access from Preparatory School to Sports Complex

6.5.2 Bicycle Parking

When determining the bicycle provision, reference to the local DCP has been made. As there is no specific rate for a school's sports complex, the following provision rates have been investigated:

- Educational establishments: 1 per 10 staff 1 per 20 students;
- Recreation facilities (indoor) and Recreation facilities (outdoor): 1 space per 15 staff 1 per 15 customers / visitors;
- Swimming pool 1 per 10 staff 1 per 40m² of recreation area.

The following considerations have been made for different time periods of use:

- On weekdays
 - No bicycle spaces are required for students throughout the week since they are coached between the school and the sports complex.
 - For staff, the DCP stipulates 1 bicycle space per 10-15 staff throughout the different uses, and the walking and cycling guideline stipulates a provision rate of 3-5% of staff. With a maximum number of staff anticipated on site to be 15, the site needs to provide 1 bicycle space.

- On weekends
 - The Guide to walking and cycling stipulates for indoor recreation / tennis courts / swimming pools to provide bicycle spaces at a rate of 5-10% of visitors. With up to 383 visitors consisting of students and spectators (refer to Figure 23), this would equal 20-39 bicycle spaces. Based on the DCP rates, 20-25 bicycle spaces would be required. In our parking generation table (refer to Figure 23), it is assumed that 10% of all visitors will walk (or cycle). With up to 383 visitors, a maximum of 39 bicycle spaces should be provided
 - For staff, the DCP stipulates 1 bicycle space per 10-15 staff throughout the different uses, and the walking and cycling guideline stipulates a provision rate of 3-5% of staff. With a maximum number of staff anticipated on site to be 30, the site needs to provide 1-2 staff bicycle spaces.

In response, the development proposes to provide 2 enclosed bicycle parking spaces for staff accessible through the car park on Neild Avenue, and 20 bicycle parking hoops at the entry to Building 1.

7. Traffic Impact Assessment

The potential traffic generation of the proposed development has been estimated with reference to the following:

- RMS Guide to Traffic Generating Developments 2002 (RMS Guide)
- Intersection survey data collected on Saturday, 30th November 2019 & Thursday, 5th December 2019.

7.1 Existing Traffic Volume

The current traffic volumes in the local road network were determined through traffic surveys. The surveys were undertaken in the locations shown in Figure 30.

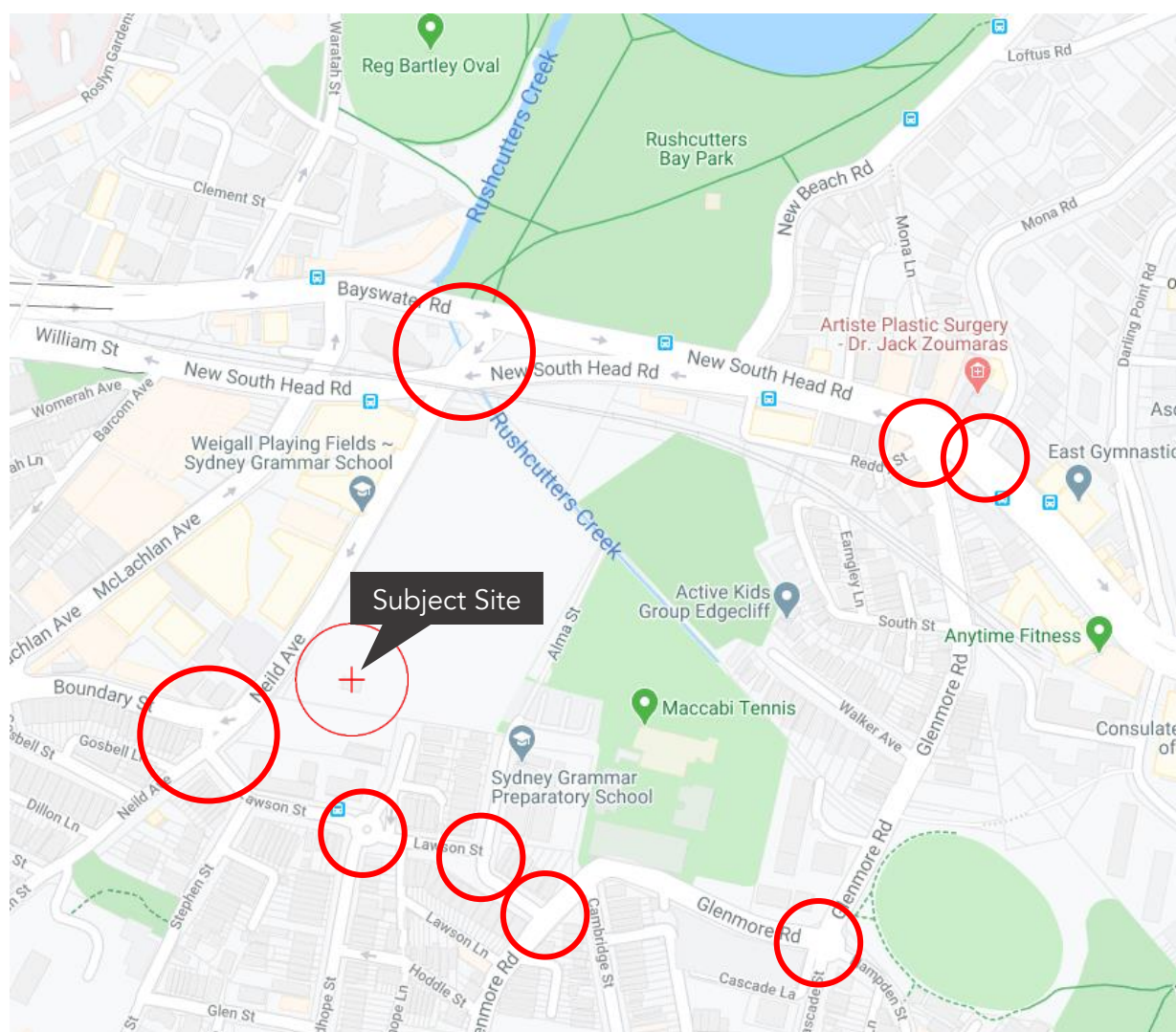


Figure 30 - Intersection survey locations

The surveys were undertaken on the following days:

- Saturday, 30th November 2019, between 8:00am – 12:00pm;
- Thursday, 5th December 2019, between 7:00am – 10:00am & 2:00pm – 6:00pm

The traffic surveys were undertaken on a Thursday as survey results between Tuesday – Thursday provide a more accurate reflection of the typical daily traffic volume within the local road network. The traffic survey for the Saturday was undertaken to assess the impact of the proposed development on the existing performance of the local road network. The surveys were undertaken in November and December as it is anticipated that the maximum traffic generation post development will occur during the summer seasons. Hence, an appropriate date which satisfies both conditions was chosen for the traffic surveys.

The peak hour for the local road network has been determined as follows:

- Typical Weekday: 8:00 AM – 9:00 AM and 4:45 PM – 5:45 PM
- Typical Weekend: 11:00 AM – 12:00 PM

7.2 Existing Traffic Generation

The Senior School sports programs are predominantly undertaken on external facilities with the Weigall site currently accommodating tennis and cricket during the summer season and tennis, soccer and rugby during the winter season. The summary of the current utilisation profile of the subject site is summarised in Figure 31 and Figure 32.

Proposed Utilisation Profile - WSC - Afternoon - School Days - Summer														
Sport	Event	Attendees	Event / Session Profile								Attendance Profile / session			
			Event days					Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total/ Session
			M	Tu	W	Th	Fr							
Tennis (6 courts)	Training	Players	36		36			3:15 PM - 5:00 PM	105	1	105	36	9	45
		Staff	9		9									
Tennis (6 courts)	Training	Players		24		24		3:15 PM - 5:00 PM	105	1	105	24	7	31
		Staff		7		7								
Cricket	Training	Players	120		120			3:15 PM - 5:00 PM	105	1	105	120	12	132
		Staff	12		12									
Cricket	Training	Players		87		87		3:15 PM - 5:00 PM	105	1	105	87	12	99
		Staff		12		12								

Figure 31 - Current Utilisation Profile – Summer

Proposed Utilisation Profile - WSC - Afternoon - School Days - Winter														
Sport	Event	Attendees	Event / Session Profile										Attendance Profile / session	
			Event days					Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total Session
			M	Tu	W	Th	F							
Tennis	Training	Players	35		35			3:15 PM - 5:00 PM	105	1	105	35	6	41
		Staff	6		6									
Tennis	Training	Players		72		72		3:15 PM - 5:00 PM	105	1	105	72	10	82
		Staff		10		10								
Football/ Soccer	Training	Players	60		60			3:15 PM - 5:00 PM	105	1	105	60	8	68
		Staff	8		8									
Football/ Soccer	Training	Players		60		60		3:15 PM - 5:00 PM	105	1	105	60	8	68
		Staff		8		8								
Rugby	Training	Players	123		123			3:15 PM - 5:00 PM	105	1	105	123	12	135
		Staff	12		12									
Rugby	Training	Players		90		90		3:15 PM - 5:00 PM	105	1	105	90	12	102
		Staff		12		12								

Figure 32 - Current Utilisation Profile - Winter

The subject site does not accommodate any sporting activities during the morning peak hours, but some occur after school. It is noted that the School offers buses to transport students back to the main campus upon completion of all sporting activities, but students can use private transport upon registration with the

School. The assumptions regarding the mode split stated in Section 6.1.3 and calculated in **Attachment 3** were used to determine and calculate the existing traffic generated by the subject site. The existing traffic generation for the summer and winter seasons are summarised in Table 13.

Table 13 - Summary of Existing Traffic Generation

Days	Season	No. Students ¹	Car Occupancy Ratio	No. Private Vehicles
Monday	Summer	47	1.2	39
	Winter	66	1.2	55
Tuesday	Summer	33	1.2	28
	Winter	67	1.2	56
Wednesday	Summer	47	1.2	39
	Winter	66	1.2	55
Thursday	Summer	33	1.2	28
	Winter	67	1.2	56
Friday	Summer	0	1.2	0
	Winter	0	1.2	0

Considering that the traffic surveys were undertaken on a Thursday during summer, the traffic generation is used for further calculations, see the green highlighted cell above.

The existing after-school sporting activities generate 28 private vehicles on a typical Thursday during the summer season. The existing traffic generation takes into consideration the cricket and tennis activities currently occurring at the Weigall site. However, it is noted that Tennis will no longer occur on site post development. Nevertheless, to undertake a more robust assessment of the potential impact of the proposed development on the local road network, the future changes to the existing traffic associated with the Weigall site have not been taken into consideration for the purpose of the SIDRA analysis.

7.3 Development Traffic Generation

The sporting activities occur before, during and after school hours and during the weekends. The utilisation profile varies depending on the times at which these activities occur. The profile is also dependent on the season, being summer and winter seasons. The utilisation profile of the proposed development for the two seasons are discussed in Section 5.

It is noted that the Hakoah/Maccabi tennis courts directly adjacent to the proposed development is currently in the DA stage for the redevelopment of the existing infrastructure. The proposed redevelopment will increase the traffic volume within the local road network. Therefore, to undertake a more robust assessment of the anticipated performance of the local road network post development, a cumulative traffic assessment has been undertaken inclusive of the development traffic volume anticipated from the proposed renovation of the Hakoah/Maccabi tennis courts. The development traffic volumes were extracted from the

¹ Number of patrons refers to number of patrons travelling to and from the site via the use of private vehicles.

traffic report prepared by Ason Group for the Hakoah/Maccabi tennis court development, refer to an excerpt from the report in **Attachment 4**.

It is noted that the students will travel to and from the subject site on various modes of transport. The mode split assumptions that were made for the existing traffic generation were adopted for the development traffic generation for consistency purposes.

7.3.1 Before School

The current sporting activities which occur before school hours are between 6:30 AM - 8:00 AM. This indicates that students are required to arrive prior to the commencement time of 6:30 AM. Therefore, as the anticipated arrival time lies outside of the network morning peak period, these vehicular trips are not taken into consideration for the purpose of the SIDRA analysis, as they are not anticipated to have a significant impact on the road network.

However, it is noted that the trip from the proposed development to the main campus occurs within the morning peak period. The students are currently transported from the external facilities to the main campus via the school operated coaches and it is envisaged that the School will continue to provide this service for students. Therefore, SIDRA analysis for the weekday morning peak period has not been undertaken as the proposed development will retain the existing method of transport for students and will not generate any additional traffic during the road network peak period.

7.3.2 During School

The proponent currently uses the existing site to conduct Physical Education (PE) classes on occasions. It is noted that students are transported to and from the school via the school coaches.

It is anticipated that PE classes will continue to be undertaken at the subject site post development. However, as students are transported via school coaches and the time of the journeys lies outside the peak periods, the scenario is not considered to be required for the SIDRA analysis.

7.3.3 After School

The proponent currently provides coaches as a mode of transport for all students travelling to the external facilities for their respective sporting activities. The School will continue to provide these services for the students travelling from the School to the proposed development. The proposed utilisation profile indicates that the travel from the School to the proposed development will occur outside of the evening peak period. Therefore, the development generated traffic travelling to the subject site is not taken into consideration for the purposes of SIDRA analysis.

However, the outbound travel from the proposed development lies within the evening peak period. Therefore, the proposed utilisation profile tables for the summer and winter seasons were used to calculate the anticipated development traffic generation. It is envisaged that the students will leave the subject site using various modes of transport. The mode split assumptions that were used for the existing traffic generation have been used to deduce the anticipated post development traffic generation. The calculations are shown in **Attachment 3** and summarised in Table 14. For a robust assessment, the time split between finish times of sports activities has not been taken into consideration.

Table 14 - Summary of Net Traffic Generation

Days	Season	No. Additional Students ²	Car Occupancy Ratio	No. Private Vehicles
Monday	Summer	51	1.2	43
	Winter	66	1.2	55
Tuesday	Summer	52	1.2	43
	Winter	39	1.2	33
Wednesday	Summer	51	1.2	43
	Winter	66	1.2	55
Thursday	Summer	52	1.2	43
	Winter	39	1.2	33
Friday	Summer	18	1.2	15
	Winter	0	1.2	0

The patronage of the proposed development will be dependent on the day and season. However, as the traffic survey was undertaken on Thursday, 5th December 2019, the development trip generation for a typical Thursday in a summer season will be used for the purposes of the SIDRA analysis. This is to ensure that the analysis provides an accurate representation of the potential impact of the proposed development on the performance of the local road network.

It is anticipated that the proposed development will result in an increase of 52 students on a typical summer season Thursday afternoon. The adoption of the assumed 1.2 car occupancy rate for the student will result in an increase of 43 private vehicles travelling to and from the subject site. The proposed development will be used for training purposes on a typical weekday. Therefore, it is anticipated that all private vehicles generated by the demand of students are for pick up purposes during the evening. The students are currently transported to and from the School via SGS buses to the external facilities. It is envisaged that the School will continue to provide this service for the students. However, as the travel to the subject site lies outside of the network peak period, the travel from the School to the subject site has not been taken into consideration for the SIDRA analysis. The SIDRA analysis for the evening peak period will take into consideration the following:

- Inbound movement for private vehicles performing pick up duties for students;
- Outbound movement for private vehicles performing pick up duties for students; and
- Outbound movement for private vehicles for staff.

It is assumed that the movements mentioned above will be performed within the evening peak hour. Therefore, it is assumed that the proposed development will result in an additional 43 inbound and 43 outbound vehicular trips during the evening peak period.

² The additional students refer to the additional number of students using private vehicles for the purpose of determining the development trip generation.

7.3.4 Weekend Events

The proposed development will host various sporting events on a typical weekend. The patronage will comprise players, spectators and staff members, who will use the proposed car park, having access from Alma Street.

It is noted that the proposed facility will also require a pick-up and drop-off area for the weekend events. It is anticipated that the proposal will result in 26 private vehicles travelling to the subject site for pick-up and drop-off duties during a peak hour. It is anticipated that these vehicles will utilise the proposed pick-up and drop-off facility on Neild Avenue, which has the capacity to accommodate the anticipated demand on a typical weekend.

The duration of the games is approximately 1hr and are scheduled to be staggered throughout the morning and afternoon periods. Therefore, the parking demand and vehicular trips to the subject site will be staggered. It is assumed that the inbound vehicles are arriving up to 30 minutes prior to start of games and outbound vehicles are leaving up to 30 minutes post games.

The assumption is made that the attendance profile of each game will result in a 50% occupancy of the available car parking spaces within the proposed multi-deck car park located at Alma Street. This approach assumes that prior to the commencement of the second game, the proposed car park reaches 100% occupancy. This is considered to be a conservative approach as this represents the worst-case scenario and will provide a more robust assessment of the potential impact of the development on the surrounding local road network.

The proposal involves the provision of 93 car parking spaces with an additional 9 car parking spaces provided outside the proposed Alma Street car park and Neild Avenue car park. The peak development trip generation needs to take into consideration the overlap that occurs between the arrival and departure pre and post games. This results in a peak trip generation of 47 inbound vehicular trips and 47 outbound vehicular trips, taking into consideration the assumption that vehicles arrive and depart up to 30 minutes pre and post games. A graphical representation of the assumed development trip generation is shown in Figure 33.

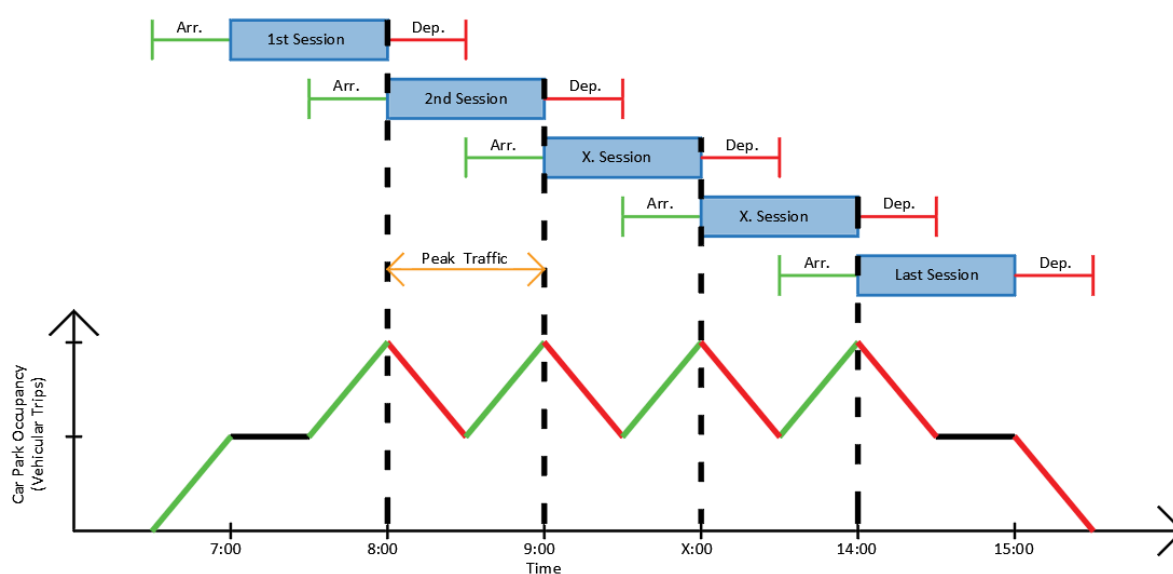


Figure 33 - Inbound & Outbound Vehicular Trips (inbound in green, games in blue, outbound in red)

7.4 Development Traffic Distribution

7.4.1 Typical Weekday Traffic Distribution

The analysis of the future traffic distribution has taken into consideration the potential ingress/egress routes to the proposed development. It is noted that the subject site is currently being used by existing students and staff on weekdays for training purposes. Therefore, the existing traffic distribution along the potential ingress/egress routes have been used to determine the future traffic distribution. The typical weekday traffic distribution is shown in **Attachment 5**.

7.4.2 Typical Weekend Traffic Distribution

It is noted that the subject site is currently not used during the weekend. Therefore, assumptions were made on the potential routes that patrons will use to travel to and from the subject site. The following are the assumptions:

- Inbound Trip Distribution
 - The locality of the subject site assumes that majority of the patrons will travel from the west. It is assumed that the vehicles travelling from the west will use New South Head Road eastbound and Neild Avenue to travel to the subject site. Therefore, it is assumed 55% of the inbound trips will travel on New South Head Road, towards the New South Head Road / Neild Avenue intersection;
 - The vehicles travelling from the north are assumed to use the M1 Eastern Distributor to travel to the subject site. Therefore, it is assumed that 15% of the vehicles will use Moore Park Road eastbound and onto Glenmore Road / Lawson Street intersection;
 - The vehicles travelling from the south are likely to either use the M1 Eastern Distributor or the Southern Cross Drive to travel to the subject site. It is unlikely that all vehicles will use the toll option to travel to the site hence, it is assumed that 15% of the vehicles will use the Southern Cross Drive and onto Lawson Street / Neild Avenue intersection;
 - The vehicles travelling from the south-eastern side of the subject site has the option to also travel using the route described above for vehicles travelling from the south. However, the vehicles are able to use York Road and Oxford Street to travel to the site. It is noted that Southern Cross Drive is a major road and experiences substantial delay throughout the peak periods. Therefore, consideration has been given to the use of the York Road and Oxford Street route for vehicles attempting to avoid the use of major roads. Hence, it is assumed that 10% of vehicles will use Oxford Street and travel towards Cascade Street / Glenmore Road / Hampden Street intersection; and
 - The vehicles travelling from the east are likely to use the New South Head Road westbound route to travel to the subject site. However, as it is assumed that a minority of students reside in the eastern side of the subject site, it is assumed that 5% of vehicles will travel via New South Head Road onto the Glenmore Road / New South Head Road intersection.
- Outbound Trip Distribution
 - The vehicles travelling west are likely to use New South Head Road to travel from the subject site. It is also noted that vehicles travelling south will also use New South Head Road as the road provides a connection onto the M1 Eastern Distributor. It is noted that the Eastern Distributor travelling southbound does not incur toll fees hence it is assumed majority of the vehicles

travelling towards the south will use the M1. Hence, it is assumed 70% of the outbound vehicles will have the desire to use New South Head Road when leaving the subject site. It is noted that there are two route options to travel to New South Head Road from the subject site. It is assumed that 50% of the vehicles will travel towards the McLachlan Avenue / New South Head Road intersection whilst 20% will travel towards the Glenmore Road / New South Head Road intersection. The Glenmore Road / New South Head Road intersection is a priority-controlled intersection which may be an attractive factor for outbound vehicles;

- The vehicles travelling south will likely use the M1 Eastern Distributor to travel from the subject site as previously mentioned. However, consideration is still given to vehicles travelling towards the south via local roads. Therefore, it is assumed that 15% of the outbound vehicles will use the Neild Avenue / Lawson Street intersection to travel towards the south.
- The vehicles travelling to the east has the option of travelling through the McLachlan Avenue / New South Head Road intersection. However, due to the close proximity of the eastern suburbs from the subject site, it is assumed that vehicles will likely use the Cascade Street / Glenmore Road / Hampden Street intersection to travel towards the east using the local roads available. It is also noted that vehicles travelling towards the south-eastern side of the subject site will also likely use this intersection to travel from the subject site. Therefore, it is assumed 15% of the outbound vehicles will travel towards the east using this intersection.

It is noted that the above-mentioned assumptions were used for the distribution of the development traffic volumes for the Hakoah/Maccabi redevelopment. The proposed redevelopment is located directly adjacent to the proposed car park on Alma Street. Therefore, it is assumed that the development traffic generated by the Hakoah/Maccabi development will have an identical path of travel to and from the site in comparison to the proposed development.

The typical weekend development traffic distribution described above is illustrated in **Attachment 5**.

7.5 SIDRA Analysis

A volume analysis was performed using the SIDRA Intersection 8 software, a micro-analytical tool for individual intersection and whole-network modelling. The models are based on the collected traffic survey data. SIDRA provides a number of performance indicators outlined below:

- Degree of Saturation – The total usage of the intersection expressed as a factor of 1 with 1 representing 100% use/saturation. (e.g. 0.8=80% saturation)
- Average Delay – The average delay encountered by all vehicles passing through the intersection. It is often important to review the average delay of each approach as a side road could have a long delay time, while the large free flowing major traffic will provide an overall low average delay.
- 95% Queue Lengths (Q95) – is defined to be the queue length in metres that has only a 5-percent probability of being exceeded during the analysis time period. It transforms the average delay into measurable distance units.
- Level of Service (LoS) – This is a categorization of average delay, intended for simple reference. It is a good indicator of overall performance for individual intersections. The RMS adopts the following bands:

Table 15 - Intersection Performance - Levels of Service

Level of Service	Average Delay (secs/vehicle)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	<14	Good operation	
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	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 would cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	>70	Extra capacity required	Extreme delay, major treatment required

A summary of the performance of the local road network for the existing and post development conditions are summarised in Table 16. The full SIDRA outputs are shown in **Attachment 6**.

Table 16 - SIDRA Results – Intersection Performance

Intersection	Day	Time	Period	Level of Service	Degree of Saturation (v/c)	Average Delay (s)	95% Queue Length (m)
Neild Ave / New South Head Rd	Thursday	AM Peak	Existing	A	0.634	13.7	116.9
		PM Peak	Existing	B	0.612	18.2	140.8
			Development	B	0.632	19.4	162.1
	Saturday		Existing	A	0.553	14.0	101.3
			Development	B	0.613	15.1	114.4
Boundary St / Lawson St / Neild Ave	Thursday	AM Peak	Existing	A	0.335	9.0	12.8
		PM Peak	Existing	A	0.326	10.1	8.8
			Development	A	0.387	13.4	15.4
	Saturday		Existing	A	0.285	8.0	9.7
			Development	A	0.423	10.9	18.4
Lawson St / Vialoux Ave / Goodhope St	Thursday	AM Peak	Existing	A	0.137	10.7	5.2
		PM Peak	Existing	A	0.186	11.2	7.3
			Development	A	0.238	11.8	10.1
	Saturday		Existing	A	0.136	10.6	5.1
			Development	A	0.197	11.3	8.0
Alma St / Lawson St	Thursday	AM Peak	Existing	A	0.152	7.1	4.0

Intersection	Day	Time	Period	Level of Service	Degree of Saturation (v/c)	Average Delay (s)	95% Queue Length (m)
		PM Peak	Existing	A	0.214	6.8	5.9
			Development	A	0.318	8.2	9.5
	Saturday		Existing	A	0.154	6.9	4.0
			Development	A	0.242	8.0	6.9
Glenmore Rd / Lawson St	Thursday	AM Peak	Existing	A	0.119	7.3	3.4
		PM Peak	Existing	A	0.178	7.3	5.5
			Development	A	0.239	8.0	7.8
	Saturday		Existing	A	0.136	7.2	3.9
			Development	A	0.171	7.4	5.1
Cascade St / Hampden St / Glenmore Rd	Thursday	AM Peak	Existing	A	0.351	12.1	16.1
		PM Peak	Existing	A	0.261	13.1	10.9
			Development	A	0.326	13.8	14.3
	Saturday		Existing	A	0.249	11.8	10.1
			Development	A	0.262	12.1	10.8
Mona Rd / New South Head Rd	Thursday	AM Peak	Existing	B	0.897	27.3	389.9
		PM Peak	Existing	B	0.763	16.5	158.8
			Development	B	0.772	17.3	172.9
	Saturday		Existing	A	0.907	7.5	132.0
			Development	A	0.955	8.1	143.0
Glenmore Rd / New South Head Rd	Thursday	AM Peak	Existing	C	0.838	32.7	229.8
		PM Peak	Existing	B	0.518	17.3	305.5
			Development	B	0.536	17.3	311.6
	Saturday		Existing	B	0.644	22.4	134.4
			Development	B	0.682	23.4	134.4

Neild Avenue / New South Head Road Intersection

It is noted that the LoS at this intersection decreases from A to B throughout the Saturday peak. However, the degree of saturation indicates that the intersection will still have a spare capacity of approximately 35% which is similar to the existing Thursday PM peak. Therefore, it is anticipated that the construction of the proposed development and the Hakoah/Maccabi development will not have an adverse impact on the performance of the intersection.

Boundary Street / Lawson Street / Neild Avenue

The overall LoS at this intersection is currently A in the Thursday AM & PM peak and Saturday peak. The intersection currently has a spare capacity of approximately 55% with minimal impact caused by the proposed development. Therefore, it is anticipated that the intersection will continue to perform well post development.

Lawson Street / Vialoux Avenue / Goodhope Street

The overall LoS at this intersection is currently A in the Thursday AM & PM peak and Saturday peak. The proposed development will cause marginal increase to all parameters. The intersection is currently operating with approximately 75% spare capacity and is anticipated to continue to perform well post development.

Alma Street / Lawson Street

The overall LoS at this intersection is currently A in the Thursday AM & PM peak and Saturday peak. The intersection is currently operating with approximately 65% spare capacity therefore it is anticipated that the development will have minimal impact on the performance of the intersection.

It is noted that queuing issues have been observed by local residents during the typical school pick up times. However, the SIDRA calculations are based on the network peak (4:45pm – 5:45pm) rather than the school peak. The observed queuing is likely to be caused by the parents arriving before the school bell. Therefore, as discussed in Section 6.2.3, the proposal involves the utilisation of the proposed car park on Alma Street to provide additional queuing capacity for the pick up and drop off activities associated with the Preparatory School. This arrangement is anticipated to mitigate the queuing issues currently occurring along Alma Street.

Therefore, it is anticipated that the proposed development will have a positive impact on the performance of this intersection during the school pick up times and improve the lived experience of local residents currently affected by the activities occurring on Alma Street.

Glenmore Road / Lawson Street

The overall LoS at this intersection is currently A in the Thursday AM & PM peak and Saturday peak. The intersection is currently operating with approximately 75% spare capacity. Therefore, it is envisaged that the intersection will continue to perform well as the SIDRA results indicate a marginal increase for all performance indicators.

Cascade Street / Hampden Street / Glenmore Road

The overall LoS at this intersection is currently A in the Thursday AM & PM peak and Saturday peak. The intersection is currently operating with approximately 65% spare capacity. The SIDRA results indicate a marginal increase in all parameters. Hence, it is anticipated that the intersection will perform well post development.

Mona Road / New South Head Road

The overall LoS at this intersection is currently B in the Thursday AM & PM peak and A in the Saturday peak. It is noted that the degree of saturation and queue length does not accurately reflect the typical performance of an intersection with a LoS A. The results indicate that the Mona Road leg of the intersection is currently operating at LoS F and the degree of saturation and queue length reflects the performance of this leg. However, these results are typical for a minor leg at a major intersection. It is also noted that the

development traffic is anticipated to use the New South Head Road leg of this intersection to travel to and from the subject site. The results indicate that the leg is performing at LoS A with minor increase experienced to all parameters post development. Therefore, it is anticipated that the proposed development will not have a noticeable impact on the performance of the intersection.

Glenmore Road / New South Head Road

The overall LoS at this intersection is currently C in the Thursday AM peak and B in the PM peak and Saturday peak. The left turn movement from Glenmore Road has a LoS B for the Thursday PM and Saturday peak. This movement forms part of the potential egress route from the subject site hence experiences an increase in all performance indicators post development. However, the results indicate that the increase is marginal and will not significantly impact the performance of the intersection.

8. Car Park and Access Arrangement

The following section presents an assessment of the proposed multi-storey car park with reference to the requirements of AS2890.1:2004 (Off-street car parking) and AS2890.6:2009 (Off-street parking for people with disabilities). This section is to be read in conjunction with the architectural plans prepared by Allen Jack & Cottier (see **Attachment 1**) and the car park assessment undertaken by **ptc.** (see **Attachment 7**).

The proposed car park is to be predominantly used by staff, parents and visitors throughout the weekday and weekends. Therefore, as the car park will mainly be utilised as medium-term parking, the car park represents a typical Class 2 facility.

8.1 Vehicular Access & Circulation

8.1.1 Alma Street Access & Circulation

The proposal involves the retention of the existing access driveway located on the southern side of the subject site on Alma Street. The driveway will provide vehicular access to the newly constructed car park. It is anticipated that the largest vehicle requiring access to the proposed car park is to be a typical B99 vehicle and a 9m long soil truck. Therefore, a swept path assessment has been undertaken to show that the proposed access driveway is able to accommodate two-way traffic flow for a typical B85 and B99 vehicle and one-way truck access.

The proposed car park provides minimum 5.8m traffic aisle widths throughout the car park to allow vehicle to manoeuvre into the parking spaces. The proposed aisle width adheres to the requirements stipulated in AS 2890.1 for a typical Class 2 facility.

Swept path assessment has been undertaken along the proposed access ramp to demonstrate that the proposed design is able to accommodate two-way traffic movement with a typical B99 vehicle. The proposal involves the provision of multiple one-way access ramps. The access ramps provide a minimum 3.0 metre traffic aisle with 300mm kerb extensions on either side. Therefore, the proposed design meets the requirements from both a performance basis and AS2890.1 perspective.

8.1.2 Neild Avenue Access & Circulation

The proposal involves the relocation of the existing access driveway located on the western side of Neild Avenue. The relocation will result in the access driveway being provided further south in comparison to the location of the existing driveway. It is anticipated that the largest vehicle which will utilise the proposed access driveway will be a 10.52m long waste collection vehicle.

A swept path assessment has been undertaken to assess whether the proposed access driveway is able to accommodate the manoeuvre of the refuse vehicle. The assessment indicates that the refuse vehicle is able to use the proposed driveway and the aisle provided within the proposed car park to enter and exit in a forward direction.

8.2 Sight Distance

The sight distance requirements are described in Section 3.2 of AS2890.1 and are prescribed on the basis of the sign posted speed limit or 85th percentile vehicle speeds along the frontage road.

Alma Street has a posted speed limit of 40km/h, which requires a desirable visibility distance of 55 metres and a minimum distance of 35 metres. The proposed location of the access driveway has no permanent obstruction within the required clearance distance.

The proposed car park allows all vehicles to enter and exit in a forward direction, therefore minimising potential conflict points and maintain the overall safety of the surrounding road network.

The proposed driveway also provides the minimum sight lines for pedestrian safety, as stipulated in AS2890.1. Triangular pedestrian sight splays (2.0m x 2.5m) has been provided on the exit side of the driveway.

8.3 Car Park Arrangement

8.3.1 Typical Requirements

The car park access and parking arrangements have been assessed against the requirements of AS2890.1:2004, with reference to Class 2 (medium term parking) facilities. The development is to provide the following dimensions for the parking spaces:

Class 2 (medium term parking) facilities:

- Car Spaces: 2.5m x 5.4m
- Aisle Width: 5.8m (minimum)

The assessment of the proposed car parking spaces indicates that all parking spaces meets the minimum requirements stipulated in AS2890.1.

All parking bays are to be installed in accordance with AS2890.1, including the provision of 300mm door clearance to high physical obstructions.

8.3.2 Accessible Parking

All accessible parking spaces have been individually assessed against the requirements of AS2890.6. Accessible parking spaces are to be provided based on the following dimensions:

- Accessible Spaces: 2.4m x 5.4m
- Adjacent Shared Bay: 2.4m x 5.4m (with a bollard)

All shared bays and accessible spaces are to be installed in accordance with AS2890.6, including the installation of bollards and relevant pavement markings. A minimum height clearance of 2.5m is to be maintained above all accessible and shared bays.



8.3.3 Bicycle Parking

Approved bicycle parking devices (BPD's) shall be installed as per the following requirements of AS2890.3:2015:

- | | |
|------------------------------|----------------|
| • Horizontal Bicycle Parking | 1800mm x 500mm |
| • Access Aisle | 1500mm |
| • Vertical Bicycle Parking | 1200mm x 500mm |
| • Access Aisle | 1500mm |

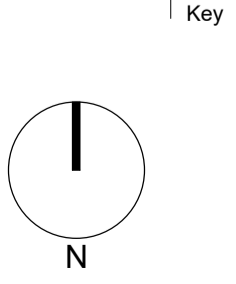
Attachment 1 Architectural Drawings



<div>Revisions</div> <table><tr><th>No.</th><th>Date</th><th>Description</th></tr><tr><td>A</td><td>02/09/2020</td><td>ISSUED FOR SSDA</td></tr></table>	No.	Date	Description	A	02/09/2020	ISSUED FOR SSDA	<div>Checked</div> <div>ADC</div> <div>Approved</div> <div>LC</div>	<div>Key</div> <div></div> <div>N</div>	<div>Client</div> <div>Sydney Grammar School</div>	<div>Architect</div> <div></div> <div>ALLEN JACK+COTTIER</div> <div>79 Myrtle Street Chippendale NSW 2008 AUSTRALIA ph +61 2 9311 8222 fx +61 2 9311 8200 ABN 53 003 782 250</div>	<div>Project</div> <div>SGS Weigall Sports Complex</div> <div>Neild Ave, Rushcutters Bay</div> <div>Proj. No. 19086</div>	<div>Drawing Title</div> <div>BUILDING 02 CAR PARK GENERAL ARRANGEMENT PLAN LOWER/UPPER FIRST</div>	<div>Scale</div> <div>1 : 200 @A1</div>	<div>Drawing No.</div> <div>A2111</div>	<div>Issue</div> <div>A</div>
	No.	Date	Description												
A	02/09/2020	ISSUED FOR SSDA													
<div>Sheet Status</div> <div>NOT FOR CONSTRUCTION</div>	<div>DRAFT</div>														



Revisions		Description	Checked	Approved
No.	Date			
A	02/09/2020	ISSUED FOR SSDA	ADC	LC



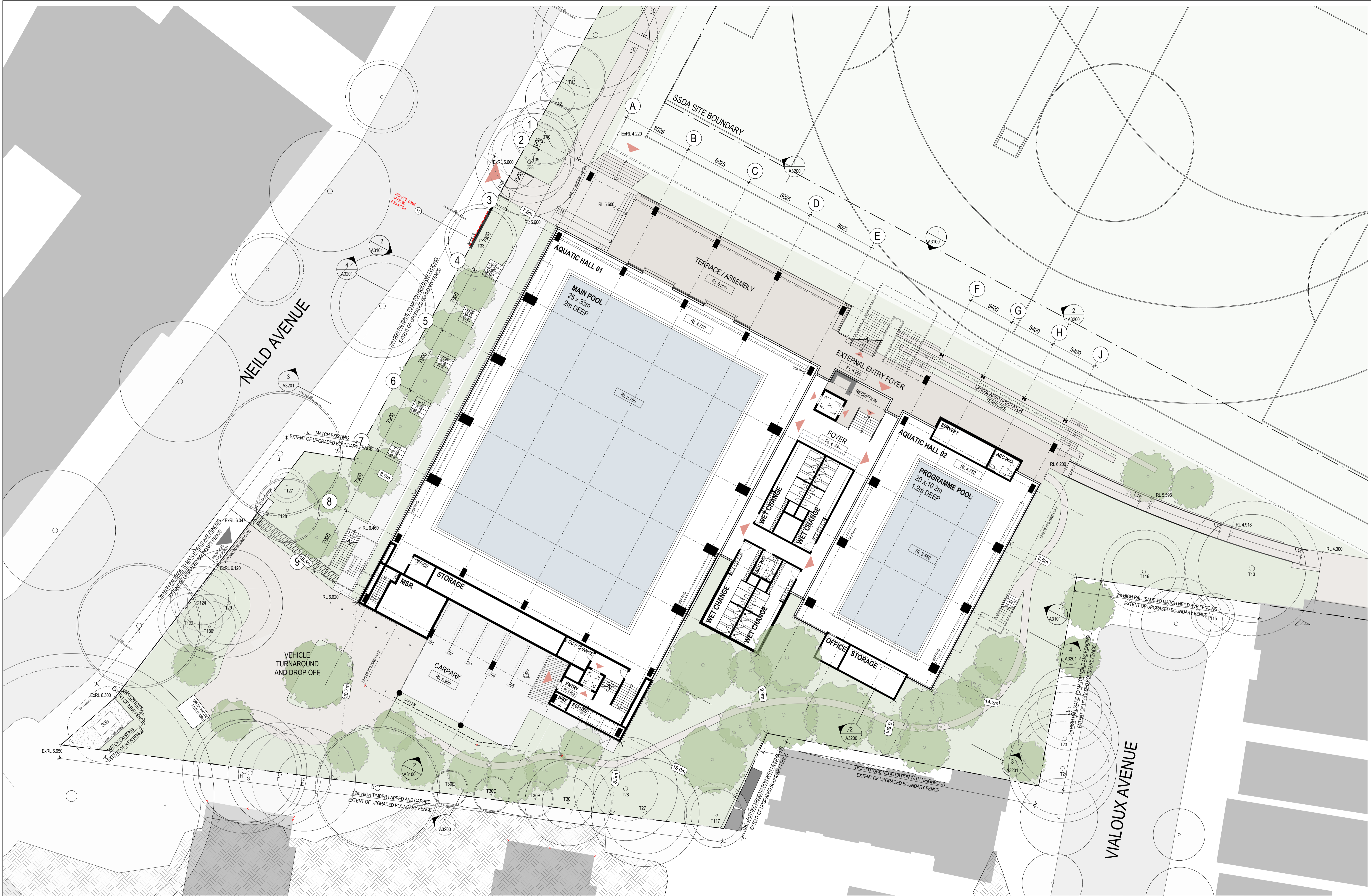
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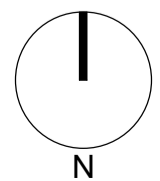
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Neild Ave, Rushcutters Bay
Proj No. 19086

Drawing Title
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GENERAL ARRANGEMENT PLAN
LOWER/UPPER GROUND
Sheet Status
NOT FOR CONSTRUCTION

Scale
1 : 200 @A1
Drawing No.
A2110
Issue
A
DRAFT



Revisions	No.	Date	Description	Checked	Approved
A	02/09/2020	ISSUED FOR SSDA	ADC	LC	



Key

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Project
SGS Weigall Sports Complex
Neild Ave, Rushcutters Bay
Proj. No. 19086

Drawing Title
**BUILDING 01
SPORTS FACILITIES BUILDING
GENERAL ARRANGEMENT PLAN
GROUND**
Sheet Status
NOT FOR CONSTRUCTION

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Attachment 2 Utilisation Schedule

Sydney Grammar School - Weigall Sports Complex

School Days - Summer - Terms 1 and 4- Utilisation Profile

Definitions

WSC	Weigall Sports Complex
WPF	Weigall Playing Fields
Event	Refers to an individual sports event (competition, training or classes) which potentially contains multiple sessions
Session	Refers to the set time (estimated average time) within an event determined by duration of matches
Players/ Session	equals session x participants / match
Staff / Session	is the number of staff and officials required to run a session. Assume there is no turnover to the whole event.

Sport	Event	Current Utilisation Profile - External Venues										Proposed Utilisation Profile - WSC														
		Current Venue	Event / Session Profile						Attendance Profile / session			Event / Session Profile						Attendance Profile / session								
			Event day/s				Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players/ Session	Staff / Session	Total / Session	Event day/s	Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total Session					
			M	Tu	W	Th																Fr	M	Tu	W	Th
Basketball - Specialty	Training	College St / Cook & Philip						6:30 AM - 8:00 AM	90	1	60	50	4	54						6:30 AM - 8:00 AM	60	1	60	60	5	65
Swim Squad	Training	Prince Alfred Pool						6:30 AM - 8:15 AM	105	1	90	30	2	32						6:30 AM - 8:15 AM	105	1	90	30	2	32
Swim Fitness	Training	Cook + Philip						7:00 AM - 8:15 AM	75	1	90	30	2	32						7:00 AM - 8:15 AM	75	1	90	30	2	32
Water Polo	Training	Not a current event																6:30 AM - 8:00 AM	90	1.00	90	22	2	24		
Weights + Cardio	Training	College St						6:30 AM - 8:00 AM	90	1	105	60	3	63						6:30 AM - 8:00 AM	90	1	90	60	3	63
Basketball Open to All Boys	Training	Perry Park						3:15 PM - 4:40 PM	85	1	85	40	2	42						3:15 PM - 5:00 PM	105	1	85	60	5	65
Fencing (beginners)	Training	Weigall Pavilion						3:15 PM - 5:00 PM	105	1	105	10	2	12						3:15 PM - 5:00 PM	105	1	105	10	2	12
Taekwondo	Training	College St						3:15 PM - 4:40 PM	85	1	85	20	2	22						3:15 PM - 4:40 PM	85	1	85	20	2	22
Swim Fitness	Training	Prince Alfred Pool						3:15 PM - 5:00 PM	105	1	105	20	2	22						3:15 PM - 5:00 PM	105	1	105	20	2	22
Water Polo	Training	Not a current event																3:15 PM - 5:00 PM	105	1	105	22	2	24		
Weights + Cardio	Training	College St						3:15 PM - 5:00 PM	105	1	105	40	3	43						3:15 PM - 5:00 PM	105	1	105	60	4	64

Sport	Event t	Current Utilisation Profile - WF										Proposed Utilisation Profile - WPF															
			Event / Session Profile							Attendance Profile / session			Session Profile					Attendance Profile / session									
		Current Venue	Event day/s				Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players/ Session	Staff / Session	Total / Session	Event day/s	Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total/ Session						
			M	Tu	W	Th																Fr	M	Tu	W	Th	Fr
Tennis (6 courts)	Training	WPF						3:15 PM - 5:00 PM	105	1	105	36	9	45	Not occurring at WPF												
Tennis (6 courts)	Training	WPF						3:15 PM - 5:00 PM	105	1	105	24	7	31	Not occurring at WPF												
Cricket	Training	WPF						3:15 PM - 5:00 PM	105	1	105	120	12	132						3:15 PM - 5:00 PM	105	1	105	120	12	132	
Cricket	Training	WPF						3:15 PM - 5:00 PM	105	1	105	87	12	99						3:15 PM - 5:00 PM	105	1	105	87	12	99	

Sydney Grammar School - Weigall Sports Complex

School Days - Winter - Terms 2 & 3- Utilisation Profile

Definitions	
WSC	Weigall Sports Complex
WPF	Weigall Playing Fields
Event	Refers to an individual sports event (competition, training or classes) which potentially contains multiple sessions
Session	Refers to the set time (estimated average time) within an event determined by duration of matches
Players/ Session	equals session x participants / match
Staff / Session	is the number of staff and officials required to run a session. Assume there is no turnover to the whole event.

Sport	Event	Current Utilisation Profile - External Venues										Proposed Utilisation Profile - WSC												
			Event / Session Profile							Attendance Profile / session			Event / Session Profile					Attendance Profile / session						
		Current Venue	Event day/s				Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players/ Session	Staff / Session	Total / Session	Event day/s				Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total/ Session
			M	Tu	W	Th								Fr	M	Tu	W							
Volleyball	Training	College St					6:30 AM - 8:00 AM	90	1	90	20	1	21					6:30 AM - 8:00 AM	90	1	90	20	2	22
Futsal	Training	College St/ Cook & Philip					6:30 AM - 8:00 AM	90	1	60	50	4	54					6:30 AM - 8:00 AM	90	1	60	60	5	65

Volleyball	Training	Perry Park					3:15 PM - 5:00 PM	105	1	105	60	1	61						3:15 PM - 5:00 PM	105	1	105	70	2	72
Fencing	Training	Cook & Phillip					3:15 PM - 5:00 PM	105	1	105	30	3	33						3:15 PM - 5:00 PM	105	1	105	30	3	33
Fencing	Training	Cook & Phillip					3:15 PM - 5:00 PM	105	1	105	60	5	65						3:15 PM - 5:00 PM	105	1	105	60	5	65
TKD	Training	College St					3:15 PM - 4:00 PM	45	1	45	30	2	32						3:15 PM - 4:00 PM	45	1	45	30	2	32
Weights + Cardio	Training	College St					3:15 PM - 5:00 PM	105	1	105	40	3	43						3:15 PM - 5:00 PM	105	1	105	60	4	64

Sport	Event	Current Utilisation Profile - External Venues										Proposed Utilisation Profile - WPF													
			Event / Session Profile							Attendance Profile / session			Event / Session Profile					Attendance Profile / session							
		Current Venue	Event day/s				Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players/ Session	Staff / Session	Total / Session	Event day/s				Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total/ Session	
			M	Tu	W	Th								Fr	M	Tu	W								Th
Tennis	Training	WPF					3:15 PM - 5:00 PM	105	1	105	35	6	41	Not occurring at WPF					Not occurring at WPF						
Tennis	Training	WPF					4:15 PM - 6:00 PM	105	1	105	72	10	82	Not occurring at WPF					Not occurring at WPF						
Football/ Soccer	Training	WPF					3:15 PM - 5:00 PM	105	1	105	60	8	68						3:15 PM - 5:00 PM	105	1	105	60	8	68
Football/ Soccer	Training	WPF					3:15 PM - 5:00 PM	105	1	105	60	8	68						3:15 PM - 5:00 PM	105	1	105	60	8	68
Rugby	Training	WPF					3:15 PM - 5:00 PM	105	1	105	123	12	135						3:15 PM - 5:00 PM	105	1	105	123	12	135
Rugby	Training	WPF					3:15 PM - 5:00 PM	105	1	105	90	12	102						3:15 PM - 5:00 PM	105	1	105	90	12	102

Summer	Sport		Event		Current Utilisation Profile - WF										Proposed Utilisation Profile - WPF												
					Event / Session Profile							Attendance Profile / session			Session Profile					Attendance Profile / session							
					Current Venue	Event days				Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players/ Session	Staff / Session	Total / Session	Event days				Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total/ Session
						M	Tu	W	Th								Fr	M	Tu	W							
	Physical Education	Classes	WPF					8:40 AM - 3:00 PM	380	3	80	48	2	50					8:40 AM - 3:00 PM	380	3	80	75	3	78		
	Physical Education	Classes	Cook & Philip					8:40 AM - 3:00 PM	380	3	80	24	1	25					8:40 AM - 3:00 PM	380	3	80	75	3	78		
	Physical Education	Classes	College St (Some remain, some go to WSCA)					8:40 AM - 3:00 PM	380	6	40	24	1	25					8:40 AM - 3:00 PM	380	2	80	52	2	54		
Winter																											
	Physical Education	Classes	WPF					8:40 AM - 3:00 PM	380	4	80	24	1	25					8:40 AM - 3:00 PM	380	4	80	24	1	25		

Weekends - Summer - Utilisation Profile

WSC	Weigall Sports Complex
WPF	Weigall Playing Fields
Event	Refers to an individual sports event (competition, training or classes) which potentially contains multiple sessions and matches
Session	Refers to the set time (estimated average time) within an event determined by duration of matches
Matches	Refers to the number of matches being played during a session
Players / Match	is the number of all (home & away) participants in a match
Players/ Session	equals session x participants / match
Officials - Staff / Session	is the number of staff and officials required to run a session. Assume there is no turnover to the whole event.
Spectators / Session	is the maximum number of spectators to attend a session

Sport	Event	Current Utilisation Profile - External Venues										
		Event Profile							Attendance Profile / session			
		Current Venue	Events / year	Event start - end	Event Duration (mins)	No. of Sessions / Event	No. of Matches / Session	Session duration (mins)	Players / Session	Officials - Staff / Session	Spectators / Session	Total / Session
Basketball	Comp	College St (4 courts)	14	8:00 AM - 3:00 PM	420	7	4	60	80	8	60	148
Basketball	Function	AMT Foyer	14	1:30 PM - 2:30 PM	60	1	n/a	60	50	6	60	116
Weights (Rehab)	Training	Not a current Event										
Fencing (Beginners)	Training	Refer WPF below										
Water Polo		Not a current Event										

Proposed Utilisation Profile - WSC									
Event Profile					Attendance Profile / session				
Events / year	Event start - end	Event Duration (mins)	No. of Sessions per Event	Session duration (mins)	Players / Session	Officials - Staff / Session	Spectators / Session	Total / Session	
14	8:00 AM - 3:00 PM	420	7	60	80	8	60	148	
14	1:30 PM - 2:30 PM	60	1	60	50	6	60	116	
14	8:00 AM 10:00 AM	120	1	120	20	3	0	23	
14	8:00 AM - 10:00 AM	120	1	120	10	2	0	12	
14	7:00 AM - 12:00 PM	300	1	5	44	4	20	68	

Sport	Event	Current Utilisation Profile - WPF										
		Event Profile							Attendance Profile / session			
		Current Venue	Events / year	Event start - end	Event Duration (mins)	No. of Sessions / Event	No. of Matches / Session	Session duration (mins)	Participants / Session	Officials - Staff / Session	Spectators / Session	Total / Session
Fencing (Beginners)	Training	Weigall Pavilion	14	8:00 AM - 10:00 AM	120	1	n/a	120	10	2	0	12
Cricket Weigall 1	Comp	WPF	14	10:00 AM - 5:00 PM	420	1	1	420	22	6	30	58
Cricket Weigall 2 and 4	Comp	WPF	14	9:00 AM 5:00 PM	480	2	2	240	48	12	60	120
Tennis	Comp	WPF	14	8:00 AM - 6:00 PM	600	5	4	120	60	5	15	80

Proposed Utilisation Profile - WPF									
Event Profile					Attendance Profile / session				
Events / year	Event start - end	Event Duration (mins)	No. of Sessions per Event	Session duration (mins)	Participant / Session	Officials - Staff / Session	Spectators / Session	Spectators / Session	
Moving to WSC - see above									
14	10:00 AM - 5:00 PM	420	1	420	22	6	30	58	
14	9:00 AM 5:00 PM	480	2	240	48	12	60	120	
Not occurring at WPF									

Sydney Grammar School - Weigall Sports Complex

Weekends - Winter - Utilisation Profile

Definitions	
WSC	Weigall Sports Complex
WPF	Weigall Playing Fields
Event	Refers to an individual sports event (competition, training or classes) which potentially contains multiple sessions and matches
Session	Refers to the set time (estimated average time) within an event determined by duration of matches
Matches	Refers to the number of matches being played during a session
Players / Match	is the number of all (home & away) participants in a match
Players/ Session	equals session x participants / match
Officials - Staff / Session	is the number of staff and officials required to run a session. Assume there is no turnover to the whole event.
Spectators / Session	is the maximum number of spectators to attend a session

Sport	Event	Current Utilisation Profile - External Venues											Proposed Utilisation Profile - WSC									
		Event Profile							Attendance Profile / session				Event Profile					Attendance Profile / session				
		Current Venue	Events / year	Event start - end	Event Duration (mins)	No. of Sessions / Event	No. of Matches / Session	Session duration (mins)	Players / Session	Officials - Staff / Session	Spectators / Session	Total / Session	Events / year	Event start - end	Event Duration (mins)	No. of Sessions per Event	Session duration (mins)	Players / Session	Officials - Staff / Session	Spectators / Session	Total / Session	
Volleyball	Comp	CS Gym (2 courts)	14	8:00 AM - 3:00 PM	420	5	3	90	72	8	30	110	14	8:00 AM - 3:00 PM	420	5	90	72	8	30	110	
Winter Tennis	Comp	Weigall 1 - 6	14	8:00 AM - 5:00 PM	540	5	4	120	15	5	10	30	Not occurring at Weigall					Not occurring at Weigall				
Weights (Rehab)		Not a current Event											14	8:00 AM 10:00 AM	120	1	120	20	3	0	23	

Sport	Event	Current Utilisation Profile - WPF											Proposed Utilisation Profile - WPF									
		Event Profile							Attendance Profile / session				Event Profile					Attendance Profile / session				
		Current Venue	Events / year	Event start - end	Event Duration (mins)	No. of Sessions / Event	No. of Matches / Session	Session duration (mins)	Participants / Session	Officials - Staff / Session	Spectators / Session	Total / Session	Events / year	Event start - end	Event Duration (mins)	No. of Sessions per Event	Session duration (mins)	Participants / Session	Officials - Staff / Session	Spectators / Session	Spectators / Session	
Football	Comp	WPF	12	8:00 AM - 3:00 PM	60	8	3	60	26	8	50	84	12	8:00 AM - 3:00 PM	60	3	60	26	8	50	84	
Rugby	Comp	WPF	12	8:00 AM - 3:00 PM	60	2	2	60	34	7	35	76	12	8:00 AM - 3:00 PM	60	2	60	34	7	35	76	

Attachment 3 Parking and Pick-up / Drop-off Calculation

Proposed Utilisation Profile - WSC - Morning - School Days - Summer

Sport	Event	Attendees	Event / Session Profile								Attendance Profile / session			
			Event day/s					Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total/ Session
			M	Tu	W	Th	Fr							
Basketball - Specialty	Training	Players	60	60	60	60	60	6:30 AM - 8:00 AM	60	1	60	60	5	65
		Staff	5	5	5	5	5							
Swim Squad	Training	Players	30		30			6:30 AM - 8:15 AM	105	1	90	30	2	32
		Staff	2		2									
Swim Fitness	Training	Players		30		30		7:00 AM - 8:15 AM	75	1	90	30	2	32
		Staff		2		2								
Water Polo	Training	Players		22		22		6:30 AM - 8:00 AM	90	1	90	22	2	24
		Staff		2		2								
Weights + Cardio	Training	Players	60	60	60	60	60	6:30 AM - 8:00 AM	90	1	90	60	3	63
		Staff	3	3	3	3	3							

Maximum number of students arriving at the same time on each of the days	150	142	150	142	120	Arriving before 6:30 AM
Students who will arrive by a private vehicle (above * 30%)	45	43	45	43	36	
Number of vehicles (assumed occupancy of 1.2 students per car)	38	36	38	36	30	

Maximum number of students arriving at the same time on each of the days		30		30		Arriving before 7:00 AM
Students who make their own way to Weigall (above* 50% that will come by SGS bus from the main campus)		15		15		
Students who will arrive by a private vehicle (above * 60%)		9		9		
Number of vehicles (assumed occupancy of 1.2 students per car)		8		8		

Maximum number of students departing at the same time on each of the days (finishing at 8:00 AM)	120	142	120	120	120	Departing staggered after 8:00 AM and 8:15 AM
Maximum number of students departing at the same time on each of the days (finishing at 8:15 AM)	30	30	30	30		
Total:	150	172	150	150	120	
Number of buses (current capacity of 58 students per bus)	3	3	3	3	3	

Maximum number of parking spaces for staff	10	12	10	12	8
--	----	----	----	----	---

Proposed Future	Proposed Utilisation Profile - WSC - Afternoon - School Days - Summer														
	Sport	Event	Attendees	Event / Session Profile								Attendance Profile / session			
				M	Tu	W	Th	Fr							
	Basketball Open to All Boys	Training	Players	60	60	60	60		3:15 PM - 5:00 PM	105	1	85	60	5	65
			Staff	5	5	5	5								
	Fencing (beginners)	Training	Players	10	10	10	10		3:15 PM - 5:00 PM	105	1	105	10	2	12
			Staff	2	2	2	2								
	Taekwondo	Training	Players	20	20	20	20		3:15 PM - 4:40 PM	85	1	85	20	2	22
			Staff	2	2	2	2								
	Swim Fitness	Training	Players	20		20			3:15 PM - 5:00 PM	105	1	105	20	2	22
Staff			2		2										
Water Polo	Training	Players		22		22		3:15 PM - 5:00 PM	105	1	105	22	2	24	
		Staff		2		2									
Weights + Cardio	Training	Players	60	60	60	60	60	3:15 PM - 5:00 PM	105	1	105	60	4	64	
		Staff	4	4	4	4	4								

Amended Current	Tennis (6 courts)	Training	Players	36		36			3:15 PM - 5:00 PM	105	1	105	36	9	45
			Staff	9		9									
	Tennis (6 courts)	Training	Players		24		24		3:15 PM - 5:00 PM	105	1	105	24	7	31
			Staff		7		7								
	Cricket	Training	Players	120		120			3:15 PM - 5:00 PM	105	1	105	120	12	132
			Staff	12		12									
	Cricket	Training	Players		87		87		3:15 PM - 5:00 PM	105	1	105	87	12	99
			Staff		12		12								

Current Students	Current number of students arriving at the same time on each of the days				156	111	156	111		Arriving before 3:15 PM
	Number of buses (current) (current capacity of 58 students per bus)				3	2	3	2		
Future total Students	Future total number of students arriving at the same time on each of the days				290	259	290	259	60	
	Number of buses (future total) (current capacity of 58 students per bus)				5	5	5	5	2	
New Students	Maximum new number of students arriving at the same time on each of the days				170	172	170	172	60	
	Number of buses (net increase) (current capacity of 58 students per bus)				3	3	3	3	2	

Current Students	Maximum number of students departing at the same time on each of the days				156	111	156	111		Departing after 5:00 PM
	Students who go to the main campus by SGS bus (above * 40%)				62	44	62	44		
	Number of buses (current capacity of 58 students per bus)				2	1	2	1		
	Students who make their own way home (above * 60% => excludes students that will go by SGS bus to the main campus)				94	67	94	67		
	Students who leave Weigall by a private vehicle (above * 50%)				47	33	47	33		
	Number of vehicles (assumed occupancy of 1.2 students per car)				39	28	39	28		
	Maximum number of students departing at the same time on each of the days				290	259	290	259	60	
Future total Students	Students who go to the main campus by SGS bus (above * 40%)				116	104	116	104	24	
	Number of buses (current capacity of 58 students per bus)				2	2	2	2	1	
	Students who make their own way home (above * 60% => excludes students that will go by SGS bus to the main campus)				174	155	174	155	36	
	Students who leave Weigall by a private vehicle (above * 50%)				87	78	87	78	18	
	Number of vehicles (assumed occupancy of 1.2 students per car)				73	65	73	65	15	
	Maximum number of students departing at the same time on each of the days				170	172	170	172	60	
	Students who go to the main campus by SGS bus (above * 40%)				68	69	68	69	24	
New Students	Number of buses (current capacity of 58 students per bus)				2	2	2	2	1	
	Students who make their own way home (above * 60% => excludes students that will go by SGS bus to the main campus)				102	103	102	103	36	
	Students who leave Weigall by a private vehicle (above * 50%)				51	52	51	52	18	
	Number of vehicles (assumed occupancy of 1.2 students per car)				43	43	43	43	15	
	Maximum new number of parking spaces for staff				15	15	15	15	4	

Maximum new number of parking spaces for staff	15	15	15	15	4
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Proposed Utilisation Profile - WSC - Morning - School Days - Winter

Sport	Event	Attendees	Event / Session Profile											Attendance Profile /		
			Event day/s					Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total/ Session		
			M	Tu	W	Th	Fr									
Volleyball	Training	Players Staff	20 2	20 2	20 2	20 2	20 2	6:30 AM - 8:00 AM	90	1	90	20	2	22		
Futsal	Training	Players Staff	60 5		60 5		60 5	6:30 AM - 8:00 AM	90	1	60	60	5	65		

Maximum number of students arriving at the same time on each of the days	20	80	20	80	80	Arriving before 6:30 AM
Students who will arrive by a private vehicle (above * 30%)	6	24	6	24	24	
Number of vehicles (assumed occupancy of 1.2 students per car)	5	20	5	20	20	

Maximum number of students departing at the same time on each of the days	20	80	20	80	80	Departing after 8:00 AM
Number of buses (capacity of 58 students)	1	2	1	2	2	

Maximum number of parking spaces for staff	2	7	2	7	7
--	---	---	---	---	---

Proposed Future	Proposed Utilisation Profile - WSC - Afternoon - School Days - Winter														
	Sport	Event	Attendees	Event / Session Profile									Attendance Profile / session		
				Event days					Event start - end	Event Duration (mins)	No. of Sessions / Event	Session duration (mins)	Players / Session	Staff / Session	Total / Session
				M	Tu	W	Th	Fr							
	Volleyball	Training	Players Staff	70 2	70 2	70 2	70 2		3:15 PM - 5:00 PM	105	1	105	70	2	72
Fencing	Training	Players Staff	30 3		30 3			3:15 PM - 5:00 PM	105	1	105	30	3	33	
Fencing	Training	Players Staff	60 5		60 5			3:15 PM - 5:00 PM	105	1	105	60	5	65	
TKD	Training	Players Staff	30 2	30 2	30 2	30 2		3:15 PM - 4:00 PM	45	1	45	30	2	32	
Weights + Cardio	Training	Players Staff	60 4		60 4			3:15 PM - 5:00 PM	105	1	105	60	4	64	

Anned Current	Tennis	Training	Players	35	35				3:15 PM - 5:00 PM	105	1	105	35	6	41
			Staff	5	5										
	Tennis	Training	Players	72		72			3:15 PM - 5:00 PM	105	1	105	72	10	82
			Staff	10		10									
	Football/ Soccer	Training	Players	60	60				3:15 PM - 5:00 PM	105	1	105	60	8	68
			Staff	8	8										
	Football/ Soccer	Training	Players	60	60				3:15 PM - 5:00 PM	105	1	105	60	8	68
			Staff	8	8										
	Rugby	Training	Players	123	123				3:15 PM - 5:00 PM	105	1	105	123	12	135
			Staff	12	12										
	Rugby	Training	Players	90	90				3:15 PM - 5:00 PM	105	1	105	90	12	102
			Staff	12	12										

Current Students	Current number of students arriving at the same time on each of the days												
	Number of buses (current)												
Future total Students	Future total number of students arriving at the same time on each of the days												
	Number of buses (future total)												
New Students	Maximum new number of students arriving at the same time on each of the days												
	Number of buses (net increase)												

Current Students	Maximum number of students departing at the same time on each of the days												
	Students who go to the main campus by SGS bus (above * 40%)												
	Number of buses (current capacity of 58 students per bus)												
	Students who make their own way home (above * 60% => excludes students that will go by SGS bus to the main campus)												
	Students who leave Weigall by a private vehicle (above * 50%)												
	Number of vehicles (assumed occupancy of 1.2 students per car)												
	Maximum number of students departing at the same time on each of the days												
	Students who go to the main campus by SGS bus (above * 40%)												
	Number of buses (current capacity of 58 students per bus)												
	Students who make their own way home (above * 60% => excludes students that will go by SGS bus to the main campus)												
Future total Students	Students who leave Weigall by a private vehicle (above * 50%)												
	Number of vehicles (assumed occupancy of 1.2 students per car)												
	Maximum number of students departing at the same time on each of the days												
	Students who go to the main campus by SGS bus (above * 40%)												
	Number of buses (current capacity of 58 students per bus)												
	Students who make their own way home (above * 60% => excludes students that will go by SGS bus to the main campus)												
	Students who leave Weigall by a private vehicle (above * 50%)												
	Number of vehicles (assumed occupancy of 1.2 students per car)												
	Maximum number of students departing at the same time on each of the days												
	Students who go to the main campus by SGS bus (above * 40%)												
	Number of buses (current capacity of 58 students per bus)												
New Students	Students who make their own way home (above * 60% => excludes students that will go by SGS bus to the main campus)												
	Students who leave Weigall by a private vehicle (above * 50%)												
	Number of vehicles (assumed occupancy of 1.2 students per car)												

Current Students	Maximum number of students departing at the same time on each of the days												
	Students who go to the main campus by SGS bus (above * 40%)												
	Number of buses (current capacity of 58 students per bus)												
	Students who make their own way home (above * 60% => excludes students that will go by SGS bus to the main campus)												
	Students who leave Weigall by a private vehicle (above * 50%)												
	Number of vehicles (assumed occupancy of 1.2 students per car)												
	Maximum number of students departing at the same time on each of the days												
	Students who go to the main campus by SGS bus (above * 40%)												
	Number of buses (current capacity of 58 students per bus)												
	Students who make their own way home (above * 60% => excludes students that will go by SGS bus to the main campus)												
Future total Students	Students who leave Weigall by a private vehicle (above * 50%)												
	Number of vehicles (assumed occupancy of 1.2 students per car)												
	Maximum number of students departing at the same time on each of the days												
	Students who go to the main campus by SGS bus (above * 40%)												
	Number of buses (current capacity of 58 students per bus)												
	Students who make their own way home (above * 60% => excludes students that will go by SGS bus to the main campus)												
	Students who leave Weigall by a private vehicle (above * 50%)												
	Number of vehicles (assumed occupancy of 1.2 students per car)												
	Maximum number of students departing at the same time on each of the days												
	Students who go to the main campus by SGS bus (above * 40%)												
	Number of buses (current capacity of 58 students per bus)												
New Students	Students who make their own way home (above * 60% => excludes students that will go by SGS bus to the main campus)												
	Students who leave Weigall by a private vehicle (above * 50%)												
	Number of vehicles (assumed occupancy of 1.2 students per car)												

Maximum new number of parking spaces for staff	33	27	33	27
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Attachment 4 Extract from Ason Group Traffic Report

7 Traffic Impacts

7.1 Proposed Traffic Generation

In order to estimate the trip generation of the proposed development, Ason Group has adopted the 'first principles' methodology adopted in the Stage 1 DA Traffic Report, specifically assigning trips based on appropriate trip rates and the proposed operation of the Site and forecast occupancy (user) numbers.

Updated Site occupancy estimates have been provided to Ason Group by Project + Infrastructure, to which the approved first principles methodology has been applied in an identical manner to the DA Traffic Report. **Table 15** provides a summary of the trip generation of the Proposal.

Table 15: Proposed Development Trip Generation

Facility Component	AM Peak 7.30AM – 8.30AM			School Peak 3.00PM – 4.00PM			PM Peak 5.00PM – 6.00PM			Saturday AM Peak 12.00PM – 1.00PM		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Club	0	0	0	0	0	0	27	7	34	0	0	0
Fitness Centre	35	60	95	3	9	12	100	33	133	21	35	56
Community Facility	11	0	11	0	0	0	0	11	11	0	0	0
Multi-use courts	0	0	0	0	0	0	15	0	15	30	10	40
Pool Area	5	5	10	5	5	10	10	5	15	20	15	35
Soccer Field	0	0	0	5	5	10	5	5	10	35	10	45
Tennis Courts	7	13	20	16	7	23	20	16	36	40	13	53
Community Space (southern stand)	14	0	14	0	0	0	0	14	14	0	0	0
Total	72	78	150	29	26	55	150	91	268	146	83	229

With consideration for the existing traffic generation details i

7.2 Traffic Summary

Table 16 details the reduction in traffic generation compared with previous Stage 1 DA Traffic Report of the Site:

Table 16: Traffic Generation Comparison

Peak	Existing Access (veh/hr)	Stage 1 DA Trip Generation	Proposal Trip Generation	Net Change Trip Generation
AM peak hour	106	246	150	-96
School PM peak hour	42	109	55	-54
PM peak hour	36	306	268	-38
Saturday AM peak hour	125 (2014 Surveys)	248	229	-19

The above table indicates that the Proposal's traffic generation would be lower than the approved Stage 1 DA Traffic Report Site trip generation through each of the key peak periods. The 'first principles' traffic assessment provided by Project + Infrastructure suggests that the slight GFA changes in each of the facility components would not affect the projected patronage estimated for the S4.55 Proposal.

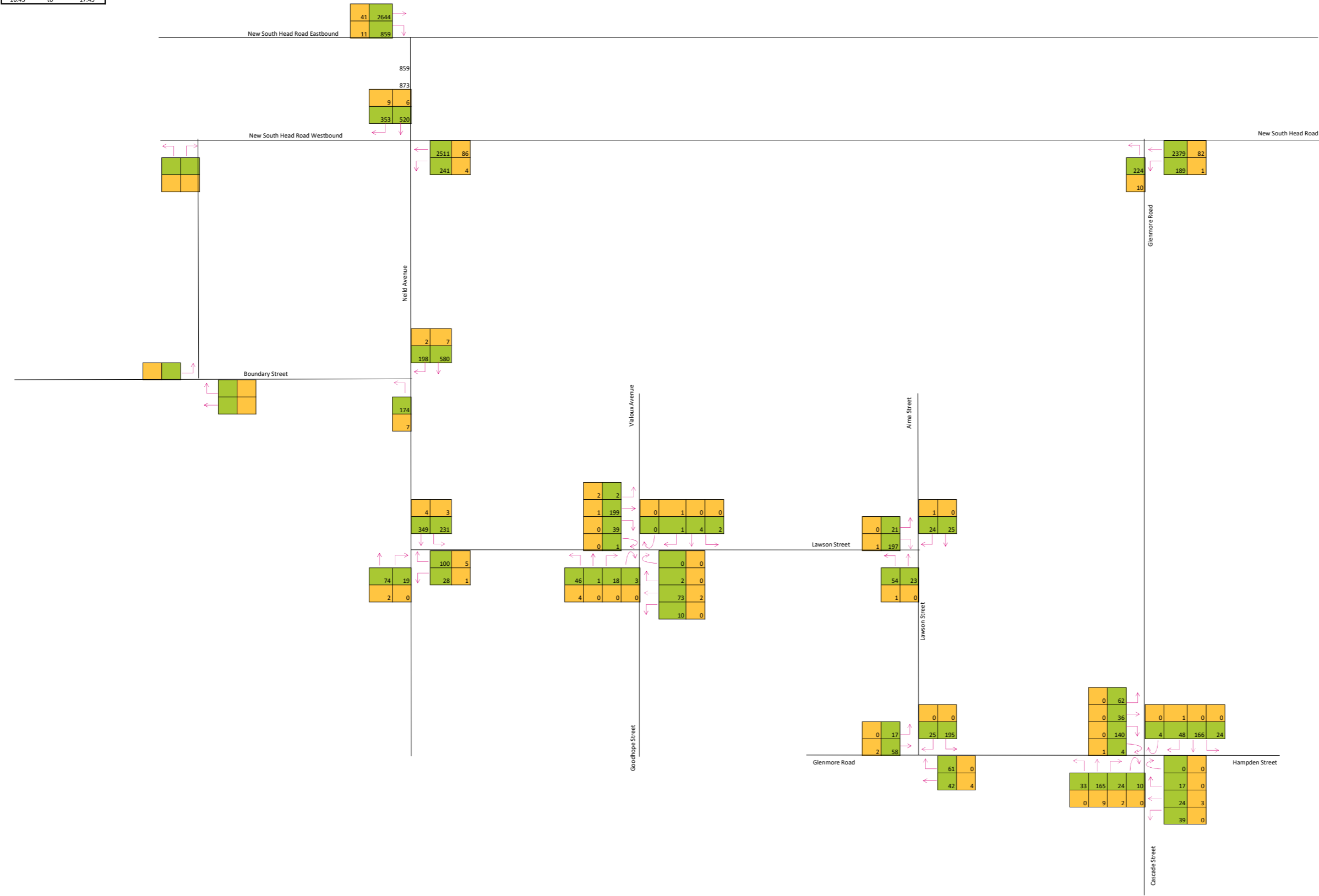
Furthermore, during the critical AM and School PM peak periods, it should be noted that an additional 44 and 13 vehicles respectively would enter / exit the Site. This corresponds to an additional vehicle every 45 seconds during the AM peak and every 4-5 minutes during the School PM peak.

Therefore, it can be concluded that the Proposal's trip generation would allow all key intersections to continue to operate at a similar Level of Service A as determined by the Stage 1 DA Traffic Report. As such, it is reasonable to conclude that the key intersections would continue to operate at commensurable levels of service further to the (lower trip generating) Proposal.

Attachment 5 Development Traffic Distribution

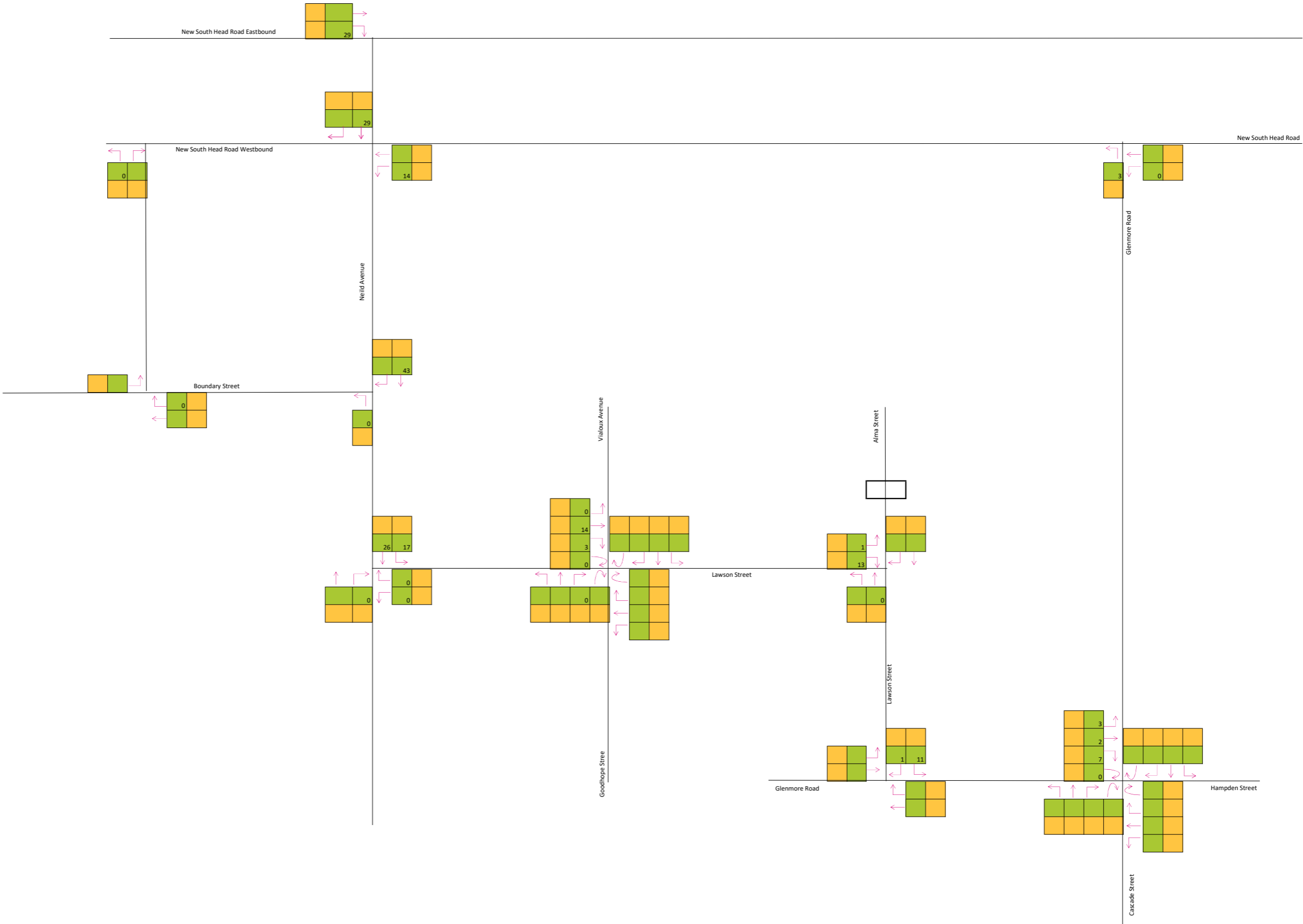
Thurs, 5th December 2019		
Peak Hour		
16:45	to	17:45

Existing - Weigall Traffic Distribution - Thursday



Vehicular Trips	
In	Out
43	43

Existing - Weigall Traffic Distribution - Thursday



Vehicular Trips	
In	Out
116	116

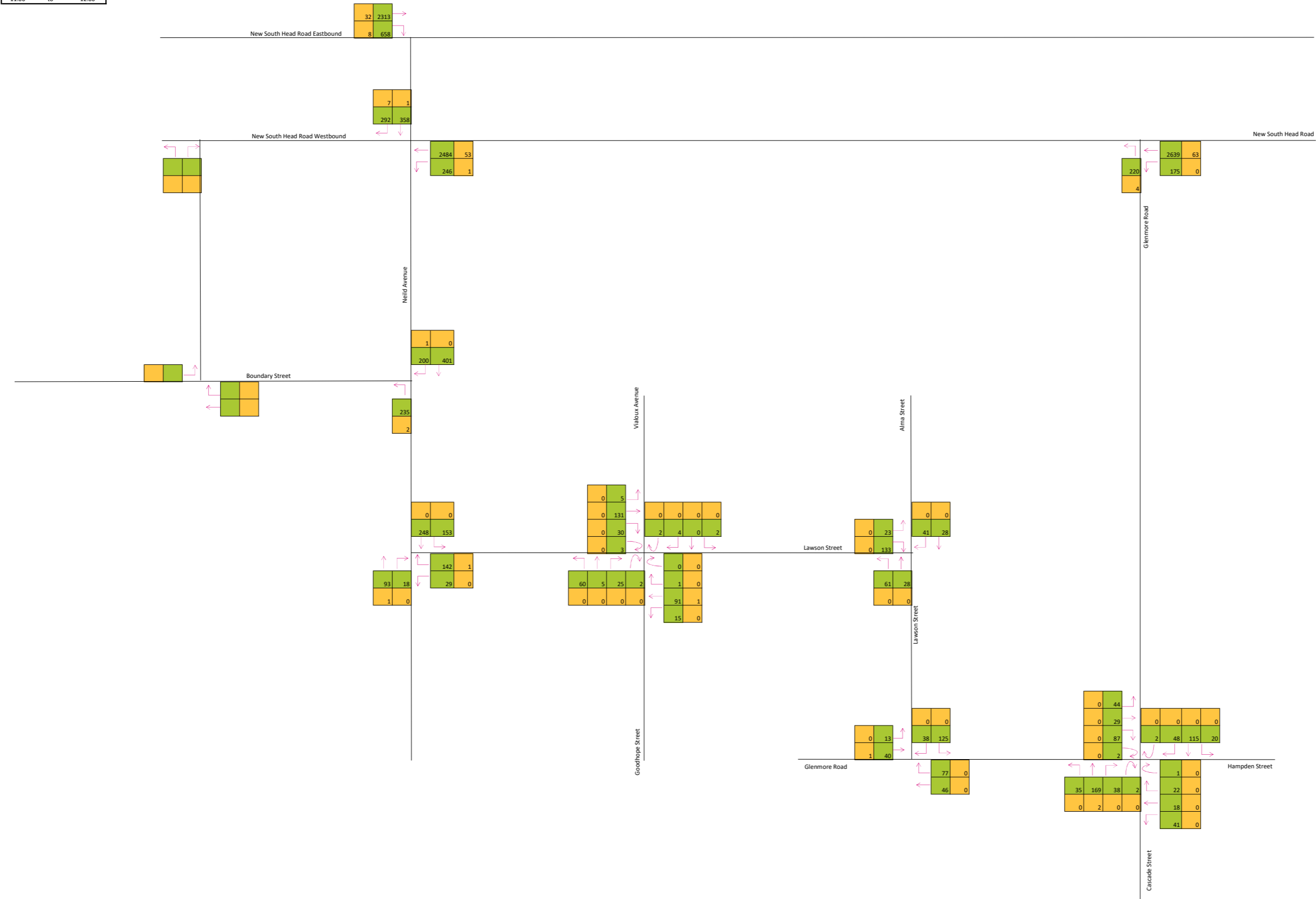
The diagram illustrates the traffic signal timing for a network of streets. The streets shown are New South Head Road (Eastbound and Westbound), Boundary Street, Neild Avenue, Vialoux Avenue, Lawson Street, Alma Street, Glenmore Road, Cascade Street, and Hampden Street. The signal timing is represented by colored blocks (green, yellow, red) and arrows indicating the sequence and duration of the signals. Key intersections and signal numbers are as follows:

- New South Head Road Eastbound/Westbound:** Signal 32.
- Boundary Street:** Signal 38.
- Neild Avenue:** Signal 38.
- Vialoux Avenue:** Signal 50.
- Lawson Street:** Signal 1.
- Alma Street:** Signal 116, 117.
- Glenmore Road:** Signal 13.
- Cascade Street:** Signal 14, 8, 31, 22, 15, 11.
- Hampden Street:** Signal 47.

The diagram also shows the sequence of signals for each intersection, with green blocks indicating the green phase, yellow blocks indicating the yellow phase, and red blocks indicating the red phase. Arrows indicate the direction of traffic flow and the corresponding signal sequence.

Sat, 30th November 2019		
Peak Hour		
11:00	to	12:00

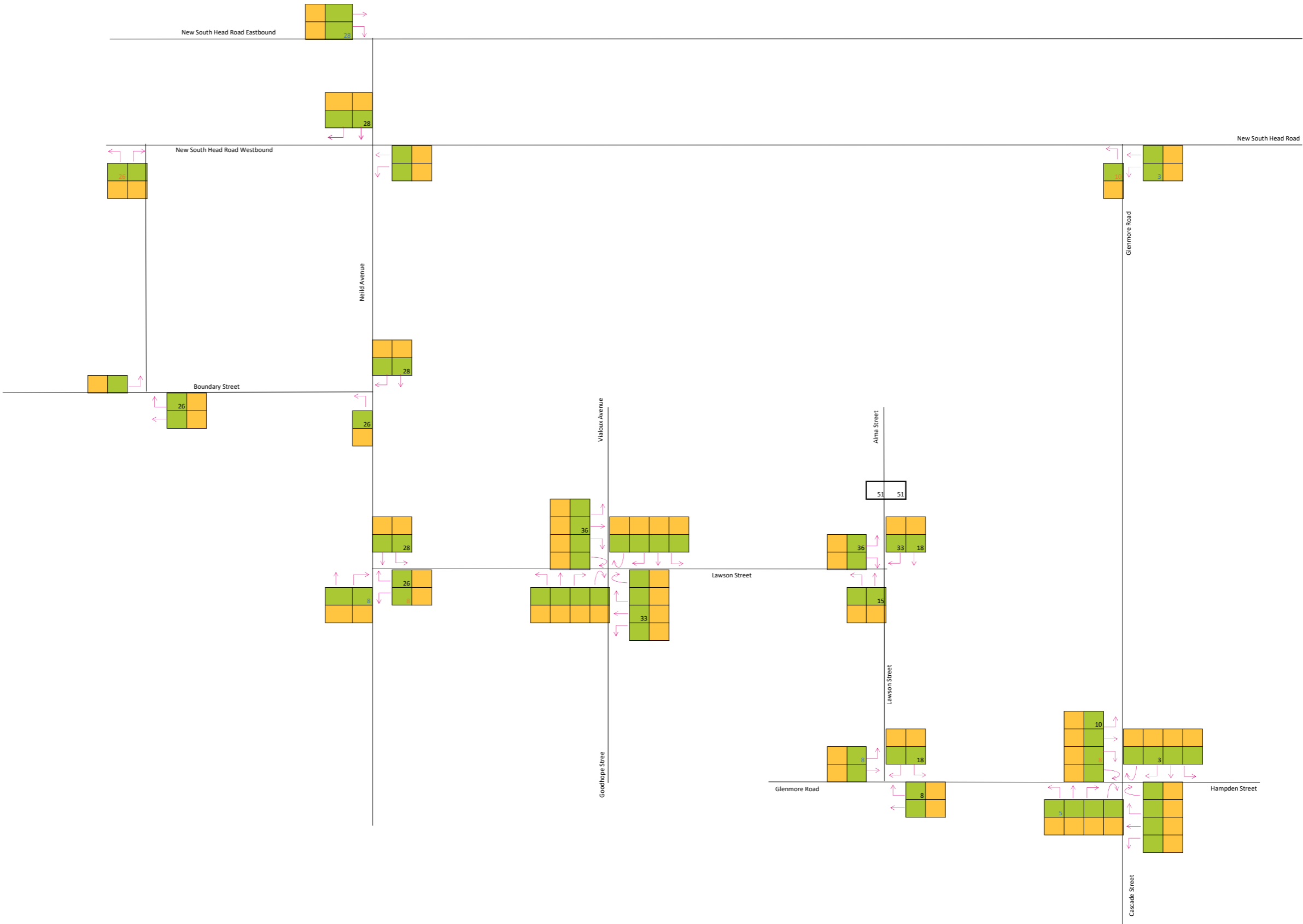
Existing - Weigall Traffic Distribution - Saturday



Alma Street	Little Weigall
102	0

Vehicular Trips	
In	Out
51	51

Development - Weigall Traffic Distribution



Vehicular Trips	
In	Out
26	26

The diagram illustrates a traffic signal timing plan for a network of streets. The streets shown are New South Head Road (Eastbound and Westbound), Boundary Street, Valour Avenue, Lawson Street, Glenmore Road, and Hampden Street. The timing is represented by colored blocks (green, orange, red) and arrows indicating the sequence and duration of traffic phases at various intersections.

Key Intersections and Phases:

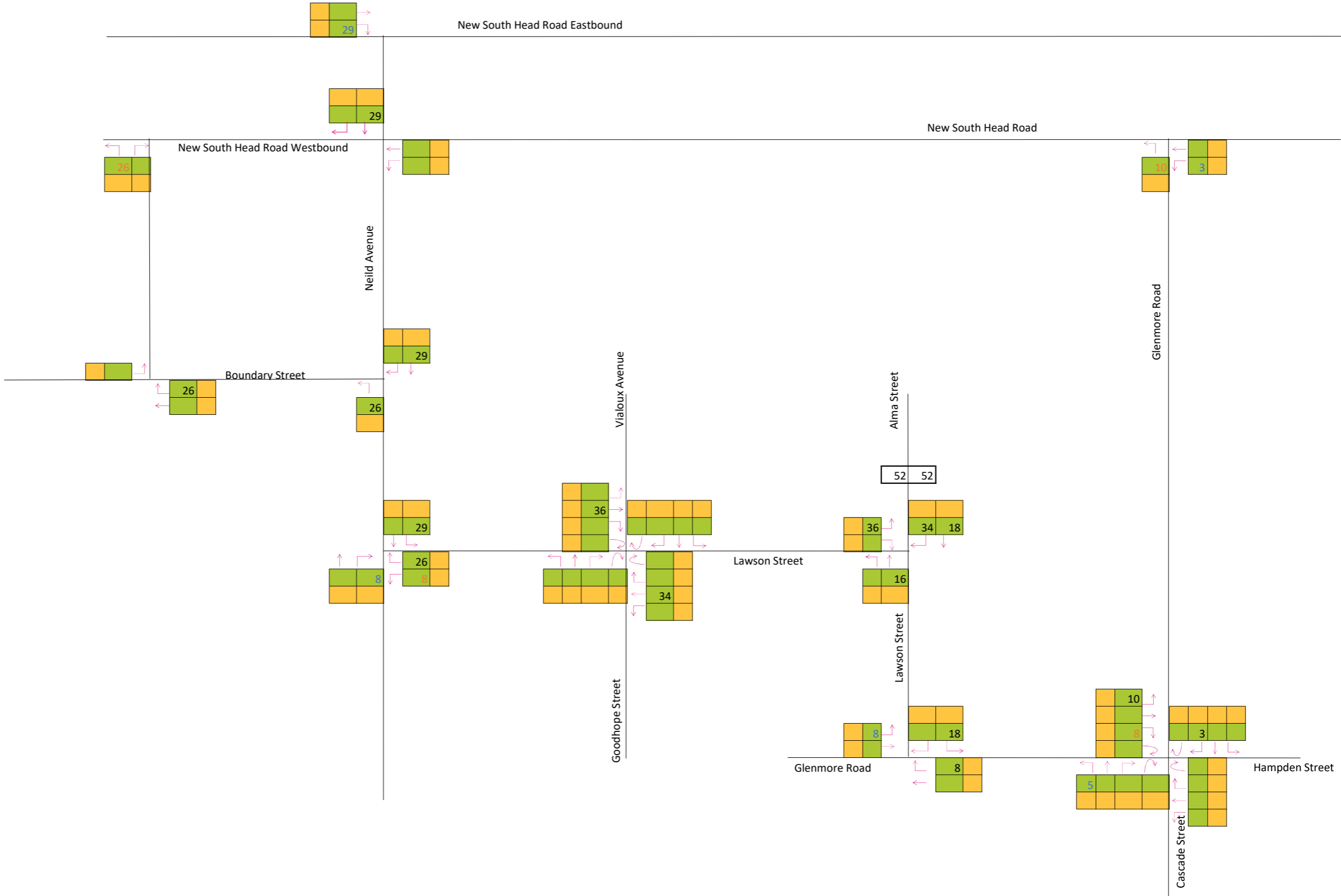
- New South Head Road Eastbound / Boundary Street:** Phases for 0, 18, and 18 seconds.
- New South Head Road Westbound / Boundary Street:** Phases for 0, 18, and 18 seconds.
- Valour Avenue / Boundary Street:** Phases for 0, 26, and 0 seconds.
- Valour Avenue / Lawson Street:** Phases for 0, 9, 2, and 0 seconds.
- Lawson Street / Valour Avenue:** Phases for 16, 10, 0, and 0 seconds.
- Lawson Street / Glenmore Road:** Phases for 1, 8, 0, and 0 seconds.
- Glenmore Road / Lawson Street:** Phases for 1, 7, 0, and 0 seconds.
- Glenmore Road / Hampden Street:** Phases for 2, 1, 4, and 0 seconds.
- Hampden Street / Glenmore Road:** Phases for 0, 1, 4, and 0 seconds.

The diagram uses a color-coded system to represent different traffic phases: green for through traffic, orange for turning traffic, and red for stop phases. Arrows indicate the direction of traffic flow for each phase.

Hakoah Club
104

Vehicular Trips	
In	Out
52	52

Development - Hakoah Traffic Distribution



Attachment 6 SIDRA Modelling Outputs

MOVEMENT SUMMARY

 **Site: 101 [Thurs - Existing AM- Neild Ave/New South Head Rd]**

 **Network: N101 [Existing AM]**

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
East: New South Head Road East														
4	L2	232	2.7	232	2.7	0.627	11.1	LOS A	14.6	105.2	0.29	0.39	0.29	44.7
5	T1	3101	3.5	3101	3.5	0.627	3.5	LOS A	14.6	105.2	0.20	0.21	0.20	55.8
Approach		3333	3.5	3333	3.5	0.627	4.0	LOS A	14.6	105.2	0.20	0.22	0.20	55.4
North: Neild Avenue North														
8	T1	400	4.5	400	4.5	0.634	54.8	LOS D	16.1	116.9	0.97	0.82	0.97	3.7
9	R2	357	3.2	357	3.2	0.634	58.0	LOS E	15.8	114.3	0.97	0.83	0.97	21.4
Approach		757	3.9	757	3.9	0.634	56.3	LOS D	16.1	116.9	0.97	0.83	0.97	14.1
All Vehicles		4089	3.6	4089	3.6	0.634	13.7	LOS A	16.1	116.9	0.34	0.33	0.34	45.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow	Average Delay	Level of Service	Average Back of Queue	Prop. Queued	Effective Stop Rate		
		ped/h	sec		Pedestrian ped	Distance m			
P1	South Full Crossing	53	7.9	LOS A	0.1	0.1	0.34	0.34	
P2	East Full Crossing	53	51.5	LOS E	0.2	0.2	0.86	0.86	
P3	North Full Crossing	53	8.6	LOS A	0.1	0.1	0.35	0.35	
All Pedestrians		158	22.7	LOS C			0.52	0.52	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Organisation: PARKING AND TRAFFIC CONSULTANTS | Processed: Wednesday, 7 October 2020 4:30:07 PM

Project: Z:\PCI - PROJECT WORK FILES\NSW\JATTCA - SYDNEY GRAMMAR - WEIGALL SPORTS COMPLEX, RUSHCUTTERS BAY\4. DA Stage\3. Modelling & Surveys\200907 - ptc. - Sydney Grammar - Intersection Modelling - Thurs.sip8

MOVEMENT SUMMARY

 Site: 102 [Thurs - Existing AM- Boundary St/Lawson St/ Neild Ave]

 Network: N101 [Existing AM]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Neild Avenue South														
1	L2	105	3.0	105	3.0	0.076	3.9	LOS A	0.2	1.5	0.19	0.39	0.19	41.8
3	R2	22	4.8	22	4.8	0.076	5.1	LOS A	0.2	1.5	0.19	0.39	0.19	36.7
Approach		127	3.3	127	3.3	0.076	4.1	NA	0.2	1.5	0.19	0.39	0.19	41.3
East: Lawson Street														
4	L2	43	4.9	43	4.9	0.335	5.0	LOS A	1.8	12.8	0.59	0.76	0.70	35.1
5	T1	167	1.3	167	1.3	0.335	9.0	LOS A	1.8	12.8	0.59	0.76	0.70	40.2
Approach		211	2.0	211	2.0	0.335	8.2	LOS A	1.8	12.8	0.59	0.76	0.70	39.0
North: Neild Avenue North														
7	L2	158	2.7	158	2.7	0.206	4.6	LOS A	0.0	0.0	0.00	0.35	0.00	43.3
8	T1	229	1.8	229	1.8	0.206	1.2	LOS A	0.0	0.0	0.00	0.35	0.00	48.1
9	R2	263	4.0	263	4.0	0.146	4.9	LOS A	0.0	0.0	0.00	0.60	0.00	44.3
Approach		651	2.9	651	2.9	0.206	3.5	NA	0.0	0.0	0.00	0.45	0.00	45.7
All Vehicles		988	2.8	988	2.8	0.335	4.6	NA	1.8	12.8	0.15	0.51	0.17	43.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 Site: 103 [Thurs - Existing AM - Lawson St/ Vialoux Ave/ Goodhope St]

 Network: N101 [Existing AM]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Goodhope Street														
1	L2	72	4.4	72	4.4	0.099	3.7	LOS A	0.5	3.6	0.31	0.50	0.31	34.2
2	T1	5	0.0	5	0.0	0.099	3.2	LOS A	0.5	3.6	0.31	0.50	0.31	36.4
3	R2	25	4.2	25	4.2	0.099	6.2	LOS A	0.5	3.6	0.31	0.50	0.31	34.2
3u	U	3	0.0	3	0.0	0.099	10.1	LOS A	0.5	3.6	0.31	0.50	0.31	42.4
Approach		105	4.0	105	4.0	0.099	4.4	LOS A	0.5	3.6	0.31	0.50	0.31	34.7
East: Lawson Street East														
4	L2	19	0.0	19	0.0	0.121	3.2	LOS A	0.6	4.3	0.19	0.37	0.19	36.0
5	T1	121	0.0	121	0.0	0.121	2.8	LOS A	0.6	4.3	0.19	0.37	0.19	27.8
6	R2	1	0.0	1	0.0	0.121	5.7	LOS A	0.6	4.3	0.19	0.37	0.19	34.4
6u	U	3	0.0	3	0.0	0.121	8.8	LOS A	0.6	4.3	0.19	0.37	0.19	27.8
Approach		144	0.0	144	0.0	0.121	3.0	LOS A	0.6	4.3	0.19	0.37	0.19	30.5
North: Vialoux Avenue														
7	L2	2	0.0	2	0.0	0.013	4.5	LOS A	0.1	0.4	0.39	0.51	0.39	25.4
8	T1	4	0.0	4	0.0	0.013	4.0	LOS A	0.1	0.4	0.39	0.51	0.39	35.4
9	R2	3	0.0	3	0.0	0.013	6.9	LOS A	0.1	0.4	0.39	0.51	0.39	25.4
9u	U	1	0.0	1	0.0	0.013	10.7	LOS A	0.1	0.4	0.39	0.51	0.39	27.3
Approach		11	0.0	11	0.0	0.013	5.7	LOS A	0.1	0.4	0.39	0.51	0.39	31.7
West: Lawson Street West														
10	L2	4	0.0	4	0.0	0.137	3.1	LOS A	0.7	5.2	0.16	0.41	0.16	33.2
11	T1	128	1.6	128	1.6	0.137	2.7	LOS A	0.7	5.2	0.16	0.41	0.16	30.3
12	R2	39	5.4	39	5.4	0.137	5.6	LOS A	0.7	5.2	0.16	0.41	0.16	36.9
12u	U	4	0.0	4	0.0	0.137	9.5	LOS A	0.7	5.2	0.16	0.41	0.16	30.3
Approach		176	2.4	176	2.4	0.137	3.5	LOS A	0.7	5.2	0.16	0.41	0.16	33.1
All Vehicles		436	1.9	436	1.9	0.137	3.6	LOS A	0.7	5.2	0.22	0.42	0.22	33.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 Site: 104 [Thurs - Existing AM - Alma St/ Lawson St]

 Network: N101 [Existing AM]

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		veh	m				km/h
South: Alma Street South														
1	L2	103	0.0	103	0.0	0.071	3.4	LOS A	0.0	0.0	0.00	0.35	0.00	28.7
2	T1	31	0.0	31	0.0	0.071	0.0	LOS A	0.0	0.0	0.00	0.35	0.00	33.5
Approach		134	0.0	134	0.0	0.071	2.6	NA	0.0	0.0	0.00	0.35	0.00	30.3
North: Alma Street North														
8	T1	22	0.0	22	0.0	0.035	0.3	LOS A	0.2	1.1	0.23	0.30	0.23	28.6
9	R2	37	0.0	37	0.0	0.035	3.9	LOS A	0.2	1.1	0.23	0.30	0.23	28.6
Approach		59	0.0	59	0.0	0.035	2.6	NA	0.2	1.1	0.23	0.30	0.23	28.6
West: Lawson Street														
10	L2	27	0.0	27	0.0	0.152	6.8	LOS A	0.6	4.0	0.17	0.92	0.17	27.6
12	R2	133	2.4	133	2.4	0.152	7.1	LOS A	0.6	4.0	0.17	0.92	0.17	21.0
Approach		160	2.0	160	2.0	0.152	7.0	LOS A	0.6	4.0	0.17	0.92	0.17	22.5
All Vehicles		353	0.9	353	0.9	0.152	4.6	NA	0.6	4.0	0.12	0.60	0.12	25.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 Site: 105 [Thurs - Existing AM - Glenmore Rd/Lawson St]

 Network: N101 [Existing AM]

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		veh	m				km/h
NorthEast: Glenmore Road NW														
25	T1	37	8.6	37	8.6	0.076	0.2	LOS A	0.4	2.6	0.18	0.34	0.18	38.1
26	R2	94	0.0	94	0.0	0.076	3.8	LOS A	0.4	2.6	0.18	0.34	0.18	34.4
Approach		131	2.4	131	2.4	0.076	2.8	NA	0.4	2.6	0.18	0.34	0.18	36.4
NorthWest: Lawson Street														
27	L2	129	0.8	129	0.8	0.119	6.9	LOS A	0.5	3.4	0.13	0.92	0.13	20.1
29	R2	23	0.0	23	0.0	0.119	7.3	LOS A	0.5	3.4	0.13	0.92	0.13	35.2
Approach		153	0.7	153	0.7	0.119	7.0	LOS A	0.5	3.4	0.13	0.92	0.13	26.7
SouthWest: Glenmore Road SW														
30	L2	35	0.0	35	0.0	0.044	3.4	LOS A	0.0	0.0	0.00	0.19	0.00	38.8
31	T1	48	0.0	48	0.0	0.044	0.0	LOS A	0.0	0.0	0.00	0.19	0.00	38.8
Approach		83	0.0	83	0.0	0.044	1.4	NA	0.0	0.0	0.00	0.19	0.00	38.8
All Vehicles		366	1.1	366	1.1	0.119	4.2	NA	0.5	3.4	0.12	0.55	0.12	34.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 106 [Thurs - Existing AM- Cascade St/ Hampden St/ Glenmore Rd]**

 **Network: N101 [Existing AM]**

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Cascade Street														
1	L2	38	2.8	38	2.8	0.351	3.6	LOS A	2.3	16.1	0.34	0.42	0.34	36.9
2	T1	319	0.7	319	0.7	0.351	3.2	LOS A	2.3	16.1	0.34	0.42	0.34	36.9
3	R2	17	0.0	17	0.0	0.351	6.2	LOS A	2.3	16.1	0.34	0.42	0.34	38.9
3u	U	8	0.0	8	0.0	0.351	10.3	LOS A	2.3	16.1	0.34	0.42	0.34	45.2
Approach		382	0.8	382	0.8	0.351	3.5	LOS A	2.3	16.1	0.34	0.42	0.34	37.3
East: Hampden Street														
4	L2	32	0.0	32	0.0	0.091	5.3	LOS A	0.4	3.1	0.50	0.61	0.50	37.5
5	T1	9	0.0	9	0.0	0.091	4.9	LOS A	0.4	3.1	0.50	0.61	0.50	35.4
6	R2	22	4.8	22	4.8	0.091	8.1	LOS A	0.4	3.1	0.50	0.61	0.50	35.4
6u	U	1	0.0	1	0.0	0.091	12.1	LOS A	0.4	3.1	0.50	0.61	0.50	44.0
Approach		64	1.6	64	1.6	0.091	6.3	LOS A	0.4	3.1	0.50	0.61	0.50	36.9
North: Glenmore Road North														
7	L2	6	0.0	6	0.0	0.194	3.7	LOS A	1.1	7.9	0.37	0.48	0.37	37.8
8	T1	146	1.4	146	1.4	0.194	3.3	LOS A	1.1	7.9	0.37	0.48	0.37	38.4
9	R2	51	4.2	51	4.2	0.194	6.4	LOS A	1.1	7.9	0.37	0.48	0.37	35.3
9u	U	4	0.0	4	0.0	0.194	10.4	LOS A	1.1	7.9	0.37	0.48	0.37	35.3
Approach		207	2.0	207	2.0	0.194	4.2	LOS A	1.1	7.9	0.37	0.48	0.37	37.9
West: Glenmore Road West														
10	L2	91	0.0	91	0.0	0.232	5.2	LOS A	1.3	9.3	0.57	0.66	0.57	30.8
11	T1	27	3.8	27	3.8	0.232	4.9	LOS A	1.3	9.3	0.57	0.66	0.57	37.2
12	R2	86	1.2	86	1.2	0.232	7.9	LOS A	1.3	9.3	0.57	0.66	0.57	37.1
12u	U	2	0.0	2	0.0	0.232	11.9	LOS A	1.3	9.3	0.57	0.66	0.57	30.8
Approach		206	1.0	206	1.0	0.232	6.4	LOS A	1.3	9.3	0.57	0.66	0.57	35.6
All Vehicles		860	1.2	860	1.2	0.351	4.6	LOS A	2.3	16.1	0.41	0.50	0.41	37.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 108 [Thurs - Existing AM - Glenmore Rd/ New South Head Rd]**

 **Network: N101 [Existing AM]**

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand	Flows	Arrival	Flows	Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m			km/h	
South: Glenmore Road														
1	L2	376	0.8	376	0.8	0.838	32.7	LOS C	10.3	72.9	0.91	1.82	2.81	32.8
Approach		376	0.8	376	0.8	0.838	32.7	LOS C	10.3	72.9	0.91	1.82	2.81	32.8
East: New South Head Road East														
4	L2	149	1.4	149	1.4	0.527	2.1	LOS A	0.0	0.0	0.00	0.08	0.00	44.8
5	T1	2837	4.6	2837	4.6	0.527	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.6
Approach		2986	4.4	2986	4.4	0.527	0.1	NA	0.0	0.0	0.00	0.03	0.00	59.6
West: New South Head Road West														
11	T1	1999	6.4	1999	6.4	0.356	0.0	LOS A	31.1	229.8	0.00	0.00	0.00	59.9
Approach		1999	6.4	1999	6.4	0.356	0.0	NA	31.1	229.8	0.00	0.00	0.00	59.9
All Vehicles		5361	4.9	5361	4.9	0.838	2.4	NA	31.1	229.8	0.06	0.14	0.20	54.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 Site: 107 [Thurs - Existing AM - Mona Rd/ New South Head Rd]

 Network: N101 [Existing AM]

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
East: New South Head Road East														
5	T1	2729	4.7	2729	4.7	0.897	28.2	LOS B	53.6	389.9	0.87	0.85	0.92	31.3
Approach		2729	4.7	2729	4.7	0.897	28.2	LOS B	53.6	389.9	0.87	0.85	0.92	31.3
North: Mona Road														
7	L2	12	0.0	12	0.0	0.017	34.4	LOS C	0.5	3.4	0.66	0.65	0.66	35.4
9	R2	257	2.0	257	2.0	0.385	39.6	LOS C	12.8	91.4	0.79	0.78	0.79	24.2
Approach		268	2.0	268	2.0	0.385	39.4	LOS C	12.8	91.4	0.78	0.78	0.78	24.9
West: New South Head Road West														
10	L2	204	2.1	204	2.1	0.665	25.6	LOS B	1.1	8.2	0.77	0.75	0.84	30.1
11	T1	1795	6.9	1795	6.9	0.665	24.5	LOS B	1.1	8.2	0.78	0.72	0.80	33.5
Approach		1999	6.4	1999	6.4	0.665	24.6	LOS B	1.1	8.2	0.78	0.72	0.80	33.1
All Vehicles		4997	5.2	4997	5.2	0.897	27.3	LOS B	53.6	389.9	0.83	0.79	0.87	31.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	53	38.7	LOS D	0.2	0.2	0.74	0.74
P3	North Full Crossing	53	18.6	LOS B	0.1	0.1	0.52	0.52
P4	West Full Crossing	53	38.7	LOS D	0.2	0.2	0.74	0.74
All Pedestrians		158	32.0	LOS D			0.67	0.67

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 **Site: 101 [Thurs - Existing PM - Neild Ave/New South Head Rd]**

 **Network: N101 [Existing PM]**

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
East: New South Head Road East														
4	L2	254	1.7	254	1.7	0.612	15.6	LOS B	19.7	140.8	0.43	0.51	0.43	38.0
5	T1	2734	3.3	2734	3.3	0.612	7.6	LOS A	19.7	140.8	0.35	0.34	0.35	51.8
Approach		2987	3.2	2987	3.2	0.612	8.3	LOS A	19.7	140.8	0.35	0.35	0.35	51.1
North: Neild Avenue North														
8	T1	554	1.1	554	1.1	0.608	48.4	LOS D	19.0	134.2	0.93	0.81	0.93	4.2
9	R2	381	2.5	381	2.5	0.608	51.7	LOS D	18.7	132.6	0.93	0.83	0.93	22.9
Approach		935	1.7	935	1.7	0.608	49.7	LOS D	19.0	134.2	0.93	0.82	0.93	14.2
All Vehicles		3922	2.8	3922	2.8	0.612	18.2	LOS B	19.7	140.8	0.49	0.47	0.49	41.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow	Average Delay	Level of Service	Average Back of Queue	Prop. Queued	Effective Stop Rate		
		ped/h	sec		Pedestrian ped	Distance m			
P1	South Full Crossing	53	10.8	LOS B	0.1	0.1	0.39	0.39	
P2	East Full Crossing	53	44.9	LOS E	0.2	0.2	0.80	0.80	
P3	North Full Crossing	53	11.6	LOS B	0.1	0.1	0.41	0.41	
All Pedestrians		158	22.5	LOS C			0.53	0.53	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 Site: 102 [Thurs - Existing PM - Boundary St/Lawson St/ Neild Ave]

 Network: N101 [Existing PM]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Neild Avenue South														
1	L2	80	2.6	80	2.6	0.064	4.5	LOS A	0.2	1.7	0.29	0.37	0.29	41.6
3	R2	20	0.0	20	0.0	0.064	6.3	LOS A	0.2	1.7	0.29	0.37	0.29	36.2
Approach		100	2.1	100	2.1	0.064	4.8	NA	0.2	1.7	0.29	0.37	0.29	40.9
East: Lawson Street														
4	L2	31	3.4	31	3.4	0.265	5.3	LOS A	1.2	8.8	0.64	0.77	0.69	34.6
5	T1	111	4.8	111	4.8	0.265	10.1	LOS A	1.2	8.8	0.64	0.77	0.69	39.5
Approach		141	4.5	141	4.5	0.265	9.0	LOS A	1.2	8.8	0.64	0.77	0.69	38.3
North: Neild Avenue North														
7	L2	246	1.3	246	1.3	0.326	4.6	LOS A	0.0	0.0	0.00	0.35	0.00	43.3
8	T1	372	1.1	372	1.1	0.326	1.2	LOS A	0.0	0.0	0.00	0.35	0.00	48.1
9	R2	211	1.0	211	1.0	0.114	4.9	LOS A	0.0	0.0	0.00	0.60	0.00	44.4
Approach		828	1.1	828	1.1	0.326	3.1	NA	0.0	0.0	0.00	0.41	0.00	46.3
All Vehicles		1069	1.7	1069	1.7	0.326	4.1	NA	1.2	8.8	0.11	0.46	0.12	44.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 103 [Thurs - Existing PM - Lawson St/ Vialoux Ave/ Goodhope St]**

 **Network: N101 [Existing PM]**

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Goodhope Street														
1	L2	53	8.0	53	8.0	0.068	3.4	LOS A	0.3	2.4	0.25	0.48	0.25	34.4
2	T1	1	0.0	1	0.0	0.068	2.9	LOS A	0.3	2.4	0.25	0.48	0.25	36.6
3	R2	19	0.0	19	0.0	0.068	5.9	LOS A	0.3	2.4	0.25	0.48	0.25	34.4
3u	U	3	0.0	3	0.0	0.068	9.8	LOS A	0.3	2.4	0.25	0.48	0.25	42.6
Approach		76	5.6	76	5.6	0.068	4.3	LOS A	0.3	2.4	0.25	0.48	0.25	35.0
East: Lawson Street East														
4	L2	11	0.0	11	0.0	0.081	3.2	LOS A	0.4	2.8	0.19	0.36	0.19	36.0
5	T1	79	2.7	79	2.7	0.081	2.8	LOS A	0.4	2.8	0.19	0.36	0.19	27.9
6	R2	2	0.0	2	0.0	0.081	5.7	LOS A	0.4	2.8	0.19	0.36	0.19	34.5
6u	U	1	0.0	1	0.0	0.081	8.8	LOS A	0.4	2.8	0.19	0.36	0.19	27.9
Approach		93	2.3	93	2.3	0.081	3.0	LOS A	0.4	2.8	0.19	0.36	0.19	30.4
North: Vialoux Avenue														
7	L2	2	0.0	2	0.0	0.013	5.1	LOS A	0.1	0.5	0.45	0.53	0.45	24.9
8	T1	4	0.0	4	0.0	0.013	4.6	LOS A	0.1	0.5	0.45	0.53	0.45	35.2
9	R2	2	50.0	2	50.0	0.013	8.9	LOS A	0.1	0.5	0.45	0.53	0.45	24.9
9u	U	1	0.0	1	0.0	0.013	11.2	LOS A	0.1	0.5	0.45	0.53	0.45	27.0
Approach		9	11.1	9	11.1	0.013	6.4	LOS A	0.1	0.5	0.45	0.53	0.45	31.8
West: Lawson Street West														
10	L2	4	50.0	4	50.0	0.186	3.4	LOS A	1.0	7.3	0.13	0.39	0.13	33.1
11	T1	211	0.5	211	0.5	0.186	2.7	LOS A	1.0	7.3	0.13	0.39	0.13	30.9
12	R2	41	0.0	41	0.0	0.186	5.5	LOS A	1.0	7.3	0.13	0.39	0.13	37.3
12u	U	1	0.0	1	0.0	0.186	9.4	LOS A	1.0	7.3	0.13	0.39	0.13	30.9
Approach		257	1.2	257	1.2	0.186	3.2	LOS A	1.0	7.3	0.13	0.39	0.13	33.0
All Vehicles		435	2.4	435	2.4	0.186	3.4	LOS A	1.0	7.3	0.17	0.40	0.17	33.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 Site: 104 [Thurs - Existing PM- Alma St/ Lawson St]

 Network: N101 [Existing PM]

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		veh	m				km/h
South: Alma Street South														
1	L2	58	1.8	58	1.8	0.044	3.4	LOS A	0.0	0.0	0.00	0.32	0.00	29.4
2	T1	24	0.0	24	0.0	0.044	0.0	LOS A	0.0	0.0	0.00	0.32	0.00	33.9
Approach		82	1.3	82	1.3	0.044	2.4	NA	0.0	0.0	0.00	0.32	0.00	31.3
North: Alma Street North														
8	T1	26	0.0	26	0.0	0.030	0.2	LOS A	0.1	0.9	0.16	0.24	0.16	30.7
9	R2	26	4.0	26	4.0	0.030	3.8	LOS A	0.1	0.9	0.16	0.24	0.16	30.7
Approach		53	2.0	53	2.0	0.030	2.0	NA	0.1	0.9	0.16	0.24	0.16	30.7
West: Lawson Street														
10	L2	22	0.0	22	0.0	0.214	6.8	LOS A	0.8	5.9	0.18	0.91	0.18	27.8
12	R2	208	0.5	208	0.5	0.214	6.8	LOS A	0.8	5.9	0.18	0.91	0.18	21.1
Approach		231	0.5	231	0.5	0.214	6.8	LOS A	0.8	5.9	0.18	0.91	0.18	22.0
All Vehicles		365	0.9	365	0.9	0.214	5.1	NA	0.8	5.9	0.14	0.68	0.14	24.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 Site: 105 [Thurs - Existing PM - Glenmore Rd/Lawson St]

 Network: N101 [Existing PM]

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		veh	m				km/h
NorthEast: Glenmore Road NW														
25	T1	48	8.7	48	8.7	0.064	0.2	LOS A	0.3	2.1	0.17	0.27	0.17	38.4
26	R2	64	0.0	64	0.0	0.064	3.8	LOS A	0.3	2.1	0.17	0.27	0.17	35.3
Approach		113	3.7	113	3.7	0.064	2.2	NA	0.3	2.1	0.17	0.27	0.17	37.4
NorthWest: Lawson Street														
27	L2	205	0.0	205	0.0	0.178	7.0	LOS A	0.8	5.5	0.17	0.90	0.17	20.2
29	R2	26	0.0	26	0.0	0.178	7.3	LOS A	0.8	5.5	0.17	0.90	0.17	35.2
Approach		232	0.0	232	0.0	0.178	7.0	LOS A	0.8	5.5	0.17	0.90	0.17	25.6
SouthWest: Glenmore Road SW														
30	L2	18	0.0	18	0.0	0.043	3.4	LOS A	0.0	0.0	0.00	0.10	0.00	39.3
31	T1	63	3.3	63	3.3	0.043	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	39.3
Approach		81	2.6	81	2.6	0.043	0.8	NA	0.0	0.0	0.00	0.10	0.00	39.3
All Vehicles		425	1.5	425	1.5	0.178	4.5	NA	0.8	5.5	0.14	0.58	0.14	34.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 106 [Thurs - Existing PM- Cascade St/ Hampden St/ Glenmore Rd]**

 **Network: N101 [Existing PM]**

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Cascade Street														
1	L2	35	0.0	35	0.0	0.258	3.7	LOS A	1.5	10.9	0.35	0.45	0.35	36.9
2	T1	183	5.2	183	5.2	0.258	3.4	LOS A	1.5	10.9	0.35	0.45	0.35	36.9
3	R2	27	7.7	27	7.7	0.258	6.5	LOS A	1.5	10.9	0.35	0.45	0.35	38.8
3u	U	11	0.0	11	0.0	0.258	10.4	LOS A	1.5	10.9	0.35	0.45	0.35	45.2
Approach		256	4.5	256	4.5	0.258	4.0	LOS A	1.5	10.9	0.35	0.45	0.35	37.7
East: Hampden Street														
4	L2	41	0.0	41	0.0	0.139	6.3	LOS A	0.7	5.0	0.58	0.66	0.58	37.2
5	T1	28	11.1	28	11.1	0.139	6.4	LOS A	0.7	5.0	0.58	0.66	0.58	34.9
6	R2	18	0.0	18	0.0	0.139	9.0	LOS A	0.7	5.0	0.58	0.66	0.58	34.9
6u	U	1	0.0	1	0.0	0.139	13.1	LOS A	0.7	5.0	0.58	0.66	0.58	43.7
Approach		88	3.6	88	3.6	0.139	6.9	LOS A	0.7	5.0	0.58	0.66	0.58	36.4
North: Glenmore Road North														
7	L2	25	0.0	25	0.0	0.261	4.3	LOS A	1.5	10.8	0.48	0.55	0.48	37.6
8	T1	175	0.0	175	0.0	0.261	4.0	LOS A	1.5	10.8	0.48	0.55	0.48	38.2
9	R2	52	2.0	52	2.0	0.261	7.1	LOS A	1.5	10.8	0.48	0.55	0.48	34.9
9u	U	4	0.0	4	0.0	0.261	11.1	LOS A	1.5	10.8	0.48	0.55	0.48	34.9
Approach		256	0.4	256	0.4	0.261	4.7	LOS A	1.5	10.8	0.48	0.55	0.48	37.7
West: Glenmore Road West														
10	L2	65	0.0	65	0.0	0.259	4.4	LOS A	1.5	10.6	0.49	0.62	0.49	31.2
11	T1	38	0.0	38	0.0	0.259	4.1	LOS A	1.5	10.6	0.49	0.62	0.49	37.3
12	R2	147	0.0	147	0.0	0.259	7.1	LOS A	1.5	10.6	0.49	0.62	0.49	37.3
12u	U	5	20.0	5	20.0	0.259	11.7	LOS A	1.5	10.6	0.49	0.62	0.49	31.2
Approach		256	0.4	256	0.4	0.259	6.1	LOS A	1.5	10.6	0.49	0.62	0.49	36.5
All Vehicles		856	2.0	856	2.0	0.261	5.1	LOS A	1.5	10.9	0.45	0.55	0.45	37.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 108 [Thurs - Existing PM - Glenmore Rd/ New South Head Rd]**

 **Network: N101 [Existing PM]**

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Glenmore Road														
1	L2	246	4.3	246	4.3	0.518	17.3	LOS B	3.0	22.0	0.75	1.19	1.19	38.8
Approach		246	4.3	246	4.3	0.518	17.3	LOS B	3.0	22.0	0.75	1.19	1.19	38.8
East: New South Head Road East														
4	L2	200	0.5	200	0.5	0.488	2.1	LOS A	0.0	0.0	0.00	0.11	0.00	40.8
5	T1	2591	3.3	2591	3.3	0.488	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
Approach		2791	3.1	2791	3.1	0.488	0.2	NA	0.0	0.0	0.00	0.04	0.00	59.5
West: New South Head Road West														
11	T1	2773	1.6	2773	1.6	0.479	0.1	LOS A	43.1	305.5	0.00	0.00	0.00	59.9
Approach		2773	1.6	2773	1.6	0.479	0.1	NA	43.1	305.5	0.00	0.00	0.00	59.9
All Vehicles		5809	2.4	5809	2.4	0.518	0.8	NA	43.1	305.5	0.03	0.07	0.05	57.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 107 [Thurs - Existing PM - Mona Rd/ New South Head Rd]**

 **Network: N101 [Existing PM]**

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
East: New South Head Road East														
5	T1	2520	3.4	2520	3.4	0.700	9.1	LOS A	22.0	158.8	0.43	0.39	0.43	46.3
Approach		2520	3.4	2520	3.4	0.700	9.1	LOS A	22.0	158.8	0.43	0.39	0.43	46.3
North: Mona Road														
7	L2	27	3.8	27	3.8	0.056	44.6	LOS D	1.4	9.9	0.77	0.69	0.77	32.2
9	R2	271	0.8	271	0.8	0.540	51.4	LOS D	15.8	111.0	0.91	0.82	0.91	21.0
Approach		298	1.1	298	1.1	0.540	50.7	LOS D	15.8	111.0	0.90	0.81	0.90	22.3
West: New South Head Road West														
10	L2	281	0.7	281	0.7	0.763	20.9	LOS B	1.2	8.2	0.77	0.76	0.84	32.6
11	T1	2492	1.7	2492	1.7	0.763	19.4	LOS B	1.2	8.2	0.78	0.73	0.79	36.9
Approach		2773	1.6	2773	1.6	0.763	19.5	LOS B	1.2	8.2	0.78	0.74	0.80	36.4
All Vehicles		5591	2.4	5591	2.4	0.763	16.5	LOS B	22.0	158.8	0.62	0.59	0.64	38.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	53	49.0	LOS E	0.2	0.2	0.84	0.84
P3	North Full Crossing	53	12.5	LOS B	0.1	0.1	0.42	0.42
P4	West Full Crossing	53	49.0	LOS E	0.2	0.2	0.84	0.84
All Pedestrians		158	36.8	LOS D			0.70	0.70

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 102 [Thurs - Development PM - Boundary St/Lawson St/Neild Ave]

Network: N101 [Development PM]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Neild Avenue South														
1	L2	80	2.6	80	2.6	0.071	5.0	LOS A	0.3	2.3	0.36	0.37	0.36	41.6
3	R2	24	0.0	24	0.0	0.071	7.4	LOS A	0.3	2.3	0.36	0.37	0.36	36.3
Approach		104	2.0	104	2.0	0.071	5.6	NA	0.3	2.3	0.36	0.37	0.36	40.8
East: Lawson Street														
4	L2	42	2.5	42	2.5	0.387	7.4	LOS A	2.1	15.4	0.69	0.89	0.92	36.4
5	T1	151	3.5	151	3.5	0.387	13.4	LOS A	2.1	15.4	0.69	0.89	0.92	39.4
Approach		193	3.3	193	3.3	0.387	12.1	LOS A	2.1	15.4	0.69	0.89	0.92	38.7
North: Neild Avenue North														
7	L2	313	1.0	313	1.0	0.376	4.7	LOS A	0.0	0.0	0.00	0.37	0.00	43.3
8	T1	399	1.1	399	1.1	0.376	1.3	LOS A	0.0	0.0	0.00	0.37	0.00	48.5
9	R2	211	1.0	211	1.0	0.126	5.2	LOS A	0.5	3.7	0.15	0.57	0.15	44.0
Approach		922	1.0	922	1.0	0.376	3.3	NA	0.5	3.7	0.03	0.42	0.03	46.3
All Vehicles		1219	1.5	1219	1.5	0.387	4.9	NA	2.1	15.4	0.17	0.49	0.20	44.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 101 [Thurs - Development PM - Neild Ave/New South Head Rd]**

 **Network: N101 [Development PM]**

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
East: New South Head Road East														
4	L2	288	1.5	288	1.5	0.629	17.9	LOS B	22.7	162.1	0.50	0.58	0.50	35.2
5	T1	2734	3.3	2734	3.3	0.629	8.6	LOS A	22.7	162.1	0.38	0.37	0.38	51.0
Approach		3022	3.1	3022	3.1	0.629	9.5	LOS A	22.7	162.1	0.39	0.39	0.39	50.1
North: Neild Avenue North														
8	T1	618	1.0	618	1.0	0.632	48.1	LOS D	20.3	143.5	0.93	0.82	0.93	4.2
9	R2	381	2.5	381	2.5	0.632	51.3	LOS D	20.1	142.3	0.93	0.84	0.93	23.0
Approach		999	1.6	999	1.6	0.632	49.3	LOS D	20.3	143.5	0.93	0.83	0.93	13.8
All Vehicles		4021	2.7	4021	2.7	0.632	19.4	LOS B	22.7	162.1	0.53	0.50	0.53	40.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow	Average Delay	Level of Service	Average Back of Queue	Prop. Queued	Effective Stop Rate		
		ped/h	sec		Pedestrian ped	Distance m			
P1	South Full Crossing	53	11.2	LOS B	0.1	0.1	0.40	0.40	
P2	East Full Crossing	53	44.1	LOS E	0.2	0.2	0.79	0.79	
P3	North Full Crossing	53	12.0	LOS B	0.1	0.1	0.42	0.42	
All Pedestrians		158	22.5	LOS C			0.54	0.54	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 **Site: 103 [Thurs - Development PM - Lawson St/ Vialoux Ave/ Goodhope St]**

 **Network: N101 [Development PM]**

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Goodhope Street														
1	L2	53	8.0	53	8.0	0.077	3.7	LOS A	0.4	2.8	0.32	0.52	0.32	34.7
2	T1	1	0.0	1	0.0	0.077	3.2	LOS A	0.4	2.8	0.32	0.52	0.32	36.9
3	R2	24	0.0	24	0.0	0.077	6.8	LOS A	0.4	2.8	0.32	0.52	0.32	34.7
3u	U	3	0.0	3	0.0	0.077	10.1	LOS A	0.4	2.8	0.32	0.52	0.32	42.9
Approach		81	5.2	81	5.2	0.077	4.9	LOS A	0.4	2.8	0.32	0.52	0.32	35.2
East: Lawson Street East														
4	L2	18	0.0	18	0.0	0.129	4.1	LOS A	0.7	4.6	0.20	0.43	0.20	40.1
5	T1	131	1.6	131	1.6	0.129	3.8	LOS A	0.7	4.6	0.20	0.43	0.20	28.5
6	R2	3	0.0	3	0.0	0.129	6.6	LOS A	0.7	4.6	0.20	0.43	0.20	35.4
6u	U	1	0.0	1	0.0	0.129	8.8	LOS A	0.7	4.6	0.20	0.43	0.20	28.5
Approach		153	1.4	153	1.4	0.129	3.9	LOS A	0.7	4.6	0.20	0.43	0.20	31.9
North: Vialoux Avenue														
7	L2	3	0.0	3	0.0	0.016	6.4	LOS A	0.1	0.6	0.50	0.56	0.50	24.1
8	T1	4	0.0	4	0.0	0.016	5.2	LOS A	0.1	0.6	0.50	0.56	0.50	34.8
9	R2	2	50.0	2	50.0	0.016	9.8	LOS A	0.1	0.6	0.50	0.56	0.50	24.1
9u	U	1	0.0	1	0.0	0.016	11.8	LOS A	0.1	0.6	0.50	0.56	0.50	28.1
Approach		11	10.0	11	10.0	0.016	7.1	LOS A	0.1	0.6	0.50	0.56	0.50	31.0
West: Lawson Street West														
10	L2	4	50.0	4	50.0	0.238	3.5	LOS A	1.4	10.1	0.16	0.41	0.16	33.6
11	T1	278	0.4	278	0.4	0.238	3.2	LOS A	1.4	10.1	0.16	0.41	0.16	31.7
12	R2	44	0.0	44	0.0	0.238	5.6	LOS A	1.4	10.1	0.16	0.41	0.16	37.7
12u	U	1	0.0	1	0.0	0.238	9.5	LOS A	1.4	10.1	0.16	0.41	0.16	31.7
Approach		327	1.0	327	1.0	0.238	3.5	LOS A	1.4	10.1	0.16	0.41	0.16	33.4
All Vehicles		572	1.8	572	1.8	0.238	3.9	LOS A	1.4	10.1	0.20	0.43	0.20	33.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 Site: 104 [Thurs - Development PM- Alma St/ Lawson St]

 Network: N101
[Development PM]

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Alma Street South														
1	L2	58	1.8	58	1.8	0.077	4.3	LOS A	0.0	0.0	0.00	0.21	0.00	37.1
2	T1	88	0.0	88	0.0	0.077	0.0	LOS A	0.0	0.0	0.00	0.21	0.00	42.3
Approach		146	0.7	146	0.7	0.077	1.7	NA	0.0	0.0	0.00	0.21	0.00	40.9
North: Alma Street North														
8	T1	89	0.0	89	0.0	0.102	0.4	LOS A	0.5	3.2	0.23	0.28	0.23	34.1
9	R2	86	1.2	86	1.2	0.102	5.4	LOS A	0.5	3.2	0.23	0.28	0.23	34.1
Approach		176	0.6	176	0.6	0.102	2.8	NA	0.5	3.2	0.23	0.28	0.23	34.1
West: Lawson Street														
10	L2	81	0.0	81	0.0	0.318	8.0	LOS A	1.3	9.5	0.32	0.92	0.32	25.1
12	R2	222	0.5	222	0.5	0.318	8.2	LOS A	1.3	9.5	0.32	0.92	0.32	20.5
Approach		303	0.3	303	0.3	0.318	8.1	LOS A	1.3	9.5	0.32	0.92	0.32	22.2
All Vehicles		625	0.5	625	0.5	0.318	5.1	NA	1.3	9.5	0.22	0.57	0.22	28.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 Site: 105 [Thurs - Development PM - Glenmore Rd/Lawson St]

 Network: N101 [Development PM]

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
NorthEast: Glenmore Road NW														
25	T1	48	8.7	48	8.7	0.095	0.3	LOS A	0.5	3.3	0.20	0.37	0.20	39.2
26	R2	114	0.0	114	0.0	0.095	4.7	LOS A	0.5	3.3	0.20	0.37	0.20	37.5
Approach		162	2.6	162	2.6	0.095	3.4	NA	0.5	3.3	0.20	0.37	0.20	38.5
NorthWest: Lawson Street														
27	L2	273	0.0	273	0.0	0.239	7.3	LOS A	1.1	7.8	0.18	0.90	0.18	20.6
29	R2	35	0.0	35	0.0	0.239	8.0	LOS A	1.1	7.8	0.18	0.90	0.18	37.8
Approach		307	0.0	307	0.0	0.239	7.4	LOS A	1.1	7.8	0.18	0.90	0.18	26.5
SouthWest: Glenmore Road SW														
30	L2	32	0.0	32	0.0	0.050	3.8	LOS A	0.0	0.0	0.00	0.22	0.00	41.4
31	T1	63	3.3	63	3.3	0.050	0.3	LOS A	0.0	0.0	0.00	0.22	0.00	41.4
Approach		95	2.2	95	2.2	0.050	1.5	NA	0.0	0.0	0.00	0.22	0.00	41.4
All Vehicles		564	1.1	564	1.1	0.239	5.3	NA	1.1	7.8	0.16	0.63	0.16	35.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 106 [Thurs - Development PM- Cascade St/ Hampden St/ Glenmore Rd]**

 **Network: N101 [Development PM]**

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Cascade Street														
1	L2	51	0.0	51	0.0	0.290	4.7	LOS A	1.7	12.6	0.41	0.50	0.41	37.5
2	T1	183	5.2	183	5.2	0.290	3.7	LOS A	1.7	12.6	0.41	0.50	0.41	37.5
3	R2	27	7.7	27	7.7	0.290	6.8	LOS A	1.7	12.6	0.41	0.50	0.41	39.1
3u	U	11	0.0	11	0.0	0.290	10.8	LOS A	1.7	12.6	0.41	0.50	0.41	45.6
Approach		272	4.3	272	4.3	0.290	4.5	LOS A	1.7	12.6	0.41	0.50	0.41	38.2
East: Hampden Street														
4	L2	41	0.0	41	0.0	0.168	7.0	LOS A	0.9	6.2	0.62	0.71	0.62	37.7
5	T1	40	7.9	40	7.9	0.168	7.8	LOS A	0.9	6.2	0.62	0.71	0.62	35.8
6	R2	18	0.0	18	0.0	0.168	9.7	LOS A	0.9	6.2	0.62	0.71	0.62	35.8
6u	U	1	0.0	1	0.0	0.168	13.8	LOS A	0.9	6.2	0.62	0.71	0.62	44.4
Approach		100	3.2	100	3.2	0.168	7.9	LOS A	0.9	6.2	0.62	0.71	0.62	37.0
North: Glenmore Road North														
7	L2	25	0.0	25	0.0	0.298	4.8	LOS A	1.8	12.8	0.54	0.61	0.54	37.8
8	T1	175	0.0	175	0.0	0.298	4.4	LOS A	1.8	12.8	0.54	0.61	0.54	38.4
9	R2	75	1.4	75	1.4	0.298	8.4	LOS A	1.8	12.8	0.54	0.61	0.54	35.4
9u	U	4	0.0	4	0.0	0.298	11.5	LOS A	1.8	12.8	0.54	0.61	0.54	35.4
Approach		279	0.4	279	0.4	0.298	5.6	LOS A	1.8	12.8	0.54	0.61	0.54	37.9
West: Glenmore Road West														
10	L2	83	0.0	83	0.0	0.326	4.9	LOS A	2.0	14.3	0.52	0.64	0.52	32.5
11	T1	48	0.0	48	0.0	0.326	4.6	LOS A	2.0	14.3	0.52	0.64	0.52	39.7
12	R2	187	0.0	187	0.0	0.326	7.7	LOS A	2.0	14.3	0.52	0.64	0.52	39.6
12u	U	5	20.0	5	20.0	0.326	11.9	LOS A	2.0	14.3	0.52	0.64	0.52	32.5
Approach		324	0.3	324	0.3	0.326	6.6	LOS A	2.0	14.3	0.52	0.64	0.52	38.7
All Vehicles		975	1.7	975	1.7	0.326	5.9	LOS A	2.0	14.3	0.51	0.60	0.51	38.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 108 [Thurs - Development PM - Glenmore Rd/ New South Head Rd]**

 **Network: N101 [Development PM]**

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles																
Mov ID	Turn	Demand		Flows		Arrival	Flows	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	HV %	Total veh/h	HV %						Vehicles	Distance				
South: Glenmore Road																
1	L2	264	4.0	264	4.0	0.536	17.3	LOS B	3.3	23.9	0.75	1.20	1.22	39.2		
Approach		264	4.0	264	4.0	0.536	17.3	LOS B	3.3	23.9	0.75	1.20	1.22	39.2		
East: New South Head Road East																
4	L2	223	0.5	223	0.5	0.493	2.1	LOS A	0.0	0.0	0.00	0.13	0.00	39.6		
5	T1	2591	3.3	2591	3.3	0.493	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.6		
Approach		2814	3.1	2814	3.1	0.493	0.2	NA	0.0	0.0	0.00	0.04	0.00	59.5		
West: New South Head Road West																
11	T1	2773	1.6	2773	1.6	0.479	0.1	LOS A	43.9	311.6	0.00	0.00	0.00	59.9		
Approach		2773	1.6	2773	1.6	0.479	0.1	NA	43.9	311.6	0.00	0.00	0.00	59.9		
All Vehicles		5851	2.4	5851	2.4	0.536	0.9	NA	43.9	311.6	0.03	0.07	0.06	57.3		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 107 [Thurs - Development PM - Mona Rd/ New South Head Rd]**

 **Network: N101 [Development PM]**

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
East: New South Head Road East														
5	T1	2543	3.4	2543	3.4	0.715	10.0	LOS A	24.0	172.9	0.46	0.43	0.46	45.3
Approach		2543	3.4	2543	3.4	0.715	10.0	LOS A	24.0	172.9	0.46	0.43	0.46	45.3
North: Mona Road														
7	L2	27	3.8	27	3.8	0.054	43.8	LOS D	1.3	9.7	0.76	0.69	0.76	32.4
9	R2	271	0.8	271	0.8	0.554	52.3	LOS D	15.9	112.2	0.92	0.82	0.92	20.8
Approach		298	1.1	298	1.1	0.554	51.5	LOS D	15.9	112.2	0.90	0.81	0.90	22.1
West: New South Head Road West														
10	L2	281	0.7	281	0.7	0.772	21.6	LOS B	1.2	8.2	0.79	0.78	0.85	32.2
11	T1	2492	1.7	2492	1.7	0.772	20.1	LOS B	1.2	8.2	0.79	0.75	0.81	36.3
Approach		2773	1.6	2773	1.6	0.772	20.3	LOS B	1.2	8.2	0.79	0.75	0.81	35.8
All Vehicles		5614	2.4	5614	2.4	0.772	17.3	LOS B	24.0	172.9	0.65	0.61	0.66	38.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	53	48.2	LOS E	0.2	0.2	0.83	0.83
P3	North Full Crossing	53	12.9	LOS B	0.1	0.1	0.43	0.43
P4	West Full Crossing	53	48.2	LOS E	0.2	0.2	0.83	0.83
All Pedestrians		158	36.4	LOS D			0.70	0.70

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 **Site: 101 [Saturday - Existing - Neild Ave/New South Head Rd]**

 **Network: N101 [Existing Scenario]**

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
East: New South Head Road East														
4	L2	260	0.4	260	0.4	0.553	11.7	LOS A	13.4	95.2	0.30	0.43	0.30	43.0
5	T1	2671	2.1	2671	2.1	0.553	3.7	LOS A	13.4	95.2	0.19	0.20	0.19	55.5
Approach		2931	1.9	2931	1.9	0.553	4.4	LOS A	13.4	95.2	0.20	0.22	0.20	54.9
North: Neild Avenue North														
8	T1	378	0.3	378	0.3	0.552	52.8	LOS D	14.4	101.3	0.94	0.81	0.94	3.8
9	R2	315	2.3	315	2.3	0.552	56.0	LOS D	14.1	99.6	0.94	0.82	0.94	21.9
Approach		693	1.2	693	1.2	0.552	54.3	LOS D	14.4	101.3	0.94	0.81	0.94	14.2
All Vehicles		3623	1.8	3623	1.8	0.553	14.0	LOS A	14.4	101.3	0.34	0.34	0.34	44.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow	Average Delay	Level of Service	Average Back of Queue	Prop. Queued	Effective Stop Rate	
		ped/h	sec		Pedestrian ped	Distance m		
P1	South Full Crossing	53	8.2	LOS A	0.1	0.1	0.34	0.34
P2	East Full Crossing	53	50.7	LOS E	0.2	0.2	0.85	0.85
P3	North Full Crossing	53	8.9	LOS A	0.1	0.1	0.36	0.36
All Pedestrians		158	22.6	LOS C			0.52	0.52

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 102 [Saturday - Existing - Boundary St/Lawson St/Neild Ave]

Network: N101 [Existing Scenario]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Neild Avenue South														
1	L2	99	1.1	99	1.1	0.069	3.9	LOS A	0.2	1.3	0.18	0.40	0.18	41.9
3	R2	19	0.0	19	0.0	0.069	5.1	LOS A	0.2	1.3	0.18	0.40	0.18	36.7
Approach		118	0.9	118	0.9	0.069	4.1	NA	0.2	1.3	0.18	0.40	0.18	41.4
East: Lawson Street														
4	L2	31	0.0	31	0.0	0.285	4.7	LOS A	1.4	9.7	0.59	0.74	0.65	35.5
5	T1	151	0.7	151	0.7	0.285	8.0	LOS A	1.4	9.7	0.59	0.74	0.65	40.7
Approach		181	0.6	181	0.6	0.285	7.4	LOS A	1.4	9.7	0.59	0.74	0.65	39.7
North: Neild Avenue North														
7	L2	161	0.0	161	0.0	0.221	4.6	LOS A	0.0	0.0	0.00	0.35	0.00	43.5
8	T1	261	0.0	261	0.0	0.221	1.2	LOS A	0.0	0.0	0.00	0.35	0.00	48.2
9	R2	212	0.5	212	0.5	0.114	4.9	LOS A	0.0	0.0	0.00	0.60	0.00	44.4
Approach		634	0.2	634	0.2	0.221	3.3	NA	0.0	0.0	0.00	0.43	0.00	46.1
All Vehicles		933	0.3	933	0.3	0.285	4.2	NA	1.4	9.7	0.14	0.49	0.15	43.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 Site: 103 [Saturday - Existing - Lawson St/ Vialoux Ave/ Goodhope St]

 Network: N101 [Existing Scenario]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Goodhope Street														
1	L2	63	0.0	63	0.0	0.087	3.5	LOS A	0.4	3.0	0.27	0.49	0.27	34.2
2	T1	5	0.0	5	0.0	0.087	3.1	LOS A	0.4	3.0	0.27	0.49	0.27	36.4
3	R2	26	0.0	26	0.0	0.087	6.0	LOS A	0.4	3.0	0.27	0.49	0.27	34.2
3u	U	2	0.0	2	0.0	0.087	9.9	LOS A	0.4	3.0	0.27	0.49	0.27	42.5
Approach		97	0.0	97	0.0	0.087	4.3	LOS A	0.4	3.0	0.27	0.49	0.27	34.6
East: Lawson Street East														
4	L2	16	0.0	16	0.0	0.096	3.1	LOS A	0.5	3.3	0.17	0.36	0.17	36.1
5	T1	97	1.1	97	1.1	0.096	2.7	LOS A	0.5	3.3	0.17	0.36	0.17	28.1
6	R2	1	0.0	1	0.0	0.096	5.6	LOS A	0.5	3.3	0.17	0.36	0.17	34.7
6u	U	1	0.0	1	0.0	0.096	8.7	LOS A	0.5	3.3	0.17	0.36	0.17	28.1
Approach		115	0.9	115	0.9	0.096	2.8	LOS A	0.5	3.3	0.17	0.36	0.17	30.9
North: Vialoux Avenue														
7	L2	2	0.0	2	0.0	0.012	4.5	LOS A	0.1	0.4	0.38	0.56	0.38	24.6
8	T1	1	0.0	1	0.0	0.012	4.0	LOS A	0.1	0.4	0.38	0.56	0.38	34.9
9	R2	4	0.0	4	0.0	0.012	6.9	LOS A	0.1	0.4	0.38	0.56	0.38	24.6
9u	U	2	0.0	2	0.0	0.012	10.6	LOS A	0.1	0.4	0.38	0.56	0.38	26.7
Approach		9	0.0	9	0.0	0.012	6.9	LOS A	0.1	0.4	0.38	0.56	0.38	27.4
West: Lawson Street West														
10	L2	5	0.0	5	0.0	0.136	3.1	LOS A	0.7	5.1	0.16	0.40	0.16	33.4
11	T1	138	0.0	138	0.0	0.136	2.7	LOS A	0.7	5.1	0.16	0.40	0.16	30.5
12	R2	32	0.0	32	0.0	0.136	5.6	LOS A	0.7	5.1	0.16	0.40	0.16	37.1
12u	U	3	0.0	3	0.0	0.136	9.5	LOS A	0.7	5.1	0.16	0.40	0.16	30.5
Approach		178	0.0	178	0.0	0.136	3.4	LOS A	0.7	5.1	0.16	0.40	0.16	32.9
All Vehicles		399	0.3	399	0.3	0.136	3.5	LOS A	0.7	5.1	0.19	0.41	0.19	33.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 Site: 104 [Saturday - Existing - Alma St/ Lawson St]

 Network: N101 [Existing Scenario]

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		veh	m				km/h
South: Alma Street South														
1	L2	64	0.0	64	0.0	0.050	3.4	LOS A	0.0	0.0	0.00	0.32	0.00	29.6
2	T1	29	0.0	29	0.0	0.050	0.0	LOS A	0.0	0.0	0.00	0.32	0.00	34.1
Approach		94	0.0	94	0.0	0.050	2.3	NA	0.0	0.0	0.00	0.32	0.00	31.6
North: Alma Street North														
8	T1	29	0.0	29	0.0	0.042	0.2	LOS A	0.2	1.3	0.18	0.28	0.18	29.4
9	R2	43	0.0	43	0.0	0.042	3.8	LOS A	0.2	1.3	0.18	0.28	0.18	29.4
Approach		73	0.0	73	0.0	0.042	2.4	NA	0.2	1.3	0.18	0.28	0.18	29.4
West: Lawson Street														
10	L2	24	0.0	24	0.0	0.154	6.8	LOS A	0.6	4.0	0.17	0.92	0.17	27.7
12	R2	140	0.0	140	0.0	0.154	6.9	LOS A	0.6	4.0	0.17	0.92	0.17	21.0
Approach		164	0.0	164	0.0	0.154	6.9	LOS A	0.6	4.0	0.17	0.92	0.17	22.4
All Vehicles		331	0.0	331	0.0	0.154	4.6	NA	0.6	4.0	0.13	0.61	0.13	25.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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Project: Z:\PCI - PROJECT WORK FILES\NSW\JATTCA - SYDNEY GRAMMAR - WEIGALL SPORTS COMPLEX, RUSHCUTTERS BAY\4. DA Stage\3. Modelling & Surveys\200907 - ptc. - Sydney Grammar - Intersection Modelling - Sat.sip8

MOVEMENT SUMMARY

 Site: 105 [Saturday - Existing - Glenmore Rd/Lawson St]

 Network: N101 [Existing Scenario]

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		veh	m				km/h
NorthEast: Glenmore Road NW														
25	T1	48	0.0	48	0.0	0.073	0.1	LOS A	0.3	2.4	0.14	0.30	0.14	38.4
26	R2	81	0.0	81	0.0	0.073	3.7	LOS A	0.3	2.4	0.14	0.30	0.14	35.2
Approach		129	0.0	129	0.0	0.073	2.4	NA	0.3	2.4	0.14	0.30	0.14	37.2
NorthWest: Lawson Street														
27	L2	132	0.0	132	0.0	0.136	6.9	LOS A	0.6	3.9	0.13	0.92	0.13	20.0
29	R2	40	0.0	40	0.0	0.136	7.2	LOS A	0.6	3.9	0.13	0.92	0.13	35.2
Approach		172	0.0	172	0.0	0.136	6.9	LOS A	0.6	3.9	0.13	0.92	0.13	28.7
SouthWest: Glenmore Road SW														
30	L2	14	0.0	14	0.0	0.030	3.4	LOS A	0.0	0.0	0.00	0.11	0.00	39.3
31	T1	43	2.4	43	2.4	0.030	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	39.3
Approach		57	1.9	57	1.9	0.030	0.8	NA	0.0	0.0	0.00	0.11	0.00	39.3
All Vehicles		358	0.3	358	0.3	0.136	4.3	NA	0.6	3.9	0.11	0.57	0.11	34.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 106 [Saturday - Existing - Cascade St/ Hampden St/ Glenmore Rd]**

 **Network: N101 [Existing Scenario]**

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Cascade Street														
1	L2	37	0.0	37	0.0	0.249	3.5	LOS A	1.4	10.1	0.32	0.44	0.32	36.7
2	T1	180	1.2	180	1.2	0.249	3.2	LOS A	1.4	10.1	0.32	0.44	0.32	36.7
3	R2	40	0.0	40	0.0	0.249	6.2	LOS A	1.4	10.1	0.32	0.44	0.32	38.7
3u	U	2	0.0	2	0.0	0.249	10.3	LOS A	1.4	10.1	0.32	0.44	0.32	45.0
Approach		259	0.8	259	0.8	0.249	3.8	LOS A	1.4	10.1	0.32	0.44	0.32	37.3
East: Hampden Street														
4	L2	43	0.0	43	0.0	0.116	5.1	LOS A	0.6	4.0	0.48	0.59	0.48	37.6
5	T1	19	0.0	19	0.0	0.116	4.7	LOS A	0.6	4.0	0.48	0.59	0.48	35.7
6	R2	23	0.0	23	0.0	0.116	7.8	LOS A	0.6	4.0	0.48	0.59	0.48	35.7
6u	U	1	0.0	1	0.0	0.116	11.8	LOS A	0.6	4.0	0.48	0.59	0.48	44.3
Approach		86	0.0	86	0.0	0.116	5.8	LOS A	0.6	4.0	0.48	0.59	0.48	37.1
North: Glenmore Road North														
7	L2	21	0.0	21	0.0	0.185	3.8	LOS A	1.0	7.1	0.38	0.49	0.38	37.7
8	T1	121	0.0	121	0.0	0.185	3.4	LOS A	1.0	7.1	0.38	0.49	0.38	38.3
9	R2	51	0.0	51	0.0	0.185	6.5	LOS A	1.0	7.1	0.38	0.49	0.38	35.2
9u	U	2	0.0	2	0.0	0.185	10.6	LOS A	1.0	7.1	0.38	0.49	0.38	35.2
Approach		195	0.0	195	0.0	0.185	4.4	LOS A	1.0	7.1	0.38	0.49	0.38	37.8
West: Glenmore Road West														
10	L2	46	0.0	46	0.0	0.171	4.3	LOS A	0.9	6.4	0.45	0.59	0.45	31.5
11	T1	31	0.0	31	0.0	0.171	3.9	LOS A	0.9	6.4	0.45	0.59	0.45	37.5
12	R2	92	0.0	92	0.0	0.171	6.9	LOS A	0.9	6.4	0.45	0.59	0.45	37.4
12u	U	2	0.0	2	0.0	0.171	11.0	LOS A	0.9	6.4	0.45	0.59	0.45	31.5
Approach		171	0.0	171	0.0	0.171	5.7	LOS A	0.9	6.4	0.45	0.59	0.45	36.6
All Vehicles		711	0.3	711	0.3	0.249	4.6	LOS A	1.4	10.1	0.39	0.51	0.39	37.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 108 [Saturday - Existing - Glenmore Rd/ New South Head Rd]**

 **Network: N101 [Existing Scenario]**

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Glenmore Road														
1	L2	236	1.8	236	1.8	0.627	22.0	LOS B	3.5	25.0	0.85	1.26	1.53	36.8
Approach		236	1.8	236	1.8	0.627	22.0	LOS B	3.5	25.0	0.85	1.26	1.53	36.8
East: New South Head Road East														
4	L2	184	0.0	184	0.0	0.527	2.1	LOS A	0.0	0.0	0.00	0.10	0.00	42.8
5	T1	2844	2.3	2844	2.3	0.527	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
Approach		3028	2.2	3028	2.2	0.527	0.1	NA	0.0	0.0	0.00	0.03	0.00	59.6
West: New South Head Road West														
11	T1	2264	1.6	2264	1.6	0.391	0.1	LOS A	18.9	134.4	0.00	0.00	0.00	59.9
Approach		2264	1.6	2264	1.6	0.391	0.1	NA	18.9	134.4	0.00	0.00	0.00	59.9
All Vehicles		5528	1.9	5528	1.9	0.627	1.0	NA	18.9	134.4	0.04	0.07	0.07	57.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 Site: 107 [Saturday - Existing - Mona Rd/ New South Head Rd]

 Network: N101 [Existing Scenario]

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
East: New South Head Road East														
5	T1	2788	2.3	2788	2.3	0.639	0.8	LOS A	3.3	23.7	0.06	0.05	0.06	58.5
Approach		2788	2.3	2788	2.3	0.639	0.8	LOS A	3.3	23.7	0.06	0.05	0.06	58.5
North: Mona Road														
7	L2	25	0.0	25	0.0	0.095	60.9	LOS E	1.5	10.5	0.90	0.71	0.90	28.2
9	R2	240	0.4	240	0.4	0.907	83.6	LOS F	18.8	132.0	1.00	0.99	1.33	15.4
Approach		265	0.4	265	0.4	0.907	81.4	LOS F	18.8	132.0	0.99	0.97	1.29	16.7
West: New South Head Road West														
10	L2	185	0.0	185	0.0	0.518	8.9	LOS A	1.2	8.2	0.43	0.48	0.49	41.3
11	T1	2079	1.8	2079	1.8	0.518	7.0	LOS A	1.2	8.2	0.43	0.42	0.45	48.7
Approach		2264	1.6	2264	1.6	0.518	7.2	LOS A	1.2	8.2	0.43	0.43	0.45	48.0
All Vehicles		5318	1.9	5318	1.9	0.907	7.5	LOS A	18.8	132.0	0.26	0.26	0.29	47.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P3	North Full Crossing	53	6.0	LOS A	0.1	0.1	0.29	0.29
P4	West Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		158	44.9	LOS E			0.74	0.74

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 102 [Saturday - Development - Boundary St/Lawson St/Neild Ave]

Network: N101
[Development Scenario]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Neild Avenue South														
1	L2	99	1.1	99	1.1	0.085	4.4	LOS A	0.4	2.5	0.32	0.38	0.32	42.2
3	R2	36	0.0	36	0.0	0.085	6.1	LOS A	0.4	2.5	0.32	0.38	0.32	37.1
Approach		135	0.8	135	0.8	0.085	4.9	NA	0.4	2.5	0.32	0.38	0.32	41.3
East: Lawson Street														
4	L2	47	0.0	47	0.0	0.423	6.5	LOS A	2.6	18.4	0.65	0.87	0.90	36.3
5	T1	205	0.5	205	0.5	0.423	10.9	LOS A	2.6	18.4	0.65	0.87	0.90	39.9
Approach		253	0.4	253	0.4	0.423	10.1	LOS A	2.6	18.4	0.65	0.87	0.90	39.2
North: Neild Avenue North														
7	L2	232	0.0	232	0.0	0.267	4.7	LOS A	0.0	0.0	0.00	0.37	0.00	43.6
8	T1	278	0.0	278	0.0	0.267	1.1	LOS A	0.0	0.0	0.00	0.37	0.00	48.9
9	R2	212	0.5	212	0.5	0.128	5.2	LOS A	0.5	3.7	0.17	0.57	0.17	44.0
Approach		721	0.1	721	0.1	0.267	3.5	NA	0.5	3.7	0.05	0.43	0.05	46.2
All Vehicles		1108	0.3	1108	0.3	0.423	5.2	NA	2.6	18.4	0.22	0.52	0.28	43.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 101 [Saturday - Development - Neild Ave/New South Head Rd]**

 **Network: N101 [Development Scenario]**

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
East: New South Head Road East														
4	L2	268	0.4	268	0.4	0.556	12.7	LOS A	15.0	106.1	0.34	0.46	0.34	41.4
5	T1	2671	2.1	2671	2.1	0.556	3.9	LOS A	15.0	106.1	0.20	0.21	0.20	55.4
Approach		2939	1.9	2939	1.9	0.556	4.7	LOS A	15.0	106.1	0.21	0.23	0.21	54.6
North: Neild Avenue North														
8	T1	457	0.2	457	0.2	0.613	53.6	LOS D	16.3	114.4	0.96	0.82	0.96	3.8
9	R2	315	2.3	315	2.3	0.613	56.9	LOS E	16.0	113.1	0.96	0.83	0.96	21.6
Approach		772	1.1	772	1.1	0.613	54.9	LOS D	16.3	114.4	0.96	0.82	0.96	13.2
All Vehicles		3711	1.8	3711	1.8	0.613	15.1	LOS B	16.3	114.4	0.37	0.35	0.37	43.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow	Average Delay	Level of Service	Average Back of Queue	Prop. Queued	Effective Stop Rate		
		ped/h	sec		Pedestrian ped	Distance m			
P1	South Full Crossing	53	8.2	LOS A	0.1	0.1	0.34	0.34	
P2	East Full Crossing	53	50.7	LOS E	0.2	0.2	0.85	0.85	
P3	North Full Crossing	53	8.9	LOS A	0.1	0.1	0.36	0.36	
All Pedestrians		158	22.6	LOS C			0.52	0.52	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 Site: 103 [Saturday - Development- Lawson St/ Vialoux Ave/ Goodhope St]

 Network: N101
[Development Scenario]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Goodhope Street														
1	L2	63	0.0	63	0.0	0.090	3.7	LOS A	0.4	3.1	0.32	0.50	0.32	34.0
2	T1	5	0.0	5	0.0	0.090	3.3	LOS A	0.4	3.1	0.32	0.50	0.32	36.2
3	R2	26	0.0	26	0.0	0.090	6.2	LOS A	0.4	3.1	0.32	0.50	0.32	34.0
3u	U	2	0.0	2	0.0	0.090	10.1	LOS A	0.4	3.1	0.32	0.50	0.32	42.3
Approach		97	0.0	97	0.0	0.090	4.5	LOS A	0.4	3.1	0.32	0.50	0.32	34.4
East: Lawson Street East														
4	L2	16	0.0	16	0.0	0.124	3.2	LOS A	0.6	4.4	0.17	0.40	0.17	36.3
5	T1	133	0.8	133	0.8	0.124	3.4	LOS A	0.6	4.4	0.17	0.40	0.17	28.6
6	R2	1	0.0	1	0.0	0.124	5.7	LOS A	0.6	4.4	0.17	0.40	0.17	35.1
6u	U	1	0.0	1	0.0	0.124	8.8	LOS A	0.6	4.4	0.17	0.40	0.17	28.6
Approach		151	0.7	151	0.7	0.124	3.5	LOS A	0.6	4.4	0.17	0.40	0.17	30.8
North: Vialoux Avenue														
7	L2	2	0.0	2	0.0	0.013	5.2	LOS A	0.1	0.4	0.45	0.58	0.45	23.7
8	T1	1	0.0	1	0.0	0.013	4.7	LOS A	0.1	0.4	0.45	0.58	0.45	34.3
9	R2	4	0.0	4	0.0	0.013	7.5	LOS A	0.1	0.4	0.45	0.58	0.45	23.7
9u	U	2	0.0	2	0.0	0.013	11.3	LOS A	0.1	0.4	0.45	0.58	0.45	26.1
Approach		9	0.0	9	0.0	0.013	7.5	LOS A	0.1	0.4	0.45	0.58	0.45	26.6
West: Lawson Street West														
10	L2	5	0.0	5	0.0	0.197	3.1	LOS A	1.1	8.0	0.17	0.42	0.17	34.3
11	T1	223	0.0	223	0.0	0.197	3.3	LOS A	1.1	8.0	0.17	0.42	0.17	31.8
12	R2	34	0.0	34	0.0	0.197	5.8	LOS A	1.1	8.0	0.17	0.42	0.17	38.3
12u	U	3	0.0	3	0.0	0.197	9.5	LOS A	1.1	8.0	0.17	0.42	0.17	31.8
Approach		265	0.0	265	0.0	0.197	3.7	LOS A	1.1	8.0	0.17	0.42	0.17	33.6
All Vehicles		522	0.2	522	0.2	0.197	3.8	LOS A	1.1	8.0	0.20	0.43	0.20	33.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 Site: 104 [Saturday - Development - Alma St/ Lawson St]

 Network: N101
[Development Scenario]

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		veh	m				km/h
South: Alma Street South														
1	L2	64	0.0	64	0.0	0.066	3.7	LOS A	0.0	0.0	0.00	0.25	0.00	32.6
2	T1	62	0.0	62	0.0	0.066	0.0	LOS A	0.0	0.0	0.00	0.25	0.00	37.0
Approach		126	0.0	126	0.0	0.066	1.9	NA	0.0	0.0	0.00	0.25	0.00	35.4
North: Alma Street North														
8	T1	67	0.0	67	0.0	0.106	0.4	LOS A	0.5	3.6	0.23	0.33	0.23	30.2
9	R2	114	0.0	114	0.0	0.106	4.6	LOS A	0.5	3.6	0.23	0.33	0.23	30.2
Approach		181	0.0	181	0.0	0.106	3.0	NA	0.5	3.6	0.23	0.33	0.23	30.2
West: Lawson Street														
10	L2	101	0.0	101	0.0	0.242	7.6	LOS A	1.0	6.9	0.21	0.92	0.21	27.9
12	R2	148	0.0	148	0.0	0.242	8.0	LOS A	1.0	6.9	0.21	0.92	0.21	20.9
Approach		249	0.0	249	0.0	0.242	7.8	LOS A	1.0	6.9	0.21	0.92	0.21	24.4
All Vehicles		557	0.0	557	0.0	0.242	4.9	NA	1.0	6.9	0.17	0.58	0.17	27.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 Site: 105 [Saturday - Development - Glenmore Rd/Lawson St]

 Network: N101 [Development Scenario]

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
NorthEast: Glenmore Road NW														
25	T1	48	0.0	48	0.0	0.084	0.2	LOS A	0.4	2.8	0.17	0.33	0.17	38.5
26	R2	98	0.0	98	0.0	0.084	3.9	LOS A	0.4	2.8	0.17	0.33	0.17	35.5
Approach		146	0.0	146	0.0	0.084	2.7	NA	0.4	2.8	0.17	0.33	0.17	37.3
NorthWest: Lawson Street														
27	L2	177	0.0	177	0.0	0.171	7.1	LOS A	0.7	5.1	0.13	0.92	0.13	20.3
29	R2	41	0.0	41	0.0	0.171	7.4	LOS A	0.7	5.1	0.13	0.92	0.13	35.6
Approach		218	0.0	218	0.0	0.171	7.2	LOS A	0.7	5.1	0.13	0.92	0.13	28.0
SouthWest: Glenmore Road SW														
30	L2	31	0.0	31	0.0	0.039	3.7	LOS A	0.0	0.0	0.00	0.24	0.00	40.7
31	T1	43	2.4	43	2.4	0.039	0.3	LOS A	0.0	0.0	0.00	0.24	0.00	40.7
Approach		74	1.4	74	1.4	0.039	1.7	NA	0.0	0.0	0.00	0.24	0.00	40.7
All Vehicles		438	0.2	438	0.2	0.171	4.8	NA	0.7	5.1	0.12	0.61	0.12	34.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 106 [Saturday - Development - Cascade St/ Hampden St/ Glenmore Rd]**

 **Network: N101 [Development Scenario]**

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cascade Street														
1	L2	47	0.0	47	0.0	0.262	3.9	LOS A	1.5	10.8	0.33	0.45	0.33	36.9
2	T1	180	1.2	180	1.2	0.262	3.2	LOS A	1.5	10.8	0.33	0.45	0.33	36.9
3	R2	40	0.0	40	0.0	0.262	6.3	LOS A	1.5	10.8	0.33	0.45	0.33	38.9
3u	U	2	0.0	2	0.0	0.262	10.3	LOS A	1.5	10.8	0.33	0.45	0.33	45.2
Approach		269	0.8	269	0.8	0.262	3.9	LOS A	1.5	10.8	0.33	0.45	0.33	37.5
East: Hampden Street														
4	L2	43	0.0	43	0.0	0.119	5.4	LOS A	0.6	4.1	0.50	0.61	0.50	37.6
5	T1	19	0.0	19	0.0	0.119	5.0	LOS A	0.6	4.1	0.50	0.61	0.50	35.5
6	R2	23	0.0	23	0.0	0.119	8.0	LOS A	0.6	4.1	0.50	0.61	0.50	35.5
6u	U	1	0.0	1	0.0	0.119	12.1	LOS A	0.6	4.1	0.50	0.61	0.50	44.1
Approach		86	0.0	86	0.0	0.119	6.1	LOS A	0.6	4.1	0.50	0.61	0.50	37.0
North: Glenmore Road North														
7	L2	21	0.0	21	0.0	0.196	4.0	LOS A	1.1	7.6	0.41	0.52	0.41	37.7
8	T1	121	0.0	121	0.0	0.196	3.6	LOS A	1.1	7.6	0.41	0.52	0.41	38.3
9	R2	57	0.0	57	0.0	0.196	6.8	LOS A	1.1	7.6	0.41	0.52	0.41	35.2
9u	U	2	0.0	2	0.0	0.196	10.7	LOS A	1.1	7.6	0.41	0.52	0.41	35.2
Approach		201	0.0	201	0.0	0.196	4.6	LOS A	1.1	7.6	0.41	0.52	0.41	37.7
West: Glenmore Road West														
10	L2	69	0.0	69	0.0	0.216	4.8	LOS A	1.2	8.5	0.47	0.61	0.47	32.5
11	T1	32	0.0	32	0.0	0.216	4.1	LOS A	1.2	8.5	0.47	0.61	0.47	38.3
12	R2	113	0.0	113	0.0	0.216	7.4	LOS A	1.2	8.5	0.47	0.61	0.47	39.0
12u	U	2	0.0	2	0.0	0.216	11.1	LOS A	1.2	8.5	0.47	0.61	0.47	32.5
Approach		216	0.0	216	0.0	0.216	6.1	LOS A	1.2	8.5	0.47	0.61	0.47	37.8
All Vehicles		773	0.3	773	0.3	0.262	4.9	LOS A	1.5	10.8	0.41	0.53	0.41	37.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 108 [Saturday - Development - Glenmore Rd/ New South Head Rd]**

 **Network: N101 [Development Scenario]**

New Site
Site Category: (None)
Stop (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
South: Glenmore Road														
1	L2	259	1.6	259	1.6	0.682	23.4	LOS B	4.2	29.5	0.87	1.32	1.71	36.5
Approach		259	1.6	259	1.6	0.682	23.4	LOS B	4.2	29.5	0.87	1.32	1.71	36.5
East: New South Head Road East														
4	L2	191	0.0	191	0.0	0.528	2.1	LOS A	0.0	0.0	0.00	0.10	0.00	42.4
5	T1	2844	2.3	2844	2.3	0.528	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
Approach		3035	2.2	3035	2.2	0.528	0.1	NA	0.0	0.0	0.00	0.03	0.00	59.5
West: New South Head Road West														
11	T1	2264	1.6	2264	1.6	0.391	0.1	LOS A	18.9	134.4	0.00	0.00	0.00	59.9
Approach		2264	1.6	2264	1.6	0.391	0.1	NA	18.9	134.4	0.00	0.00	0.00	59.9
All Vehicles		5558	1.9	5558	1.9	0.682	1.2	NA	18.9	134.4	0.04	0.08	0.08	56.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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MOVEMENT SUMMARY

 **Site: 107 [Saturday - Development - Mona Rd/ New South Head Rd]**

 **Network: N101 [Development Scenario]**

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
East: New South Head Road East														
5	T1	2795	2.3	2795	2.3	0.641	0.8	LOS A	3.4	24.0	0.06	0.06	0.06	58.5
Approach		2795	2.3	2795	2.3	0.641	0.8	LOS A	3.4	24.0	0.06	0.06	0.06	58.5
North: Mona Road														
7	L2	25	0.0	25	0.0	0.095	60.9	LOS E	1.5	10.5	0.90	0.71	0.90	28.2
9	R2	240	0.4	240	0.4	0.955	96.1	LOS F	20.4	143.0	1.00	1.06	1.47	14.0
Approach		265	0.4	265	0.4	0.955	92.7	LOS F	20.4	143.0	0.99	1.03	1.42	15.3
West: New South Head Road West														
10	L2	185	0.0	185	0.0	0.518	8.9	LOS A	1.2	8.2	0.43	0.48	0.49	41.3
11	T1	2079	1.8	2079	1.8	0.518	7.0	LOS A	1.2	8.2	0.43	0.42	0.45	48.7
Approach		2264	1.6	2264	1.6	0.518	7.2	LOS A	1.2	8.2	0.43	0.43	0.45	48.0
All Vehicles		5324	1.9	5324	1.9	0.955	8.1	LOS A	20.4	143.0	0.26	0.26	0.29	46.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P2	East Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P3	North Full Crossing	53	6.0	LOS A	0.1	0.1	0.29	0.29
P4	West Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		158	44.9	LOS E			0.74	0.74

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

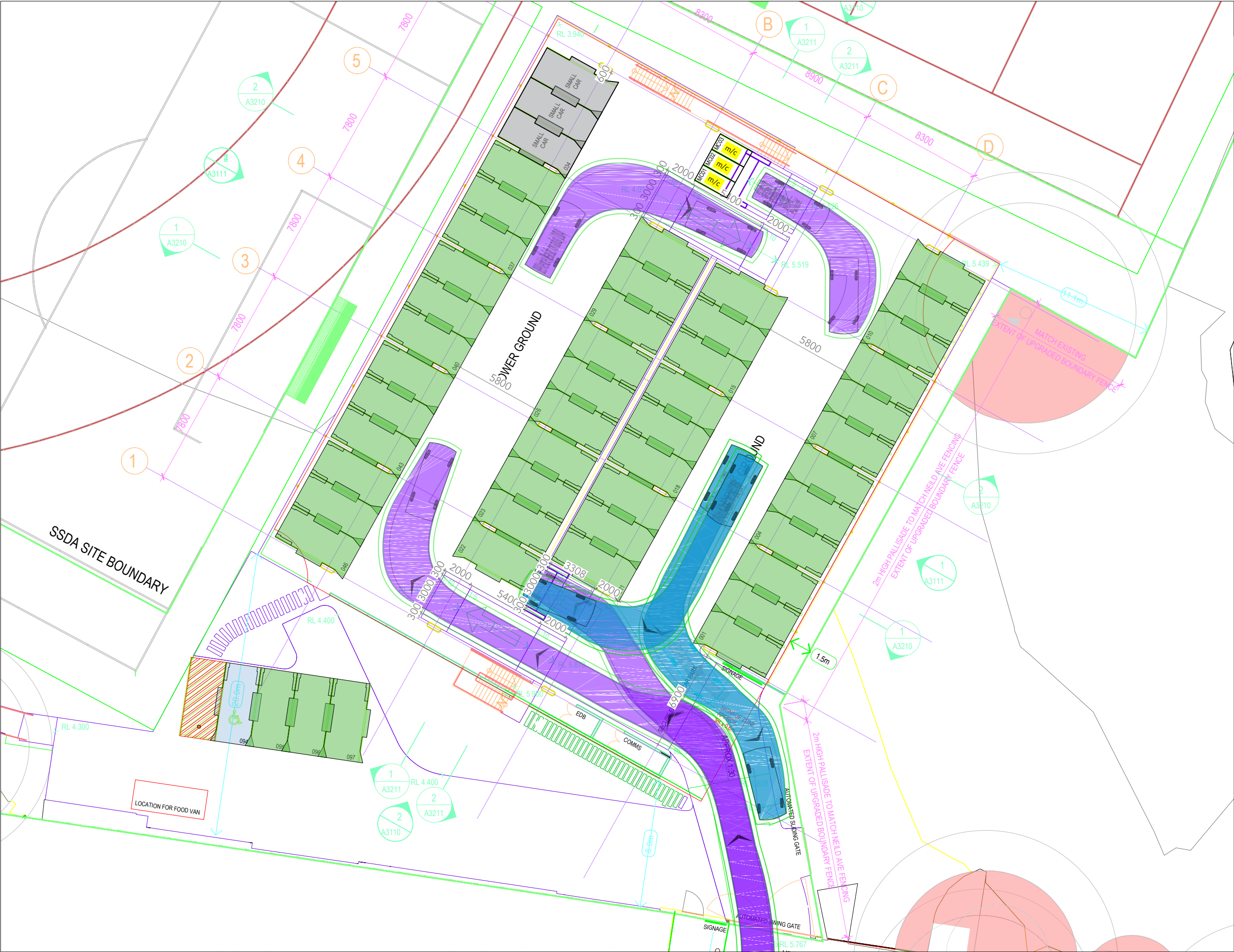
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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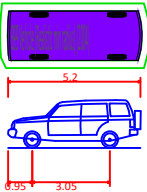
Attachment 7 Car Park Design Review



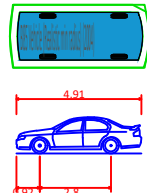
comments

A3

VEHICLE SPECIFICATIONS

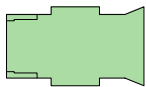


B99 Vehicle (Realistic min radius) (2004)
Overall Length 5.200m
Overall Width 1.940m
Overall Body Height 1.878m
Min Body Ground Clearance 0.272m
Track Width 1.840m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 6.250m

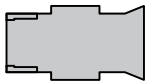


B85 Vehicle (Realistic min radius) (2004)
Overall Length 4.910m
Overall Width 1.870m
Overall Body Height 1.421m
Min Body Ground Clearance 0.159m
Track Width 1.770m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 5.750m

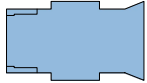
PARKING TEMPLATE



CLASS 1A FACILITY
WIDTH: 2.4M
LENGTH: 5.4M



SMALL CAR SPACE
WIDTH: 2.3M
LENGTH: 5.4M



ACCESSIBLE CAR SPACE
WIDTH: 2.4M
LENGTH: 5.4M

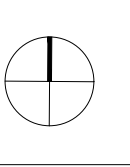


SHARED BAY
WIDTH: 2.4M
LENGTH: 5.4M

ptc.

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rev	date	comment / description	drawn	reviewed
6	28/09/20	for review	JJ	KB
5	11/08/20	for review	JJ	KB
4	06/08/20	for review	JJ	KB
3	28/07/20	for review	JJ	KB
2	29/06/20	For Review	JJ	KB
1	04/06/20	For Review	JJ	KB



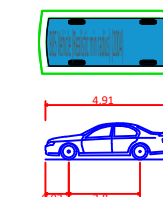
project
Weigall Sports Complex

drawing title
Lower & Upper Ground Floor - Car Park
Design Review

client	Sydney Grammar School (c/o Jattca)	
drawing #	ptc-001	rev 6
project #	AM-2720	
scale	1 : 250	

Diagram illustrating the relative positions of a car and a truck. The truck is 5.2m long. The car is 4.95m long. The car is positioned such that its front is 0.75m from the left end of the truck and its rear is 2.75m from the right end of the truck.

B99 Vehicle (Realistic min radius) (2004)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m



B85 Vehicle (Realistic min radius) (2004)	
Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m



CLASS 1A FACILITY

WIDTH: 2.4M
LENGTH: 5.4M



SMALL CAR SPACE

WIDTH: 2.3M
LENGTH: 5.4M



ACCESSIBLE CAR SPACE

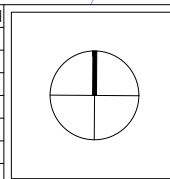
WIDTH: 2.4M
LENGTH: 5.4M



SHARED BAY

WIDTH: 2.4M
LENGTH: 5.4M

rev	date	comment / description	drawn	reviewed
6	28/09/20	for review	JJ	KB
5	11/08/20	for review	JJ	KB
4	06/08/20	for review	JJ	KB
3	28/07/20	for review	JJ	KB
2	29/06/20	For Review	JJ	KB
1	04/06/20	For Review	JJ	KR



project

Weigall Sports Complex

drawing title
Lower & Upper First Floor - Car Park Design Review

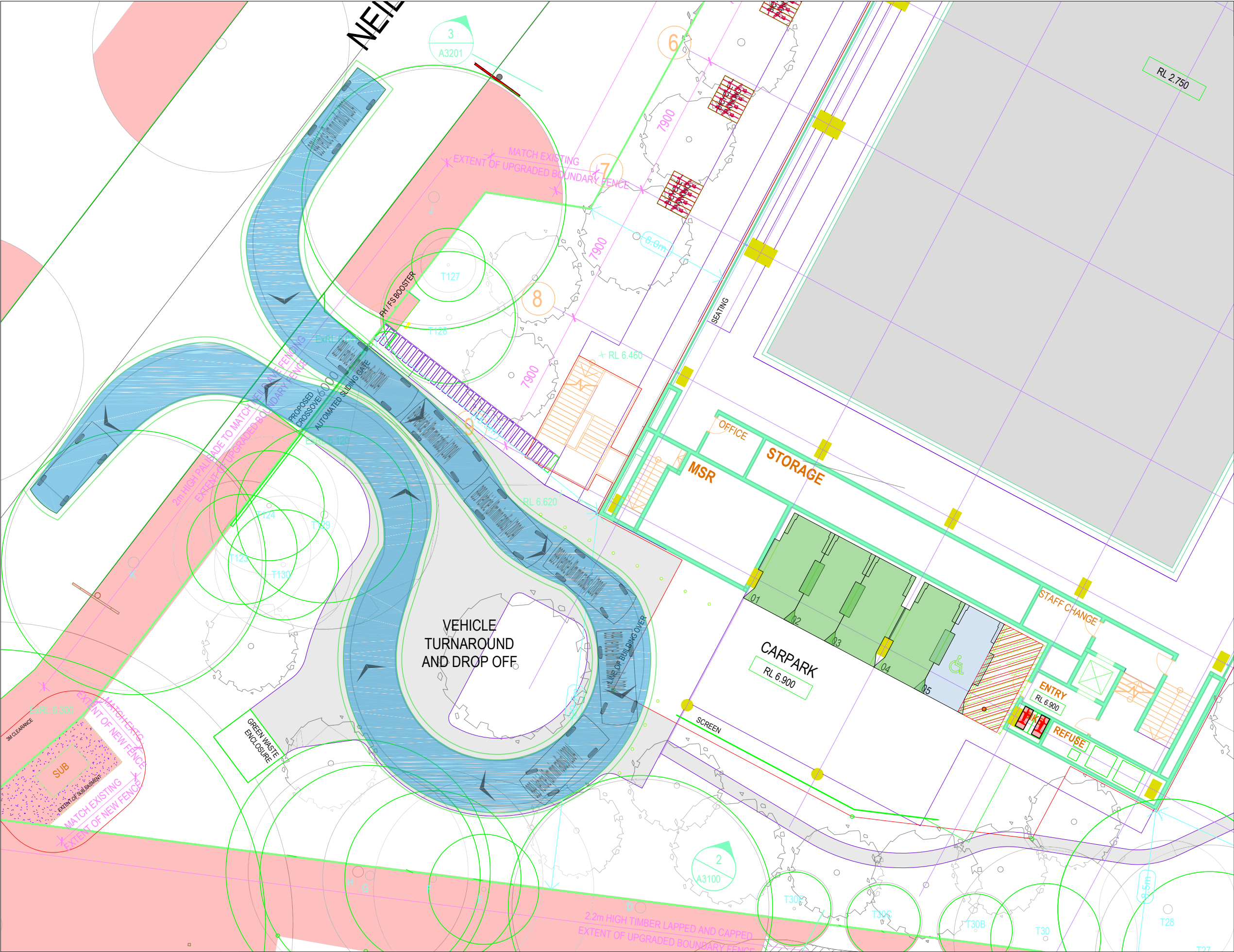
client	Sydney Grammar School (c/o Jattca)
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drawing #	ptc-002
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project #	AM-2720
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scale	1 : 250
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rev 6



comments

A3

VEHICLE SPECIFICATIONS

B99 Vehicle (8m min radius) (2004)

Overall Length

Overall Width

Overall Body Height

Min Body Ground Clearance

Track Width

Lock-to-lock time

Curb to Curb Turning Radius

5.200m

1.940m

1.878m

0.272m

1.840m

4.00s

8.000m

TYPICAL

Please note the following compliance requirements:

Height Clearance:

2.2m (min) throughout all areas of the car park accessible to vehicles and bicycles.
2.5m above accessible and shared bays
X wherever access is required for a refuse vehicle (and safety clearance envelope)

Sight Splays:

Visibility splays in the form of a 2.5m x 2m right-angled triangle to be provided (AS2890.1). Ensure design avoids visual obstructions in sight splay (i.e. dense landscaping, tall fencing/walls etc.)

Parking Spaces:

The parking envelopes shown, must be kept clear of all physical obstructions, including height clearance reductions. Ensure that grades within the parking module do not exceed 1:20 (1:40 for accessible bays).

Accessible Spaces:

To be designed in accordance with AS2890.6. i.e. standard parking space with adjacent shared bay (2.4m x 5.4m), to be installed as per AS2890.6 requirements (bollard and markings).

Motorcycle Parking:

Motorcycle bays to be designed as a 2.5m x 1.2m envelope (AS2890.1).

Bicycle Parking:

Bicycle spaces are to allow for a envelope of 500mm by 1800mm, with an aisle width of 2000mm for locker storage, or 1500mm for racks.

Control Measures:

Please note recommended control measures, including line markings, signage, bollards, convex mirrors, lights etc.

ptc.

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North Sydney NSW 2060
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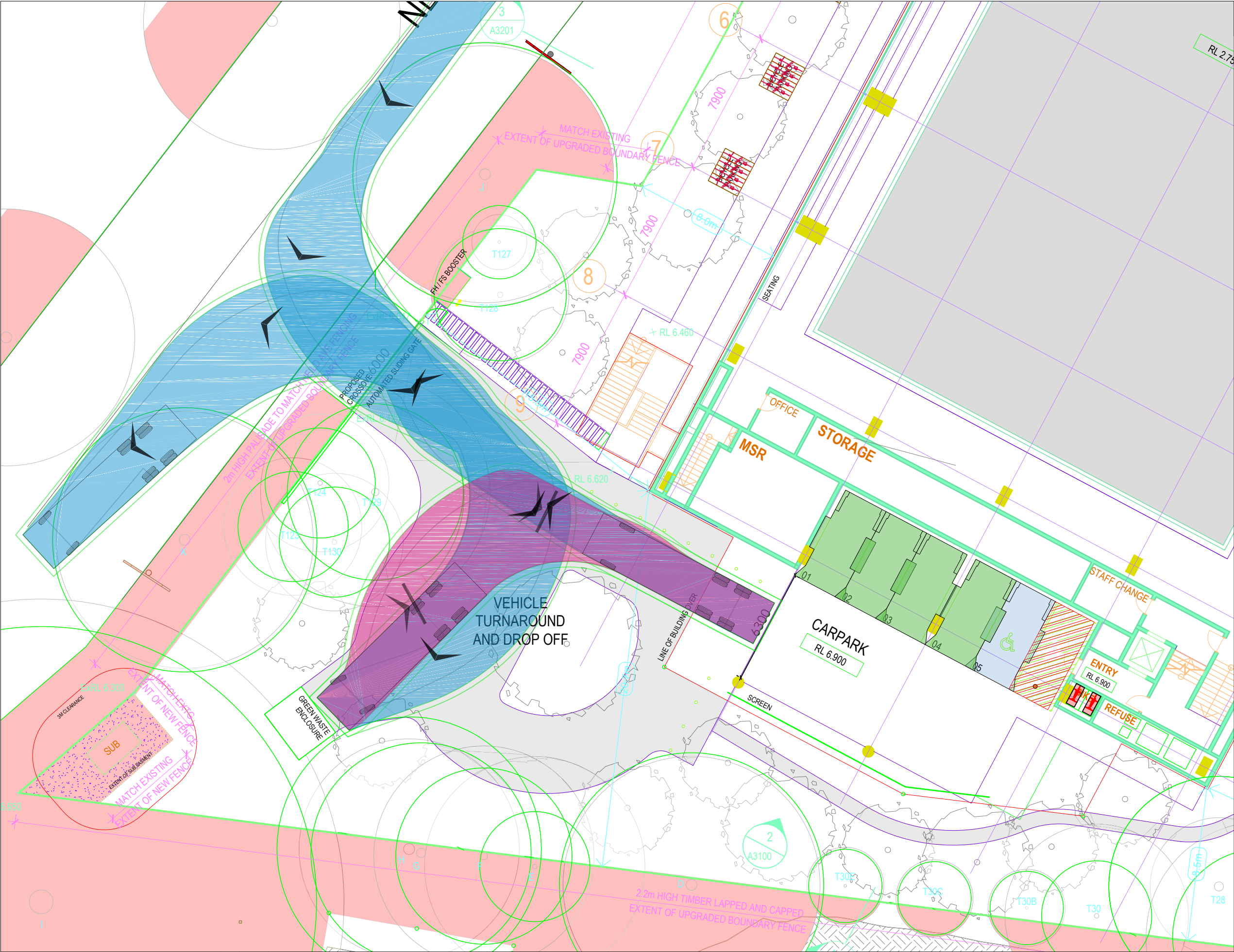
rev	date	comment / description	drawn	reviewed
6	28/09/20	for review	JJ	KB
5	11/08/20	for review	JJ	KB
4	06/08/20	for review	JJ	KB
3	28/07/20	for review	JJ	KB
2	29/06/20	For Review	JJ	KB
1	04/06/20	For Review	JJ	KB

project
Weigall Sports Complex

drawing title
Swept Path Assessment - Typical B99 Vehicle

client	Sydney Grammar School (c/o Jatcca)
drawing #	ptc-003
project #	AM-2720
scale	1 : 200

rev 6



VEHICLE SPECIFICATIONS

Front Lift Refuse Vehicle

Overall Length	10.520m
Overall Width	2.500m
Overall Body Height	4.200m
Min Body Ground Clearance	0.613m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	11.050m

- TYPICAL
- Please note the following compliance requirements:
- Height Clearance:** **2.2m** (min) throughout all areas of the car park accessible to vehicles and bicycles. **2.5m** above accessible and shared bays. **X** wherever access is required for a refuse vehicle (and safety clearance envelope)
- Sight Splays:** Visibility splays in the form of a **2.5m x 2m** right-angled triangle to be provided (AS2890.1). Ensure design avoids visual obstructions in sight splay (i.e. dense landscaping, tall fencing/walls etc.)
- Parking Spaces:** The parking envelopes shown, must be kept clear of all physical obstructions, including height clearance reductions. Ensure that grades within the parking module do not exceed 1:20 (1:40 for accessible bays).
- Accessible Spaces:** To be designed in accordance with AS2890.6. i.e. standard parking space with adjacent shared bay (2.4m x 5.4m), to be installed as per AS2890.6 requirements (bollard and markings).
- Motorcycle Parking:** Motorcycle bays to be designed as a 2.5m x 1.2m envelope (AS2890.1).
- Bicycle Parking:** Bicycle spaces are to allow for an envelope of 500mm by 1800mm, with an aisle width of 2000mm for locker storage, or 1500mm for racks.
- Control Measures:** Please note recommended control measures, including line markings, signage, bollards, convex mirrors, lights etc.



VEHICLE SPECIFICATIONS

Mercedes Actros Rigid 6x4 2632L

Overall Length: 9.155m
Overall Width: 2.494m
Overall Body Height: 3.512m
Min Body Ground Clearance: 0.257m
Track Width: 2.494m
Lock-to-lock time: 5.00s
Wall to Wall Turning Radius: 9.400m