



Nepean Gardens and Wallacia Country Club Transport Impact Assessment

Prepared for:

Catholic Cemeteries Board

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The Transport Planning Partnership

Nepean Gardens and Wallacia Country Club Transport Impact Assessment

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1 Introduction

1.1 Project Background

In 2017, TTPP prepared a transport impact assessment report on behalf of the Catholic Metropolitan Cemeteries Trust to accompany a development application (DA) to Penrith City Council (Council) at 13 Park Road, Wallacia. The proposal involved the provision of a cemetery with associated function room and crematorium facilities with a capacity to provide 88,000 burial plots.

On 12 July 2019, the DA was refused by the Independent Planning Commission for various reasons. However, based on the refusal notice, the Commission acknowledged that the *“likely changes to traffic and volumes and predicted levels of service to impacted roads and intersections will be acceptable, subject to the proposed conditions and management measures”*.

The revised DA now seeks approval for the following specific uses and works for the site:

- Nepean Gardens:
 - use and operation of a portion of the site for a ‘cemetery’ for 27,000 burial plots and associated publicly accessible parklands and recreation areas to operate Nepean Gardens
 - a new chapel building with an ancillary refrigerated holding facility and new single-storey administration building
 - provision of a new internal road within Nepean Gardens accessible from Park Road
 - landscaping the entire Nepean Gardens site with associated planting strategy and provision of new ponds and wetland/ detention basin
 - provision of a new electrical substation
 - burial areas and memorialisation guides
 - provision of on-site formal car parking for up to fifty (50) cars and provision of kerbside shoulder carparking throughout the internal road network.
- Nepean Golf Course:
 - new 9-hole golf course
 - practice putting green and community putting course.
- Wallacia Country Club:
 - alterations and additions to the existing Wallacia Country Club building to include
 - golf pro-store
 - expanded gaming facilities, kitchen and dining area

- function rooms
- additional parking area
- synthetic bowling green
- new swimming pool and gym complex
- tree removal associated with new golf course and Nepean Gardens
- stormwater infrastructure and other site services
- subdivide Lot 2 in DP 1108408 into two allotments.

An existing maintenance building, and telecommunications tower are located on the site and will remain unchanged as part of this proposal.

This transport impact assessment report has been prepared to accompany the revised DA.

1.2 Purpose of this Report

This report sets out an assessment of the anticipated transport impacts of the proposed development, including the following:

- existing traffic and parking conditions surrounding the site
- suitability of proposed parking in terms of quantum and layout
- the traffic generating characteristics of the proposed development
- suitability of proposed access arrangements for the site
- the transport impacts of the proposed development on the surrounding road network.

1.3 Reference

In preparing this report, reference has been made to the following:

- Penrith Development Control Plan (DCP) 2014
- Roads and Maritime Services Guide to Traffic Generation Developments (2002)
- Australian Standard AS/NZS 2890.1:2004: Off-street Car Parking
- Australian Standard AS/NZS 2890.6:2009: Off-street Parking for People with Disabilities
- Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections
- other documents and data as referenced in this report.

2 Existing Transport Conditions

This section presents the existing transport conditions of the surrounding road network.

2.1 Site Location

The site is located at the existing Wallacia Panthers Golf and Country Club (Wallacia Country Club), comprising an 18-hole golf course, golf club, maintenance shed and car park. A telecommunications tower is also located towards the eastern extent of the site. The site measures approximately 44.24ha in size and fronts onto Park Road. The approximate location of the site is shown in below in Figure 2.1.

Figure 2.1: Site and Its Surrounding Environs



Source: Google Maps Australia

2.2 Road Network

Access to the existing Wallacia Country Club is permitted via Park Road, which also provides access onto Silverdale Road and Mulgoa Road within the immediate vicinity of the site. A brief description of these roads is provided below.

Park Road is a local road under the jurisdiction of Penrith City Council and provides single lanes in east and west directions, with a posted speed limit of 60km/h. The majority of Park Road is marked with double continuous white lining, restricting vehicles to no overtaking.

Some sections of Park Road do permit overtaking when broken white dividing lines and double white lines with a broken line are shown.

Silverdale Road is a local road under the jurisdiction of Penrith City Council and provides a route between Wallacia and Silverdale, with links to Warragamba via Warradale Road and Farnsworth Avenue. Silverdale Road has a posted speed limit of 60km/h and is marked by double continuous white lining. Silverdale Road meets Park Road and Mulgoa Road via a three-arm priority roundabout intersection, just west of the development site.

Mulgoa Road is located north-west of the development site and provides travel in north and south directions, via single lanes. Within proximity of the site, Mulgoa Lane has a school zone, resulting in a reduced speed limit of 40km/h for 380 metres, between the hours of 8am-9:30am and 2:30pm-4pm. Beyond this, the speed limit is increased to 60km/h.

2.3 Existing Site and Car Parking Provisions

The existing club site currently provides various club facilities, including dining/lounge/bar, indoor and outdoor gaming areas facilities and an 18-hole golf course and associated car parking (61 spaces). In addition to this, the existing club currently provides live entertainment every Saturday night between 7pm and 11pm. The club also provides a free courtesy bus every Friday and Saturday between 6pm and 11pm for members.

A summary of the existing club site provisions is provided in Figure 2.2.

Figure 2.2: Summary of Existing Site Provisions

Use	Size
Club	1,065m ²
Golf Course	18-hole

2.3.1 Site Traffic Generation

As indicated previously, the existing club site currently provides an on-site car park, containing 61 spaces. Access to/from the car park is provided directly off Park Road via a single two-way driveway.

Traffic surveys were conducted at the existing driveway on Friday 18 October and Saturday 19 October 2019 between 9am and 12 midnight on both days to determine the existing traffic generated by the existing club.

Based on these surveys, the existing site peak hour times were found to be as follows:

- Friday @ 3:30pm-4:30pm (42 two-way trips)
- Saturday @ 2:15pm-3:15pm (34 two-way trips)

A summary of the traffic generated by the site during the Friday and Saturday survey period is shown in Figure 2.3.

Figure 2.3: Existing Site Traffic Generation

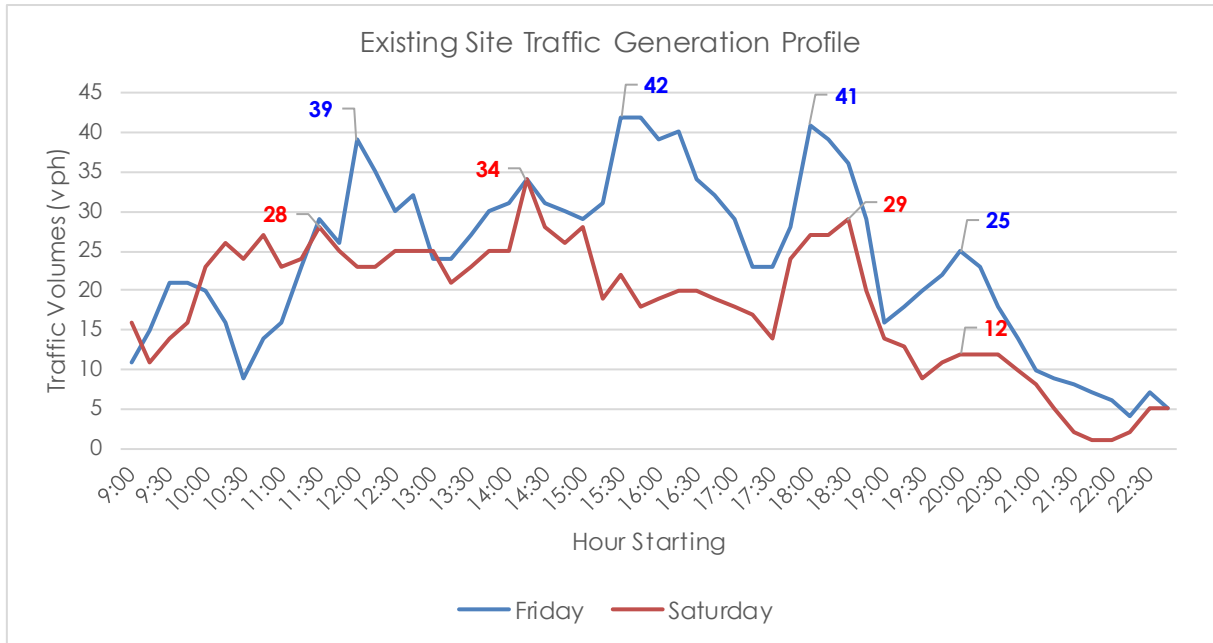


Figure 2.3 indicates that the site generally has three main peaks throughout the day during the early afternoon (12pm-1pm), mid-afternoon (2:30pm-4pm) and evening period (6pm-7pm).

2.3.2 Car Parking Demand

Concurrent with the above traffic surveys, car parking surveys were also undertaken at the club on Friday 18 October and Saturday 19 October 2019 between 9am and 12 midnight on both days. A total of 61 formal car parking spaces were recorded.

The parking survey results indicate the following:

- peak parking accumulation on a Friday of 70 parked vehicles occurred at 7pm and 8pm, which is 115 per cent of its existing capacity (i.e. surplus of nine spaces on top of the existing 61 car parking spaces)
- peak parking accumulation on a Saturday of 39 spaces occurred 10am, which is 64 per cent of its capacity (22 remaining parking vacancies).

A summary of the Friday and Saturday car parking occupancy surveys is shown in Figure 2.4 and Figure 2.5 respectively.

Figure 2.4: Friday Car Parking Occupancy Surveys

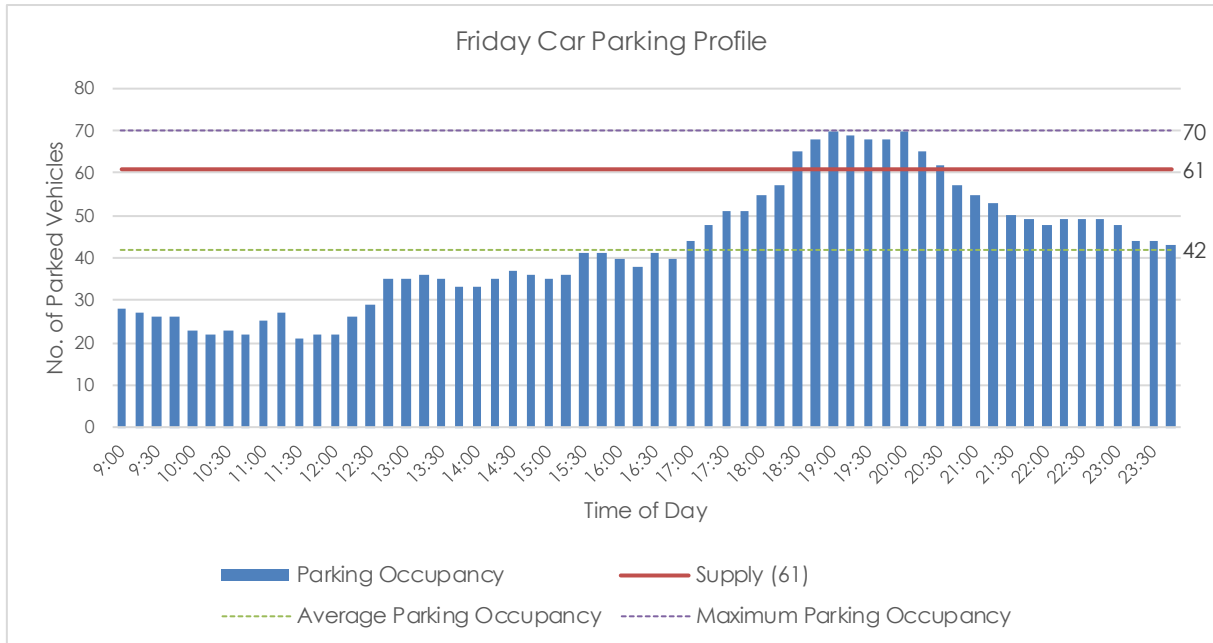
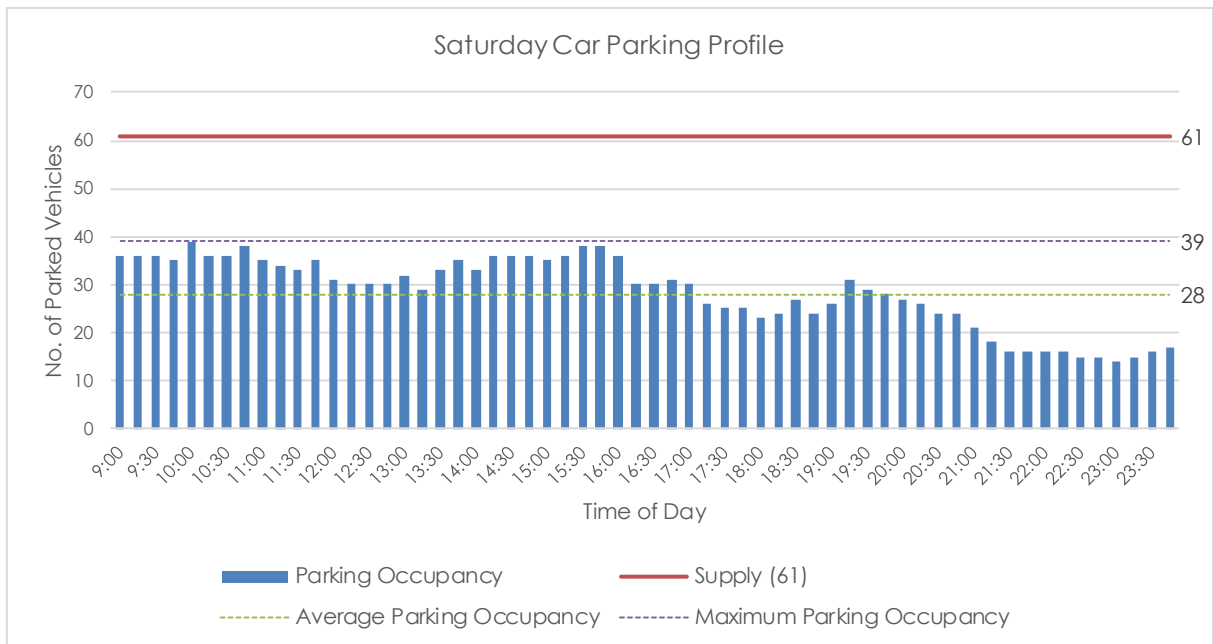


Figure 2.5: Saturday Car Parking Occupancy Surveys



Based on the above analysis, the existing site generally operates within its current supply of 61 spaces with the exception on a Friday evening, where a peak parking accumulation of 70 spaces was recorded. This equates to an existing peak parking accumulation rate of 6.57 spaces per 100m² based on the existing floor area of the club site (1,065m²).

It should also be noted that this parking is related to the existing club use (e.g. dining/lounge/bar, indoor and outdoor gaming areas), as well as the 18-hole golf course within the site.

2.4 Traffic Volumes

In accordance with the previous DA, traffic surveys were undertaken on Thursday 7 September 2017 between 7am and 5pm and Sunday 10 September 2017 between 9am and 1pm at the following intersections:

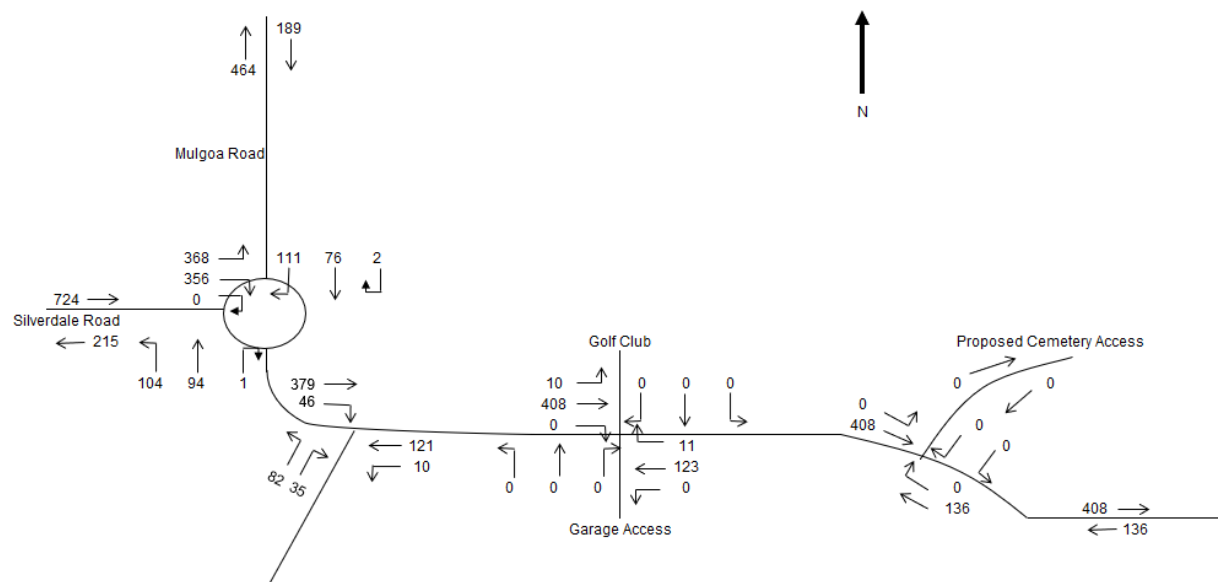
- Park Road-Silverdale Road-Mulgoa Road (roundabout)
- Wallacia Country Club House Entrance-Park Road (priority intersection)

In addition to this, traffic surveys were also undertaken at the Park Road-Greendale Road intersection on Thursday 1 March 2019 between 7am and 5pm and Sunday 11 March 2018 between 9am and 1pm, as requested by Council as part of the previous DA.

The survey days were selected as being the likely busiest weekday and weekend day as a result of TPPP having organised surveys on similar cemetery sites.

The existing peak traffic flows during the Thursday AM, Thursday PM and Sunday midday peak is shown in Figure 2.6, Figure 2.12 and Figure 2.13 respectively. The full traffic flow diagrams are also provided in Appendix A, with the recorded traffic survey data provided in Appendix B.

Figure 2.6: Existing Thursday AM Peak Traffic Flows



2.5 Public Transport Services

The nearest bus stops are provided on Mulgoa Road, near the western boundary of the site. Bus service 795 is the only service which stops at these bus stops and provides connectivity

between Penrith and Warragamba. The current timetable of the 795 service (as of 1/10/19) is shown in Figure 2.7 and Figure 2.8.

Figure 2.7: 795 Bus Service – Penrith to Warragamba

Valid from: 30 Sept 2019		Creation date: 01 Oct 2019							
		NOTE: Information is correct on date of download.							
Monday to Friday									
Service Information	H								
Penrith Station	06:36	07:22	08:32	09:47	14:09	15:35	15:49	16:36	18:03
Station St at Jamison Rd, Penrith	06:39	07:26	08:37	09:52	14:14	15:40	15:54	16:41	18:08
Nepean Shores Resort Tench Av, Jamisontown	–	–	–	09:56	14:18	15:44	–	–	–
Regentville Auto Mulgoa Rd near Spencer St, Regentville	06:44	07:31	08:42	10:01	14:23	15:49	16:01	16:46	18:13
Mulgoa Public School Mulgoa Rd, Mulgoa	B06:52	B07:39	08:51	10:08	14:32	15:56	16:08	16:53	18:20
Davenport Dr before Kadiera Cl, Wallacia	–	–	08:58	10:15	14:40	16:03	16:16	17:00	18:27
Silverdale Rural Fire Brigade, Marsh Rd, Silverdale	–	B07:51	09:10	10:27	14:55	16:15	16:29	17:13	18:40
Weir Rd at Ninth St, Warragamba	A07:06	07:58	09:17	10:34	15:03	16:22	16:36	17:21	18:48
Monday to Friday									
Penrith Station	19:03								
Station St at Jamison Rd, Penrith	19:07								
Regentville Auto Mulgoa Rd near Spencer St, Regentville	19:11								
Mulgoa Public School Mulgoa Rd, Mulgoa	19:18								
Davenport Dr before Kadiera Cl, Wallacia	19:25								
Silverdale Rural Fire Brigade, Marsh Rd, Silverdale	19:38								
Weir Rd at Ninth St, Warragamba	19:46								
Saturday									
Penrith Station	09:47	13:47	15:47	18:47					
Station St at Jamison Rd, Penrith	09:52	13:52	15:52	18:52					
Nepean Shores Resort Tench Av, Jamisontown	–	13:55	15:55	18:55					
Regentville Auto Mulgoa Rd near Spencer St, Regentville	09:56	14:00	16:00	19:00					
Mulgoa Public School Mulgoa Rd, Mulgoa	B10:04	14:08	16:08	19:08					
Davenport Dr before Kadiera Cl, Wallacia	–	14:16	16:16	19:16					
Silverdale Rural Fire Brigade, Marsh Rd, Silverdale	–	14:28	16:28	19:28					
Weir Rd at Ninth St, Warragamba	A10:19	14:35	16:35	19:35					
Sunday & Public Holidays									
Penrith Station	10:10	16:10							
Station St at Jamison Rd, Penrith	10:14	16:14							
Nepean Shores Resort Tench Av, Jamisontown	–	16:17							
Regentville Auto Mulgoa Rd near Spencer St, Regentville	10:19	16:23							
Mulgoa Public School Mulgoa Rd, Mulgoa	B10:27	16:31							
Davenport Dr before Kadiera Cl, Wallacia	–	16:40							
Silverdale Rural Fire Brigade, Marsh Rd, Silverdale	–	16:51							
Weir Rd at Ninth St, Warragamba	A10:41	16:58							

Source: Transport for NSW

Figure 2.8: 795 Bus Service – Warragamba to Penrith

Monday to Friday	⌚	⌚	⌚	⌚	⌚	⌚	⌚	⌚	⌚
Service Information									
Weir Rd opp Ninth St, Warragamba	05:34	06:42	E07:09	08:07	09:21	10:38	13:38	15:07	16:42
Marsh Rd opp Silverdale Rural Fire Brigade, Silverdale	05:39	06:47	07:14	08:12	09:25	10:42	13:42	15:11	16:46
Davenport Dr before Kadiera Cl, Wallacia	05:49	06:56	07:25	08:23	09:35	10:52	13:52	15:21	16:56
Mulgoa Public School Mulgoa Rd, Mulgoa	05:58	07:05	07:35	08:32	09:43	11:00	14:00	15:29	17:04
Regentville Auto Mulgoa Rd near Spencer St, Regentville	06:05	07:11	07:43	08:38	09:50	11:07	14:07	15:36	17:12
Nepean Shores Resort Tench Av, Jamisontown	-	07:15	-	08:43	09:55	11:12	14:12	-	-
Na Hunter Oval Station St, Penrith	06:10	07:20	07:50	08:48	10:00	11:17	14:17	15:43	17:19
Penrith Station	06:16	07:27	07:57	08:57	10:09	11:26	14:26	15:52	17:28
Monday to Friday									
Weir Rd opp Ninth St, Warragamba	D17:25								
Mulgoa Public School Mulgoa Rd, Mulgoa	B17:35								
Regentville Auto Mulgoa Rd near Spencer St, Regentville	17:43								
Na Hunter Oval Station St, Penrith	17:50								
Penrith Station	17:58								
Saturday									
Weir Rd opp Ninth St, Warragamba	08:17	10:22	14:37	D16:37					
Marsh Rd opp Silverdale Rural Fire Brigade, Silverdale	08:22	10:27	14:42	-					
Davenport Dr before Kadiera Cl, Wallacia	08:31	10:36	14:51	-					
Mulgoa Public School Mulgoa Rd, Mulgoa	08:39	10:44	14:59	B16:48					
Regentville Auto Mulgoa Rd near Spencer St, Regentville	08:47	10:52	15:07	16:55					
Nepean Shores Resort Tench Av, Jamisontown	08:52	10:57	15:12	-					
Na Hunter Oval Station St, Penrith	08:56	11:01	15:16	17:02					
Penrith Station	09:04	11:09	15:24	17:10					
Sunday & Public Holidays									
Weir Rd opp Ninth St, Warragamba	-	10:43	-	D17:03					
Marsh Rd opp Silverdale Rural Fire Brigade, Silverdale	-	10:47	-	-					
Davenport Dr before Kadiera Cl, Wallacia	-	10:57	-	-					
Mulgoa Public School Mulgoa Rd, Mulgoa	-	11:04	-	B17:16					
Penrith Station	09:10	-	14:10	-					
Station St at Jamison Rd, Penrith	09:14	-	14:14	-					
Nepean Shores Resort Tench Av, Jamisontown	09:17	-	14:17	-					
Regentville Auto Mulgoa Rd near Spencer St, Regentville	L09:23	-	L14:23	-					
Regentville Auto Mulgoa Rd near Spencer St, Regentville	09:24	11:11	14:24	17:23					
Nepean Shores Resort Tench Av, Jamisontown	-	11:15	-	-					
Na Hunter Oval Station St, Penrith	09:29	11:19	14:29	17:31					
Penrith Station	09:37	11:28	14:37	17:39					

Source: Transport for NSW

There are no additional public transport links within the vicinity of the site.

2.6 Pedestrian and Cyclist Facilities

Sealed pedestrian paths are generally provided on Mulgoa Road and along the Wallacia Country clubhouse site frontage on Park Road, on approach to Greendale Road and Mulgoa Road. It is however noted that no pedestrian paths are provided along Park Road, east of the club site.

A number of crossing facilities are also present within the area, with pedestrian refuge islands provided on Park Road and Mulgoa Road near the Wallacia Country clubhouse. A pedestrian zebra crossing is also present on Mulgoa Road, approximately 240 metres north of the Park Road-Silverdale Road-Mulgoa Road roundabout.

There are no formal cycle routes within the immediate vicinity of the site. The nearest cycle route is located approximately 4.5 kilometres east of the golf club on The Old Northern Road.

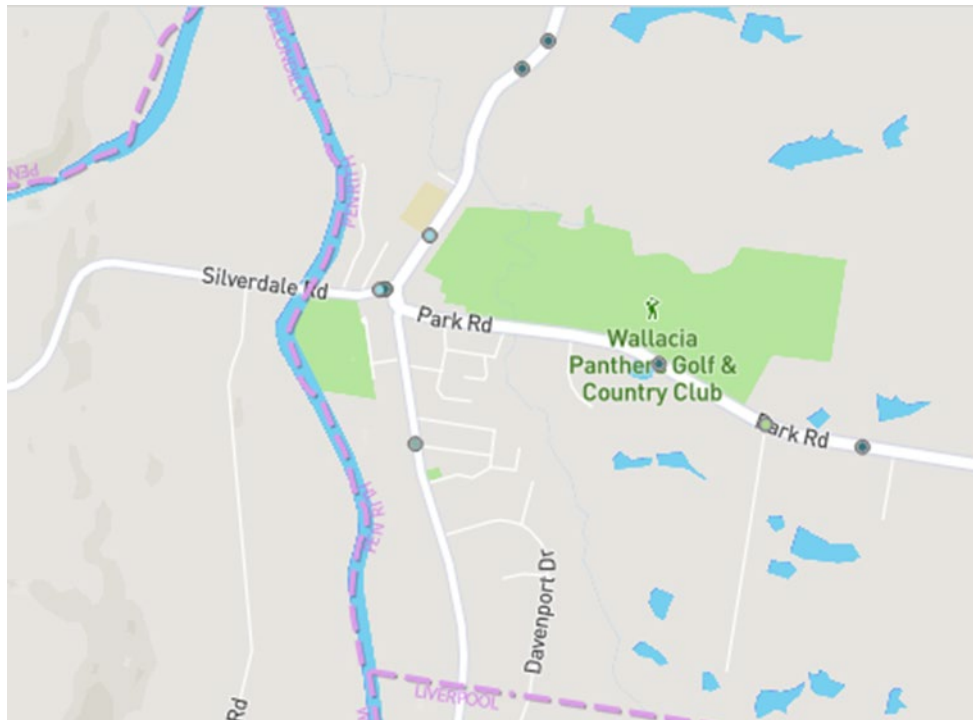
The RMS cycleway finder classifies this route as ‘high difficulty’ and the route extends to South Penrith to the north and Narellan to the south.

2.7 Road Safety Review

TTPP has obtained RMS vehicle crash data and the accident reports have been utilised to determine any vehicle accidents within a 1-kilometre driving distance of the site. The crash and casualty reports identified the frequency and contributory causes of crashes around the site between the years 2014 and 2018.

The location of the recorded vehicle accidents is shown in Figure 2.9.

Figure 2.9: Location of Vehicle Accidents



Source: RMS

The RMS crash data and reports note that there were 10 vehicle accidents within a 1-kilometre driving distance between 1 January 2014 and 31 December 2018. The RMS crash data reports demonstrate the degree of vehicle accidents, which include:

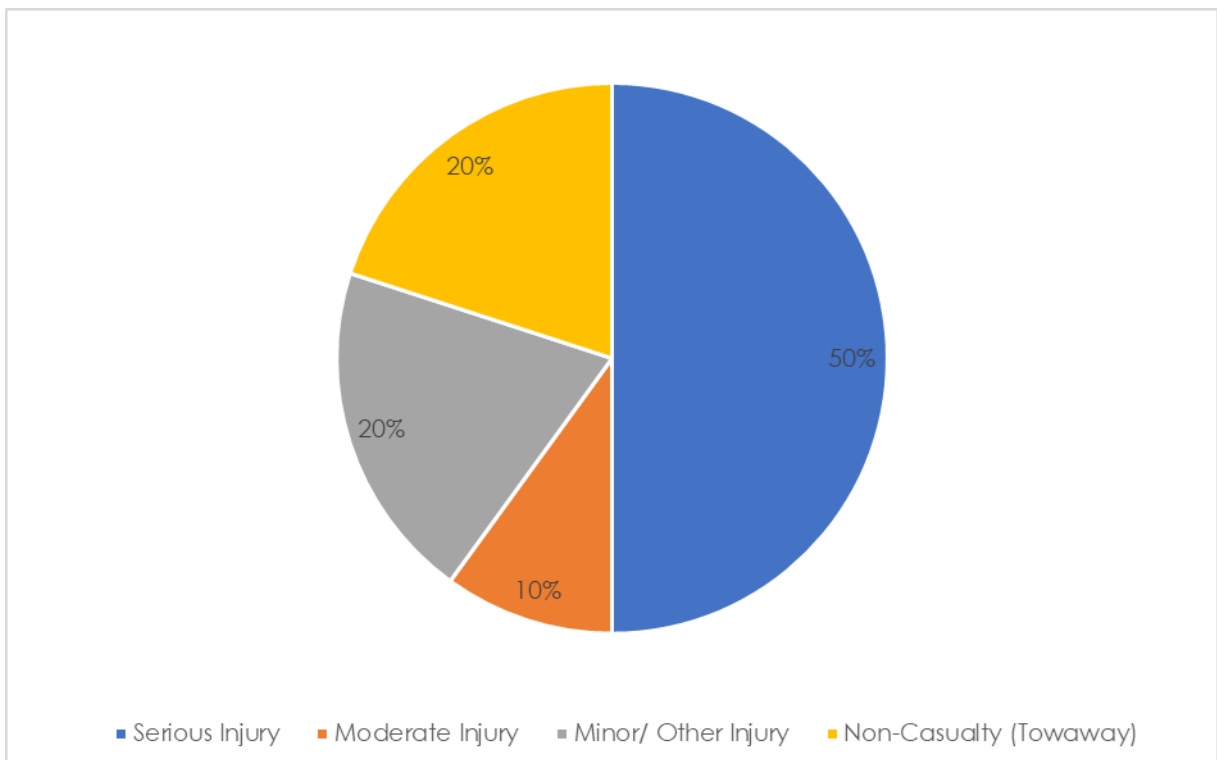
- Non-Casualty (Towaway)
- Minor / Other injury
- Moderate Injury
- Serious Injury
- Fatal.

Of the 10 recorded accidents, the injuries sustained are identified as follows:

- 50% (5) as serious injuries
- 10% (1) as moderate injuries
- 20% (2) as minor / other injuries, and
- 20% (2) as non-casualty (towaway).

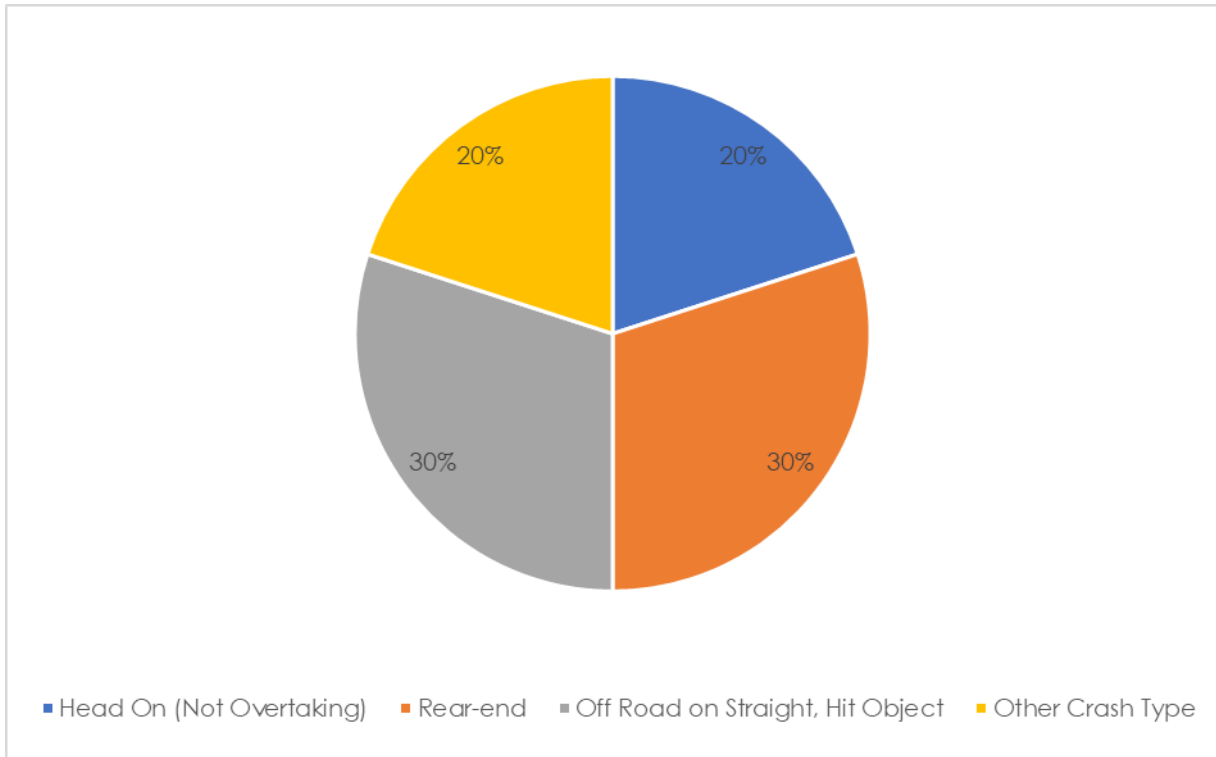
None of the recorded accidents were fatal. The severity of recorded accidents is shown in Figure 2.10.

Figure 2.10: Accident Severity



Of the recorded vehicle accidents, the most common cause was vehicles travelling off road (30%) and rear-end shunts (30%). The full breakdown of accident types are shown in Figure 2.11.

Figure 2.11: Accident Type



There does not appear to be any location where there is a significant cluster of crashes.

2.8 Method of Travel to Work Data

Table 2.1 provides a summary of the Bureau of Transport Statistics (BTS) Method of Travel to Work in the Wallacia area.

Table 2.1: Existing Method of Travel to and from Wallacia

Trips	Train	Bus	Car (Driver and Passenger)	Walked Only	Bicycle	Total
Residents outbound work trips to other destinations	5%	0%	91%	4%	0%	100%
Workers inbound work trips from other destinations	2%	0%	91%	7%	0%	100%

Source: Bureau of Transport Statistics (BTS) Method of Travel to Work Data, 2016 Census

Table 2.1 indicates that residents and workers within the Wallacia area travel to work predominately by car, with an overall mode share of 91%. This high level of car usage is due to the limited public transport provision within the area. The data suggests that a higher percentage of workers walk to work in comparison to using public transport.

3 Development Proposal

3.1 Proposal Description

The revised DA seeks approval to construct a cemetery with associated function room facilities at 13 Park Road, Wallacia. This revised scheme is a smaller scale cemetery on 21.37 hectares with a capacity to provide 27,000 burial plots, as opposed to 88,000 burial plots previously proposed. This cemetery is known as the 'Nepean Gardens' site.

In addition to this, the revised DA includes a reduced size 9-hole golf course and a renovated and extended clubhouse for Wallacia Country Club to provide a new bowling green, swimming pool and gymnasium (121m²). The proposed masterplan is shown in Figure 3.1.

Figure 3.1: Nepean Gardens Masterplan



A summary of the proposed development schedule compared to the existing site is provided in Table 3.1.

Table 3.1: Summary of Proposed Development Schedule

Use	Existing Site	Proposed Site	Net Difference
Club	1,065m ²	1,457m ²	+392m ²
Bowling Green	0	1	+1
Golf Course	18-hole	9-hole	-9 hole
Function	-	224m ²	+224m ²
Swimming Pool	-	415m ²	+415m ²
Gym	-	121m ²	+121m ²
Cemetery	-	27,000 burial plots	+27,000 burial plots

3.2 Parking Provision

It is proposed to provide a total of 127 car parking spaces including two accessible car parking spaces to serve the renovated club and golf club site. In addition to this, a number of on-site car parking spaces will be provided to accommodate staff, visitors, employees of industries serving the cemetery (funeral directors) and people attending funeral services at the proposed cemetery site.

A summary of the total car parking provision for the proposed development is provided in Table 3.2. These figures at the cemetery site do not include the kerbside car parking along internal roads, which could accommodate over 200 spaces if required.

Table 3.2: Car Parking Provision

Building		Parking Provision
Nepean Gardens (cemetery)	Chapel Building / Refrigerated Holding Facility	40 (not including kerbside car parking)
	Administration Office	10
	Ground Staff Facilities (Workshop)	6
Wallacia Country Club and Golf Club		127
Total		183

3.3 Vehicle Access

Vehicle access to the site will generally be maintained as per existing conditions and the previous DA, detailed as follows:

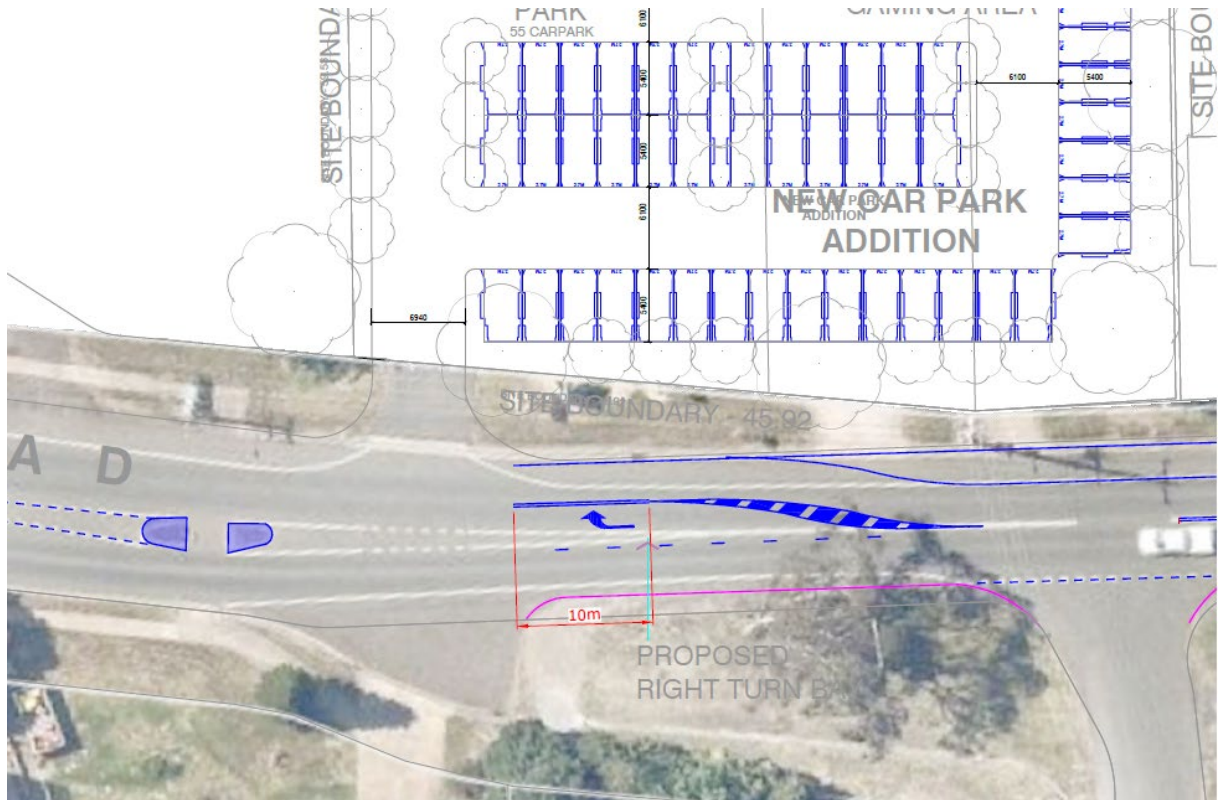
- **Entrance A** (as per the previous DA) will be provided off Park Road and provide access to the Nepean Gardens internal road network and car parking facilities provided outside the administration building and the new chapel
- **Entrance B** off Park Road, which is an existing driveway, will provide access to the on-site workshop and be restricted to staff only
- **Entrance C** off Park Road, which is an existing driveway, will provide access to the refurbished club and golf club.

In addition to this, it is proposed to provide suitable intersection treatments at the access to/from Nepean Gardens and the refurbished club and golf club (i.e. channelised right-turn treatments (CHR)), as shown in Figure 3.2 and Figure 3.3. It is noted that the road is to be widened to maintain traffic lanes in both directions and provide the CHRs designed in accordance with Austroads Guide to Road Design Part 4A.

Figure 3.2: Nepean Gardens (Entrance A) – Concept Design of Access Road (CHR)



Figure 3.3: Wallacia Country and Golf Club (Entrance C) – Concept Design of Access (CHR)



3.4 Nepean Gardens Internal Road Network

The proposed widths of the internal roads within the Nepean Gardens have been designed in accordance with the NSW Rural Fire Services specifications. The primary internal roads will measure 8 metres in width, between the kerbs, allowing two-way access and parallel parking on both sides of the road.

Further to this, the available site distance from the proposed access point towards the east and west, is considered to provide sufficient Safe Intersection Sight Distance (SISD), between Park Road (major road) and the site (minor road). This means that there is sufficient distance for motorists travelling on Park Road, to observe a vehicle from the internal road approach moving into a collision situation and to decelerate to a stop before reaching the collision point. Adopting the SISD, the required SISD as specified in the Austroads Guide is:

- 123m in a road with a speed limit of 60km/h,
- 181m in a road with a speed limit of 80km/h.

The available SISD at the proposed site access point is sufficient to meet the required visibility splays demonstrated in the Austroads Guide, with 135m of visibility available to the west of the access and 183m of visibility available to the east.

3.4.1 Traffic Management

An internal road network has been proposed to allow access between facilities and graves within the site. The development plan indicates the following measures for traffic management within the development:

- All intersections within the subject site will be priority control with traffic on primary internal road having high priority over secondary roads, except for the internal roundabout.
- The primary internal roads will have their own material (e.g. concrete), whilst minor roads will be laid in a different material (e.g. asphalt).
- The intersection between primary and secondary internal roads will have a threshold treatment of natural stone set into the pavement, acting as a 'rumble strip' and marking the transition between these road types.
- The internal roads would be signposted at a maximum of 20km/h to produce a low speed environment.
- Wayfinding signage will be provided in the internal roads for directional guidance to various key locations.

4 Parking Assessment

4.1 Car Parking Requirements

4.1.1 Nepean Gardens Car Parking Assessment

Parking will be provided through on site car parks as well as kerbside parking in the internal road network. Two-way roads are proposed to provide parallel parking on both sides and one-way roads to provide parallel parking on one side.

The key parking generators of Nepean Gardens consist of:

- cemetery
- general visitation in the cemetery
- staff parking surrounding the offices and other work areas
- chapel that holds funerals and ceremonies with a combined seating capacity of 110.

The assessment of the proposed parking provision for the cemetery component of the proposed development is provided in Table 4.1.

Table 4.1: Proposed Cemetery Parking Assessment

Key Parking Generator	Parking Assessment (First Principle Approach)	Parking Requirement	Parking Provision
Chapel	<ul style="list-style-type: none"> • Maximum seating capacity 110 • With a typical average of 2.5 people per car, given people tend to travel in groups for funeral attendance. 	44 spaces	40 spaces (not including kerbside car parking)
Office and work areas	<ul style="list-style-type: none"> • A total of 5 staff (4 general office staff and 1 manager) and 3 grounds keepers, will be present on site, assuming 1 p/car. 	8 spaces	16 spaces
Total		52 spaces	56 spaces

These key parking generators associated with the cemetery would require 52 spaces and the provision of 56 spaces plus ample kerbside parking would sufficiently accommodate these parking needs. Any overflow parking that may occur when the chapel is used at full capacity, the parking demand could be accommodated by kerbside parking around the facilities, which could accommodate over 200 spaces if required.

4.1.2 Renovated Wallacia Country Club and Golf Club

The car parking requirements for the proposed renovated club and golf club has been assessed using the following sources:

- Existing peak parking accumulation of the existing club site
- Penrith Development Control Plan (DCP) 2014
- Review of other existing aquatic centres undertaken as part of the Warringah Aquatic Centre planning (Strategic Leisure Group, 2013)
- Roads and Maritime Services' Guide to Traffic Generating Developments (2002)
- Roads and Maritime Services' Trip Generation and Parking Demand Surveys of Gymnasiums, Data and Analysis Report (2014).

4.1.2.1 Club Parking

As outlined in Section 2.3.2, the existing site currently generates a peak parking accumulation rate of 6.57 spaces per 100m². Using this metric and the proposed club additions of 392m², this would equate to an additional car parking requirement of 26 spaces.

It is also noted that the existing golf club would be reduced from an 18- to nine-hole golf course as part of the proposal, which could reduce the parking demand arising from the proposal. This reduction in the reduced golf club has not however been considered as part of this assessment to ensure a robust assessment.

4.1.2.2 Bowling Green Parking

The Penrith DCP 2014 does not contain any specific car parking requirements for bowling green facilities. However, the Roads and Maritime Guide to Traffic Generating Developments (2002) suggests that parking at bowling greens should be provided at a rate of 30 spaces for the first green and 15 spaces for each additional green. It is however noted that the majority of patrons to the bowling green are expected to be associated with club (i.e. patron already visiting the club site). On this basis, it is expected that club parking would be sufficient for the proposed bowling green.

4.1.2.3 Function Room Parking

The Penrith DCP 2014 suggests a parking rate of 1 space per 6m² of seating area, plus 1 space per employee for function rooms. Using this metric, the proposed function room (224m²) would generate a car parking requirement of 37 spaces, noting that club staff would be rostered to cater for the function use as required.

4.1.2.4 Swimming Pool Parking

A review of other existing aquatic centres undertaken as part of the Warringah Aquatic Centre planning (Strategic Leisure Group, 2013) with swimming pool facilities is presented in Table 4.2.

Table 4.2: Aquatic Centre Parking Comparison

Aquatic Centre	Size	Parking Provision (no. of spaces)	Parking Rate (spaces per 100m ²)
Ian Thorpe Aquatic Centre	6,000	99	1.65
Hurstville Leisure Centre	6,000	200	3.33
Blacktown Leisure Centre	8,500	230	2.70
Casey (RACE)	7,600	300	3.95
Casey (ARC)	7,200	200	2.77
Geelong Leisurelink	7,000	180	2.57
Monash ARC	5,600	100	1.78
Launceston Aquatic Centre	6,600	100	1.51
Average Parking Rate			2.53
85th Percentile Parking Rate			3.30

Table 4.2 indicates that a parking rate of 3.3 spaces per 100m² is sufficient for Aquatic Centre developments. Using this metric, the proposed swimming pool (415m²) could generate a parking demand of 14 spaces.

4.1.2.5 Gymnasium Parking

Roads and Maritime has carried out updated traffic surveys with a view to updating the 2002 RMS Guide to Traffic Generating Developments. This included surveys at gymnasium sites in 2014 as part of the *Trip Generation and Parking Demand Surveys of Gymnasiums, Data and Analysis Report*. These updated traffic surveys found that the peak parking demand has decreased by 50 to 80 per cent from 1993 to 2014.

A summary of the updated 2014 traffic surveys is provided in Figure 4.1.

Figure 4.1: Roads and Maritime Updated Traffic Surveys – Traffic and Parking Summary

Table 5.3: Summary of Site Transport Survey Results per 100m² GFA

Site	GFA	Public Transport Accessibility Score	% Car Driver (average of all periods)	Peak Hourly Person Trips per 100m ² GFA	Peak Vehicle Accumulation per 100m ² GFA	Peak Vehicle Trips per 100m ² GFA [1]
Bondi Gym	970	0.9	40%	8.7	2.8	3.4
Oatley	905	0.2	73%	7.1	3.5	5.6
Kings Cross	2,600	0.75	14%	14.5	1.4	1.8
Willoughby	3,700	0.9	74%	6.8	4.3	4.0
MIISC	3,200	0.2	62%	5.3	2.0	3.2
Average of all Sites				8.5	2.8	3.6

[1] Where car parking is not 100% on-site this is determined by comparing the peak hourly person trips to average car driver percentage.

Source: Roads and Maritime

Based on the above, the following parking rates are applicable:

- **Average provision:** 2.8 spaces per 100m² GFA
- **Minimum provision:** 1.4 spaces per 100m² GFA (Kings Cross Gym)
- **Maximum provision:** 4.3 spaces per 100m² GFA (Willoughby Gym)

Based on the above parking rates, the proposal (121m²) would require two to five car parking spaces, or an average three car parking spaces.

However, the site is considered more comparable to the Oatley and MIISC site (refer to Figure 4.1) in terms of its public transport accessibility score rating and therefore, a car parking rate of 2.0 to 3.5 spaces per 100m² may be more appropriate for the site. This equates to a car parking requirement of two to four car parking spaces (say three spaces).

4.1.2.6 Summary of Parking Assessment

A summary of the car parking requirements for the proposed additional land uses to the Club is provided in Table 4.1.

Table 4.3: Proposed Car Parking Assessment

Land Use	Size	Car Parking Rate	Parking Requirement
Pubs/Registered Club (including golf club and bowling green)	+392m ²	6.57 spaces per 100m ²	26 spaces
Function	+224m ²	1 space per 6m ²	37 spaces
Swimming Pool	+415m ²	3.3 spaces per 100m ²	14 spaces
Gym	+121m ²	3.5 spaces per 100m ²	3 spaces
Additional Car Parking Requirement			+80 spaces

Table 4.3 indicates that the proposed renovated club and golf club would require an additional 80 spaces. Based on the existing car parking provision of 61 spaces, this would

equate to a total car parking requirement of 141 spaces to accommodate the proposed additions.

It is proposed to provide a total of 127 car parking spaces, including two accessible spaces, to serve the proposed development. This is considered appropriate for the proposal for the reasons explained below.

4.1.2.7 Parking Accumulation

Previous empirical data at similar club developments indicate that different land uses give rise to different parking demand throughout the course of the day. Based on this, a parking accumulation assessment for the proposed development has been estimated based on the site's busiest day on a Friday and is summarised in Figure 4.2. It is assumed that the renovated club and golf club would require 87 spaces to accommodate the proposed club additions (i.e. existing car parking provision of 61 spaces plus an additional requirement of 26 spaces).

Figure 4.2: Proposed Club – Friday Parking Accumulation Estimates

Time	Upgraded Club and Golf Club, incl. Bowling Green* (87 spaces)	Proposed Additional Uses			Expected Maximum Parking Occupancy
		Function (37 spaces)	Swimming Pool (14 spaces)	Gym (3 spaces)	
Before 7am	10% (9)	10% (4)	70% (10)	70% (2)	25
7am-9am	20% (17)	20% (7)	100% (14)	100% (3)	41
9am-12pm	40% (35)	40% (15)	50% (7)	70% (2)	59
12pm-3pm	50% (43)	50% (19)	50% (7)	50% (2)	71
3pm-6pm	70% (61)	70% (26)	100% (14)	100% (3)	104
6pm-10pm	100% (87)	100% (37)	10% (1)	100% (3)	128
After 10pm	70% (61)	70% (26)	10% (1)	10% (1)	89

*Parking accumulation based on recent parking survey data conducted at the existing club. Refer to Section 2.3.2 for further information.

Based on the above analysis, the peak parking demand of the future club is expected to be in the order of 128 spaces, which would occur between 6pm and 10pm.

As indicated previously, it is proposed to provide a total of 127 car parking spaces to facilitate all uses within the club, which generally satisfies the anticipated maximum parking demand associated with the proposed additions of the club site.

It is however also noted that there is likely to be some multi-visiting between the club and swimming pool and/or gym use, which may further reduce the car parking demand estimated above. Nevertheless, the proposed car parking provision is satisfactory to serve the anticipated use of the club. The club would also continue to provide a free courtesy bus service for club patrons to promote non-car travel to/from the site, as well as promote alternative transport such as uber and taxis if car travel is necessary.

The car park and associated elements are proposed to be designed in accordance with relevant design requirements as set out in the Australian Standards. It is however envisaged that a condition of consent would be imposed requiring compliance with these standards and as such, any minor amendments can be dealt with prior to the issue of a construction certificate.

4.2 Loading Facilities

A new loading area is proposed within the renovated club and golf club site, designed to facilitate a vehicle up to and including an 8.8m long medium rigid vehicle. Swept path analysis has been conducted and is provided in Appendix C. All service vehicles will enter and exit the site in a forward direction. In addition to this, all loading activities will be managed by club management to ensure appropriate and efficient operation.

Further to this, given the nature of the proposed Nepean Gardens site, a number of service vehicles are expected to access the site on a regular basis, for refuse collection and delivery to the refrigerated holding facility. Service vehicles would enter the site via the main access from Park Road, located on the southern boundary of the site. The internal roads would be of sufficient width to accommodate a fire truck with passing traffic (if any).

As such, the loading facilities are considered adequate to service the anticipated loading requirements of the proposed development.

5 Traffic Assessment

This section assesses the potential traffic generation and impacts associated with the development proposal.

5.1 Nepean Gardens

There is no current traffic generation guidance given within the Roads and Maritime Services Guide to Traffic Generating Developments (2002) that outlines the traffic generation by cemeteries. However, the traffic generation can be determined through comparison with a similar site at the Liverpool and Rockwood Cemeteries where access to public transport is limited, as shown in Table 5.1.

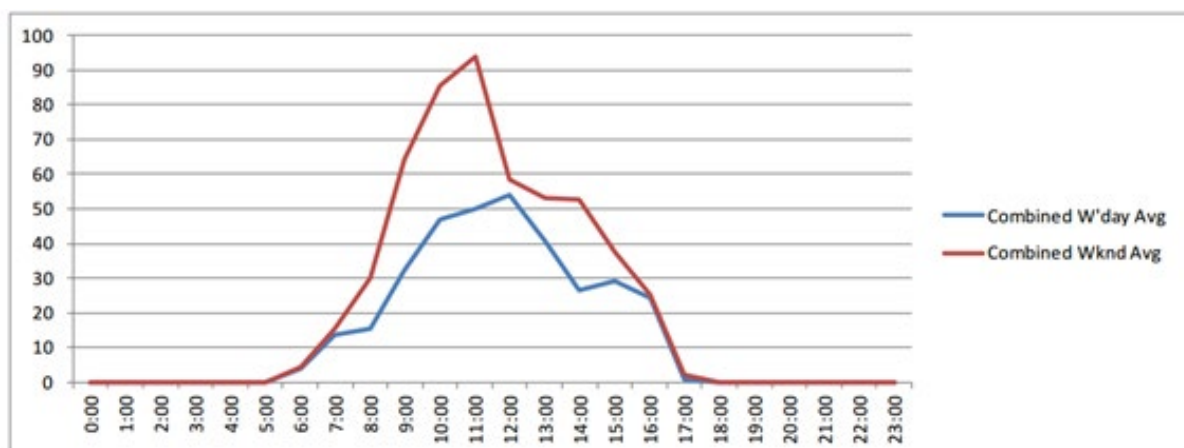
Table 5.1: Overview of the Similar Cemeteries and the Proposed Cemetery

Site	Size (Ha)	Burial Plots	Chapel Capacity
Liverpool Cemetery	8	24,000	Seated: 180 Standing: 70
Rookwood Cemetery	286	189,400	Crematorium / Chapel: 162 seats SACRED Heart: 80 seats St Michaels: 60 seats Mausoleum: 200 seats Total: 502 seats
Proposed Nepean Gardens Cemetery	21	27,000	Seated: 110

5.1.1 Sample Site: Liverpool Cemetery

A separate Traffic Impact Assessment, undertaken by GTA Consultants, provided traffic counts at the access point of the Liverpool Cemetery, as shown below in Figure 5.1.

Figure 5.1: Existing Two-Way Traffic Volumes at Liverpool Cemetery



Source: GTA Consultants

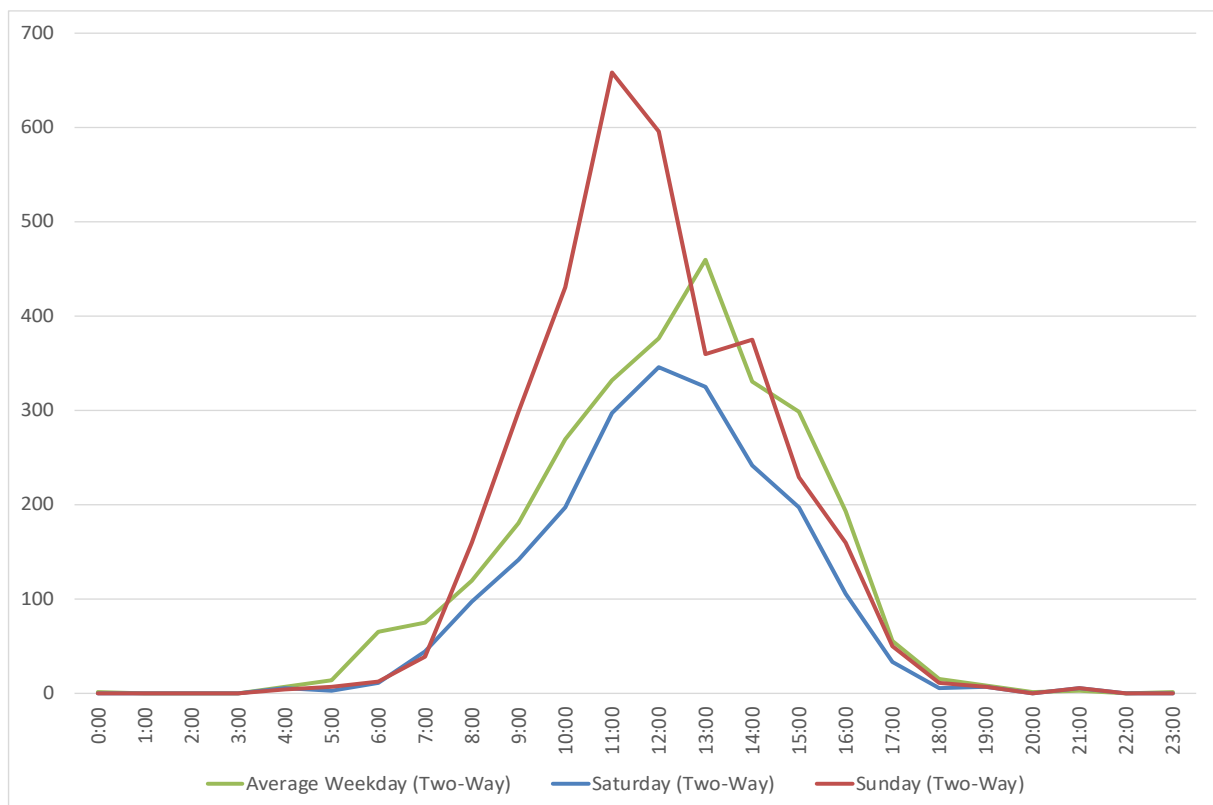
Traffic surveys undertaken at the Liverpool cemetery indicate that the traffic generation was in the order of 30-40 trips during the network AM and PM peak periods. These traffic volumes include staff trips, service vehicles and grave visitation etc, before and after the busiest operational hours of the cemetery.

Typically, funeral ceremonies are held anytime between 10am and 2pm. This is demonstrated above, in Figure 5.1 above, where site activity peaked between 12pm and 1pm, with 50-60 trips recorded. These traffic volumes would include visitors to the graves, chapels and function room.

5.1.2 Sample Site: Rookwood Cemetery

The Transport Planning Partnership (TPPP) undertook automatic tube counts at the access points of another cemetery, with chapels holding a similar capacity to that proposed. Figure 5.2 demonstrates the two-way vehicle movements at Rookwood Cemetery.

Figure 5.2: Existing Two-way Traffic Volumes at Rookwood Cemetery



Traffic surveys undertaken at the Rookwood cemetery indicate the traffic generation was in the order of 460 trips during the site peak hour on an average weekday and 660 trips on Sunday. These traffic volumes would involve visitors to the graves, chapels and function hall.

Traffic survey data for both the Liverpool and Rockwood sites is included in Appendix D.

5.1.3 Nepean Gardens Cemetery

Weekday

Correlating the data shown in Figure 5.1 and Figure 5.2, enables a preliminary estimate using a pro-rata method for the likely traffic generation, based on the chapel capacity and number of burial plots in the Liverpool and Rockwood sites.

On this basis, the preliminary estimates of traffic generation for mid-day peak hour is estimated to be:

- 45-60 trips (two-way) based on the rate derived using the number of burial plots. This is calculated on the proposed cemetery providing approximately 1.15 times the number of graves provided by the Liverpool Cemetery (1.15 X 30-40 two-way trips = 35-50 two-way trips).
- 30-36 trips (two-way) based on the rate derived using the capacity of the chapels. The proposed cemetery has a reduced capacity of approximately 60 per cent compared to Liverpool Cemetery and a reduced capacity approximately of 70 per cent compared to Rookwood Cemetery. Based on the rates shown above for the Liverpool cemetery (50-60 trips recorded) a reduced chapel area of 60 per cent would result in 30-36 two-way trips.

However, the above estimates are understated when compared with the estimates using the first principles approach which is discussed below:

- At Rookwood Cemetery, assuming all 500 visitors attending the funeral(s) would arrive in private vehicles, with a car occupancy of 2.5 people per car, the chapel would generate 200 vehicles. Arrival trips would occur within an hour prior to the start of the funeral, and departure trips would occur over 1-2 hours after the event, depending on the length of the funeral ceremony and the length of stay at the function room after the funeral. This results in a total of 200 inbound trips and 80 outbound trips occurring during the first hour of the event (given the capacity of the function room is some 60% of the chapel and so, 40% of the visitors are likely to leave the site). The remaining 120 outbound trips would leave the site during the second hour of the event.
- As such, based on the capacity of the proposed chapel, with a car occupancy of 2.5 people per car, the chapel would generate approximately 44 inbound trips during the first service with, say, 60% of people staying to travel to the function room (26 trips) and the remaining 40% being outbound trips (18 vehicles).
- Given the Liverpool site generates 30-40 trips (two-way) during the network peak hours in relation to the staff and grave visitation trips. Projecting these trips based on the number of burial plots in the Liverpool site, it is estimated that 35-50 trips (two-way) may occur in relation to visitation at the graves, as demonstrated in the calculations above. It is also assumed that these visitors would leave the site within one hour.

Comparing the pro-rata method and the first principles method, the higher, more conservative estimate is taken as 94 two-way trips, for the site activity peak hour that would occur around mid-day.

For the road network AM and PM peaks, it is estimated 50 trips (25 inbound trips and 25 outbound trips) would occur in relation to grave visitation and staff trips. This has been based on the number of burial plots in the Liverpool cemetery (24,000 burial plots). The proposed Wallacia has nearly 1.15 times as many burial plots in comparison to the Liverpool site, therefore trip generation has been increased.

Table 5.2 provides a summary of the weekday traffic generation.

Table 5.2: Weekday Traffic Generation

Peak Hour	Inbound	Outbound	Two-Way
AM Peak (Grave visitation)	25	25	50
AM Peak (Services)	34	10	44
PM Peak (Grave visitation)	25	25	50
PM Peak (Services)	22	22	44
Midday peak (Grave visitation)	25	25	50
Midday peak (Services)	26	18	44

Weekend

The weekend traffic generation has been estimated using surveyed peak hour traffic volumes at the Rookwood Cemetery access points. Table 5.3 provides a summary of the weekend traffic generation. The peak hour traffic generation for the Rookwood site was in the order of 600 to 660 to-way movements within the AM and PM peak hours, on a Sunday. Given that the proposed Wallacia development is much smaller in scale (approximately 7 times smaller), a conservative estimate of 95 two-way trips has been estimated for the Sunday peak.

Table 5.3: Weekend Traffic Generation

Peak Hour	Inbound	Outbound	Two-Way
Sunday Peak	50	45	95

N.B the Proposed weekend peak does not include any services.

5.2 Wallacia Country Club and Golf Club

5.2.1 Club Traffic Generation

Based on the site traffic generation surveys undertaken at the existing club and golf club, the existing site currently generates the following peak hour trip rates:

- Friday peak @ 3.94 trips per 100m²
- Saturday peak @ 3.19 trips per 100m²

Based on the above, the proposed additions to the club are expected to generate up to five additional trips during the site’s busiest hour. Additionally, trips associated with the proposed bowling green are expected to be associated with the club use and therefore, the proposed bowling green is expected to generate minimal independent trips (if any).

5.2.2 Function Room and Swimming Pool Traffic Generation

There is no current traffic generation guidance given within the Roads and Maritime Services Guide to Traffic Generating Developments (2002) that outlines the traffic generation by function room and swimming pool developments. It is therefore assumed that the proposed function room and swimming pool use would generate up to one trip every car space for the purpose of this assessment. This trip rate is considered appropriate as patrons generally stay for a period of one to three hours when visiting such uses.

On this basis, the proposed uses are expected to generate a combined car parking requirement of 55 spaces, which equates to 55 trips in the peak hour.

5.2.3 Gymnasium Traffic Generation

Similar to the parking surveys noted previously, Roads and Maritime has also carried out updated traffic surveys in 2014 to determine the existing traffic generation at gymnasium developments. The peak vehicle trip rates at from the updated traffic survey is shown in Figure 4.1, or otherwise also summarised in Table 5.4.

Table 5.4: Roads and Maritime Updated Traffic Surveys – Traffic Summary

Site	GFA	Public Transport Accessibility Score	Peak Vehicle Trips per 100m ² GFA
Bondi Gym	970	0.9	3.4
Oatley	905	0.2	5.6
Kings Cross	2600	0.75	1.8
Willoughby	3700	0.9	4.0
MIISC	3200	0.2	3.2
Average of all Sites			3.6

Table 5.4 indicates that gymnasium developments generate on average approximately 3.6 trips per 100m² during the evening peak hour. However, based on the higher peak hour

traffic generation rate at the Oatley site of 5.6 trips per 100m², the proposal is estimated to generate up to seven trips during the site's busiest hour.

5.3 Summary of Traffic Generation Estimate

A summary of the traffic generation estimates arising from the proposal is provided in Table 5.5.

Table 5.5: Proposed Traffic Generation Assessment

Land Use	Size	Peak Trip Rate			Peak Traffic Generation		
		Weekday AM	Weekday PM	Weekend	Weekday AM	Weekday PM	Weekend
Club (including bowling green)	+392m ²	Note [1]	3.94 trips per 100m ²	3.19 trips per 100m ²	0 trips	15 trips	13 trips
Function	37 spaces				0 trips	37 trips	37 trips
Swimming Pool	14 spaces	1 trip per space	1 trip per space		14 trips	14 trips	14 trips
Gym	+121m ²	5.6 trips per 100m ²			7 trips	7 trips	7 trips
Cemetery	27,000 burial plots	See Section 5.1			94 trips	94 trips	95 trips
Additional Traffic Generation					+115 trips	+167 trips	+166 trips

[1] The club and function use will not be operational during the network AM peak.

Table 5.5 indicates that the proposed development is expected to generate up to 115 additional trips during the weekday AM, 167 additional trips in the weekday PM and 166 additional trips in the weekend peak period. These additional trips are predominately associated with the proposed new cemetery use, which accounts for an additional 94-95 trips during the peak hour.

5.4 Traffic Distribution

Traffic surveys undertaken on Thursday 7 September 2017 and Sunday 10 September 2017 identified the following peak hours:

- Weekday AM Peak: 7:00am-8:00am
- Weekday PM peak: 3:30pm-4:30pm
- Sunday Peak: 11:30am-12:30pm

Based on the wider road network, all arriving and departing vehicles have been distributed on existing distribution percentages. In addition to this, the worst-case scenario has been assessed at the proposed site access points by conservatively applying an additional 44 vehicles departing the Nepean Gardens site to be diverted to the renovated club and golf club car park to represent vehicles travelling to/from functions within the network peak hour.

The figures below show the anticipated increases in turning movements modelled near the site, as a result of the proposed development.

Figure 5.3: Proposed Weekday AM Peak Traffic Flows (With Development)

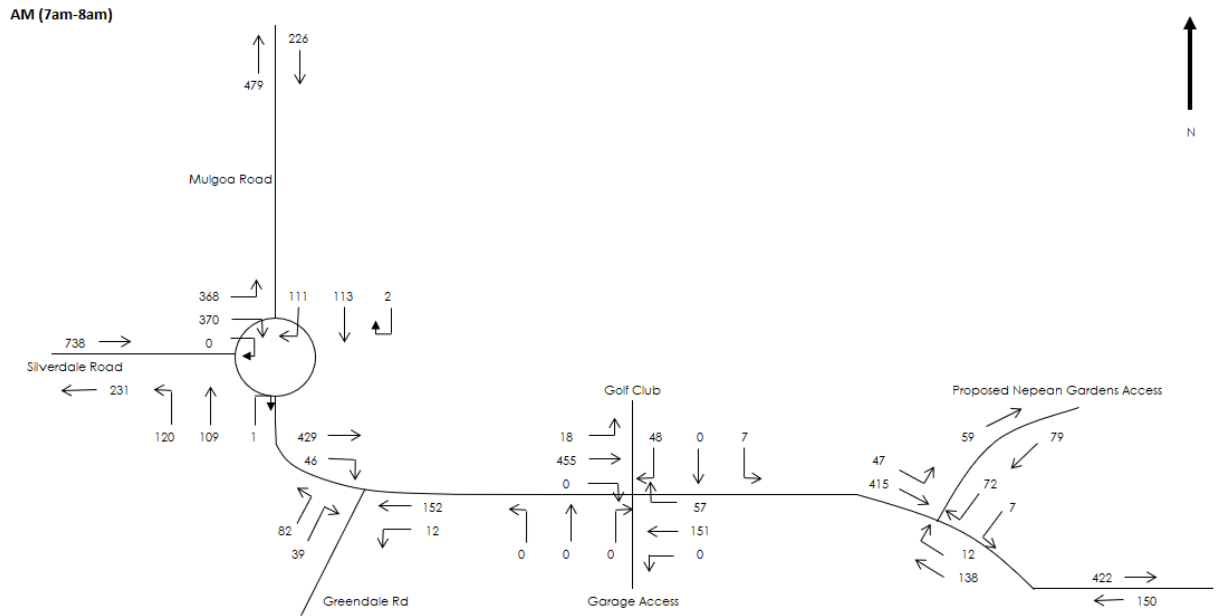


Figure 5.4: Proposed Weekday PM Peak Traffic Flows (With Development)

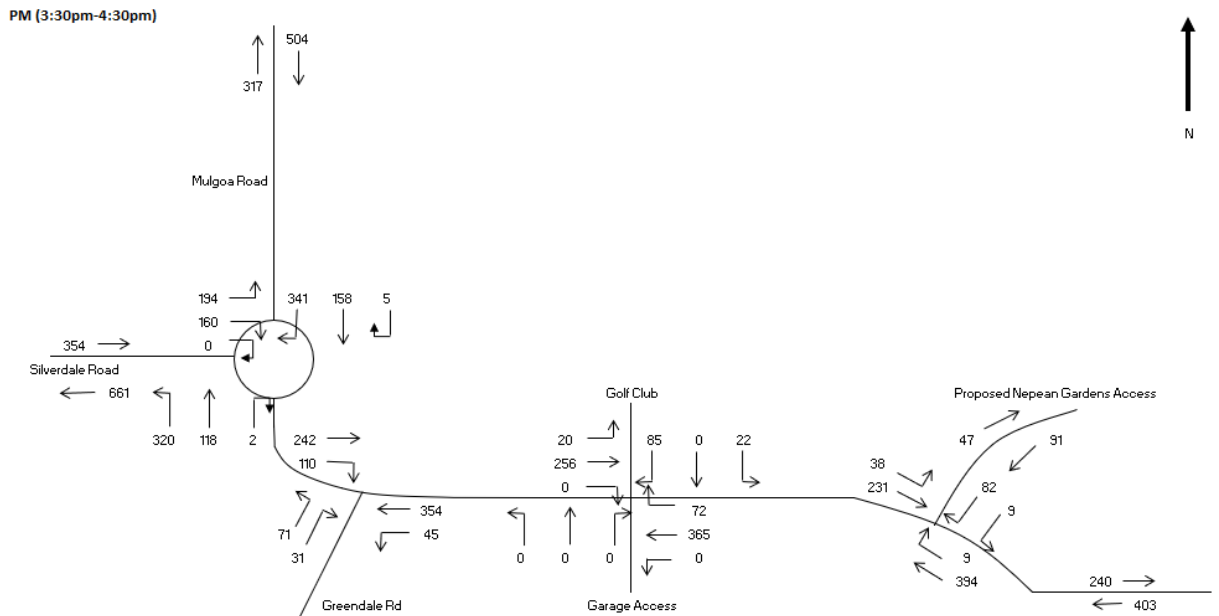
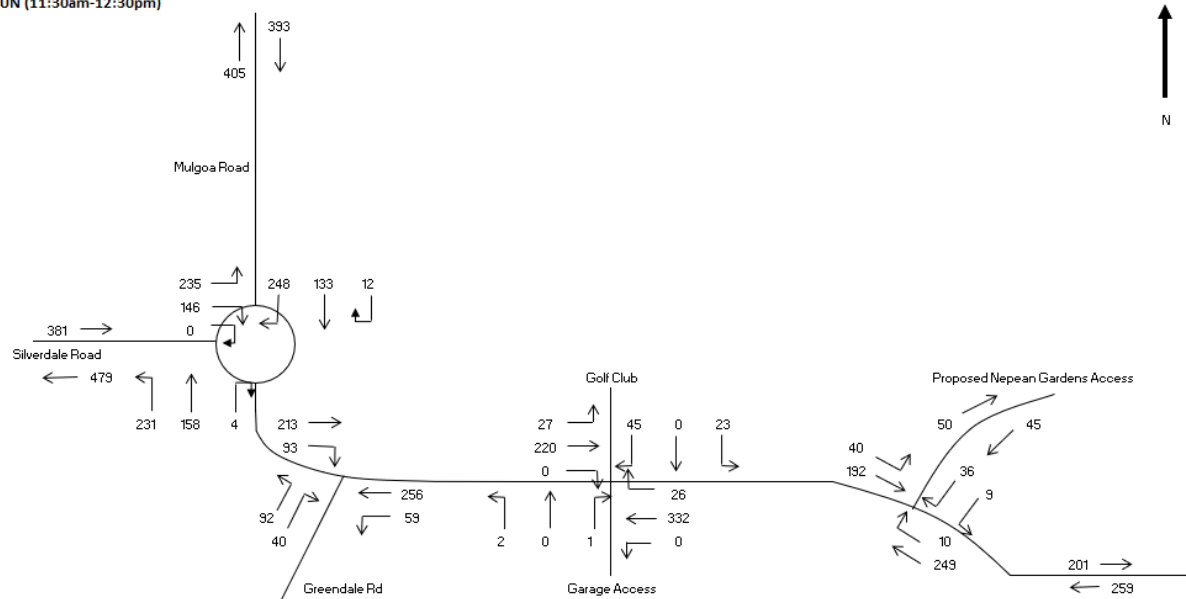


Figure 5.5: Proposed Sunday Midday Peak Traffic Flows (With Development)

SUN (11:30am-12:30pm)



5.5 Performance of Key Intersections

The operation of key intersections has been assessed using SIDRA Intersection modelling software, a computer-based modelling package which assesses intersection performance under prevailing traffic conditions. The previous assessment has been updated to support the revised development proposal, as well the latest SIDRA Intersection modelling software (SIDRA Intersection 8).

5.5.1 Model Performance Indicators

SIDRA Intersection 8 modelling provides several useful indicators to determine the level of intersection performance.

5.5.1.1 Level of Service (LoS)

LoS is a basic performance parameter used to describe the operation of an intersection. Levels of service indicators range from A (indicating good intersection operation) to F (indicating over-saturated conditions with long delays and queues).

At priority controlled (give-way and stop controlled) and roundabout intersections, the LoS is based on the modelled delay (seconds per vehicle) for the most delayed movement. The level of service criteria for intersections can be found below in Table 5.6.

Table 5.6: Level of Service Criteria for Intersections

Level of Service (LoS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	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	Greater than 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode or major treatment

Source: RMS Guide to Traffic Generating Developments, 2002

5.5.1.2 Average Delay

Delay is the difference between interrupted and uninterrupted travel times through the intersection and is measured in seconds per vehicle. At priority-controlled intersections and roundabouts, the average delay for the most delayed movement is usually reported.

5.5.2 Existing and Future Scenarios

Network capacity analysis has been conducted at the following intersections:

- Proposed Nepean Gardens Site Access (priority)
- Golf Club Site Access-Park Road (priority intersection)
- Park Road-Greendale Road (priority intersection)
- Park Road-Silverdale Road-Mulgoa Road (roundabout)

The analysis assessed the intersections operating under existing and future conditions, using the peak hour flows presented in Table 5.2 and Table 5.3. The average delay and Level of Service, for the worst arm on the intersection has been demonstrated.

Table 5.7: SIDRA Intersection Modelling Results – Weekday AM Peak

Intersection	Existing		Existing + Proposed	
	Delay (Seconds)	Level of Service	Delay (Seconds)	Level of Service
Nepean Gardens Site Access-Park Rd	0	A	11	A
Golf Club Site Access-Park Rd	9	A	15	B
Park Road-Greendale Rd	8	A	9	A
Park Rd-Silverdale Rd-Mulgoa Rd	13	A	13	A

Table 5.8: SIDRA Intersection Modelling Results – Weekday PM Peak

Intersection	Existing		Existing + Proposed	
	Delay (Seconds)	Level of Service	Delay (Seconds)	Level of Service
Nepean Gardens Site Access-Park Rd	0	A	12	A
Golf Club Site Access-Park Rd	10	A	17	B
Park Road-Greendale Rd	8	A	10	A
Park Rd-Silverdale Rd-Mulgoa Rd	14	A	15	B

Table 5.9: SIDRA Intersection Modelling Results – Sunday Peak

Intersection	Existing		Existing + Proposed	
	Delay (Seconds)	Level of Service	Delay (Seconds)	Level of Service
Nepean Gardens Site Access-Park Rd	0	A	8	A
Golf Club Site Access-Park Rd	9	A	12	A
Park Road-Greendale Rd	7	A	7	A
Park Rd-Silverdale Rd-Mulgoa Rd	11	A	12	A

N.B. The delay at the worst movement has been reported.

The modelling analysis results demonstrate that all intersections would continue operate good, with a Level of Service (A/B) and low delays. The proposed development shows that there would not be any adverse impacts to intersection Level of Service, with minimal increase in delay at the proposed site access. The SIDRA outputs of the scenarios demonstrated above can be found in Appendix E.

6 Conclusions

This transport impact assessment report accompanies the revised development application for the proposed cemetery with associated function room facilities located at 13 Park Road, Wallacia. The key findings from this report are provided below:

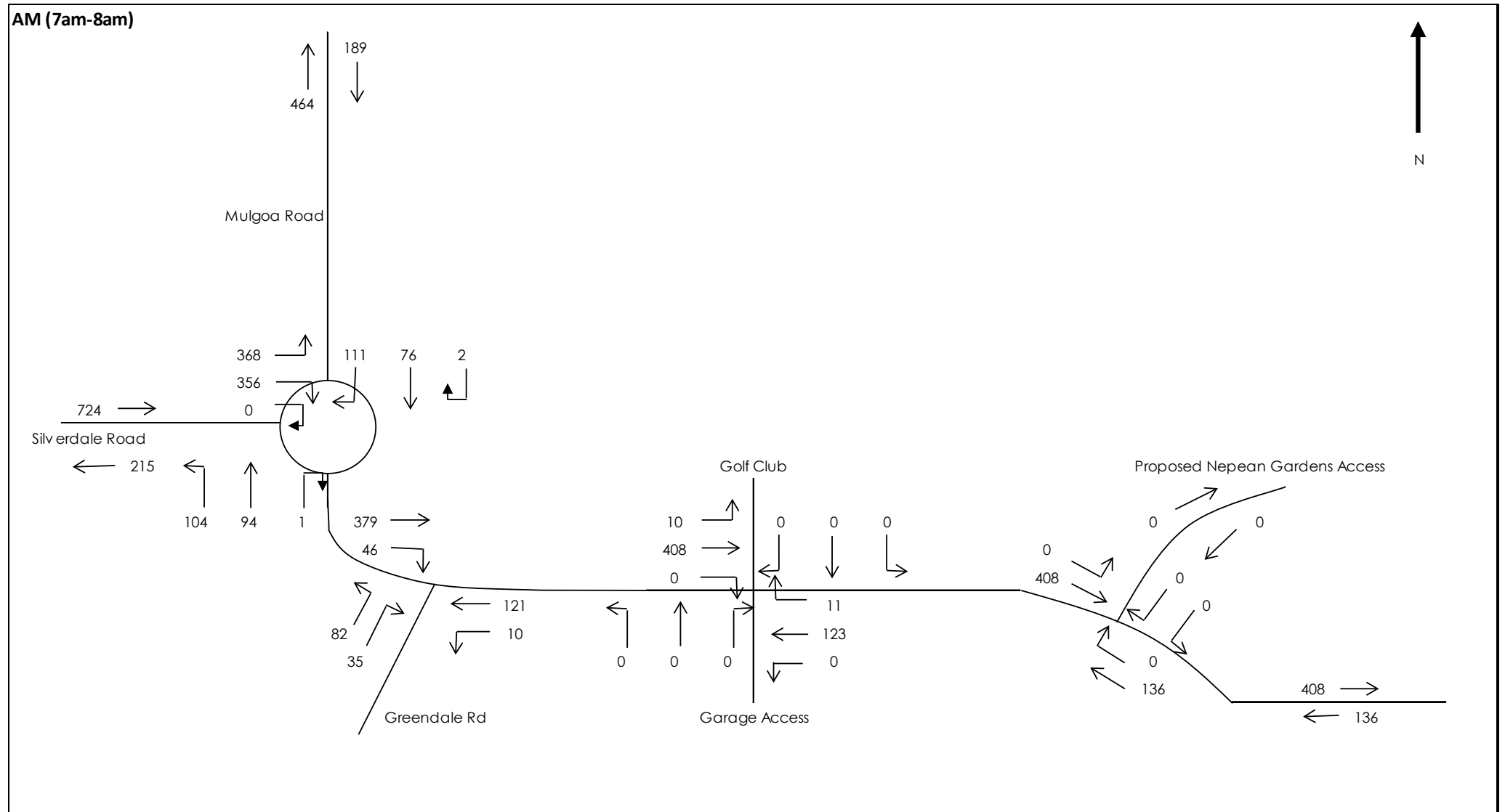
- The revised DA seeks approval for a smaller scale cemetery on 21.37 hectares with a capacity to provide 27,000 burial plots, a reduced size 9-hole golf course on 21.7 hectares and a renovated and extended clubhouse for Wallacia Country Club, featuring a new bowling green, swimming pool and gymnasium.
- There is sufficient SISD at the proposed new site access point to the Nepean Gardens site. It is considered that vehicles egressing the site would have sufficient visibility to exit the site safely.
- Internal road widths within the Nepean Gardens site satisfy NSW Rural Fire Services requirements.
- There is sufficient car parking within the Nepean Gardens site for visitors and staff, with additional kerbside parking within the internal road layout, providing appropriate parking provision.
- Previous empirical data at similar club developments indicate that different land uses give rise to different parking demand throughout the course of the day. Based on this, the proposed renovated club and golf club is expected to generate a peak parking demand of 128 spaces to cater for the proposed additions to the club,
- It is proposed to provide 127 spaces for the renovated club and golf club site, which is considered satisfactory to serve anticipated peak parking demand arising from the proposal.
- Appropriate loading and unloading facilities will be provided on-site.
- The proposed car park and associated elements will be designed in accordance with design requirements as set out in AS 2890.
- Both Park Road and the proposed site access have sufficient capacity to accommodate expected traffic volumes anticipated from the development. The proposed golf club site access also has appropriate spare capacity to cope with vehicles entering the site in relation to the proposed function room facility after funeral services.
- Traffic modelling suggests that the key intersections surrounding the site and the site access points will continue to operate satisfactory at LoS A/B during weekday and weekend peak conditions with the proposed development traffic. It is also proposed to provide appropriate intersection treatment at both site access points.
- The proposed development would not have a detrimental impact on the existing road network.

Overall, there will be no adverse traffic and parking implications associated with the proposal.

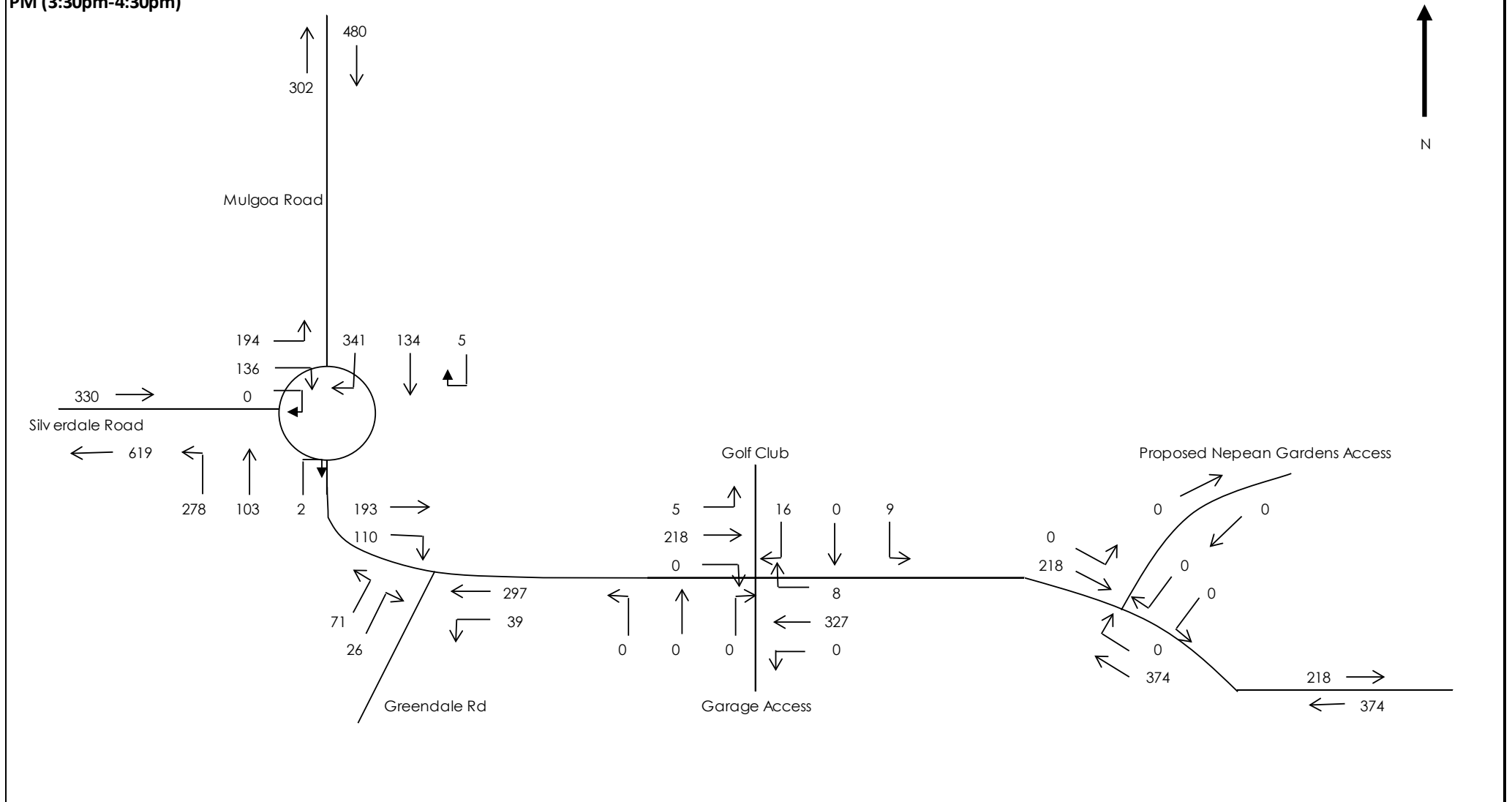
Appendix A

Traffic Network Diagrams

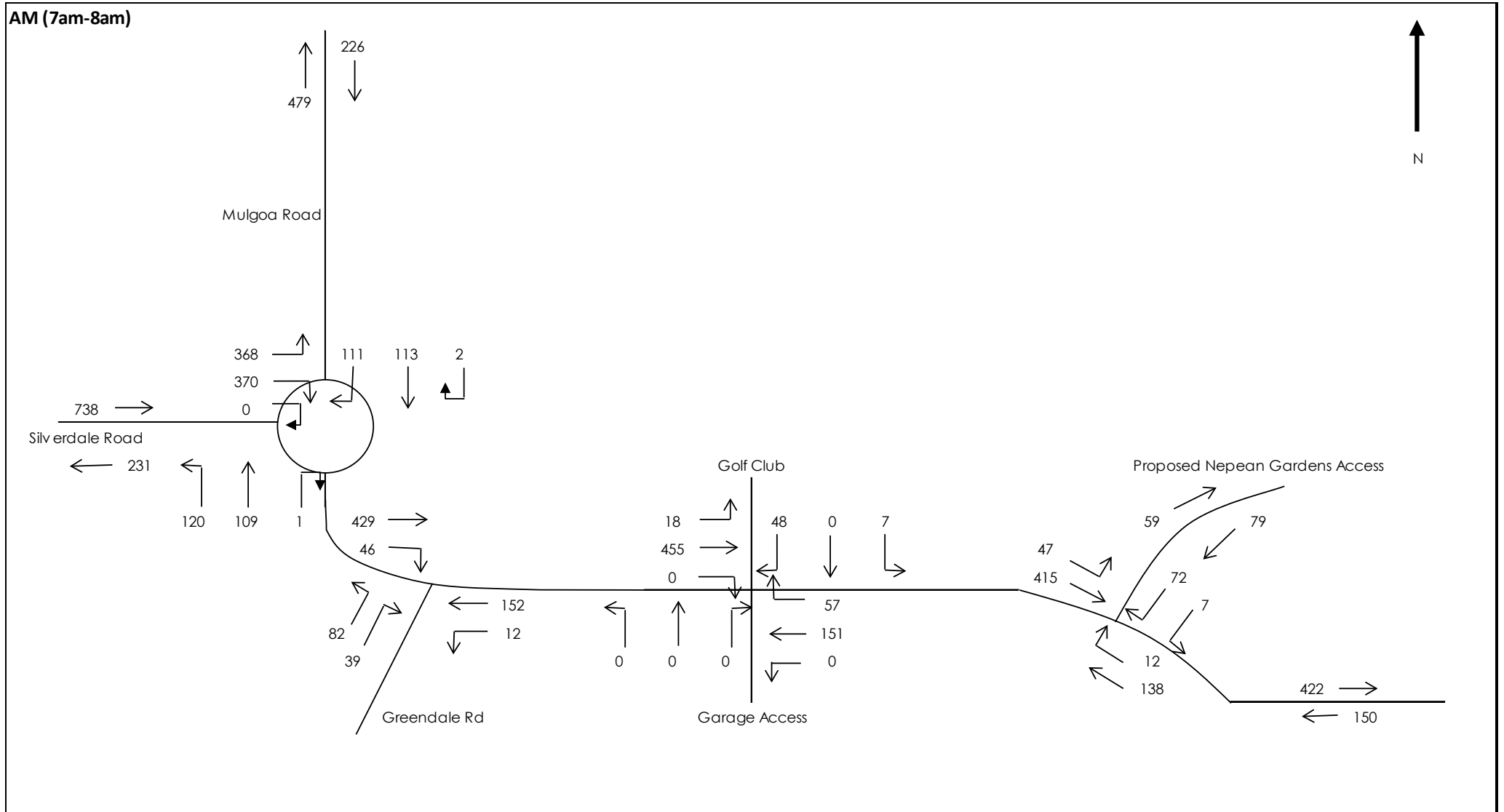
EXISTING TRAFFIC FLOWS



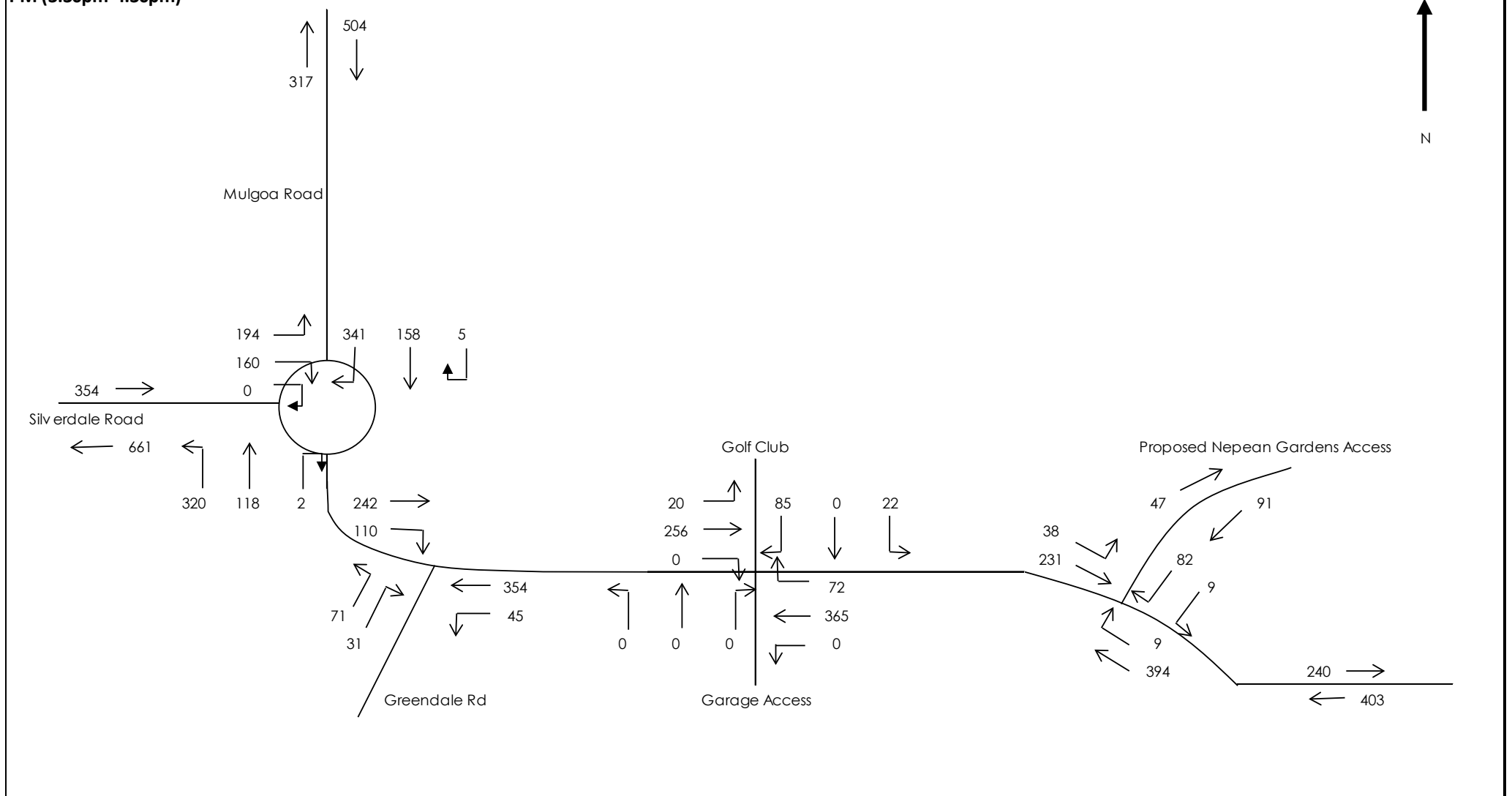
PM (3:30pm-4:30pm)



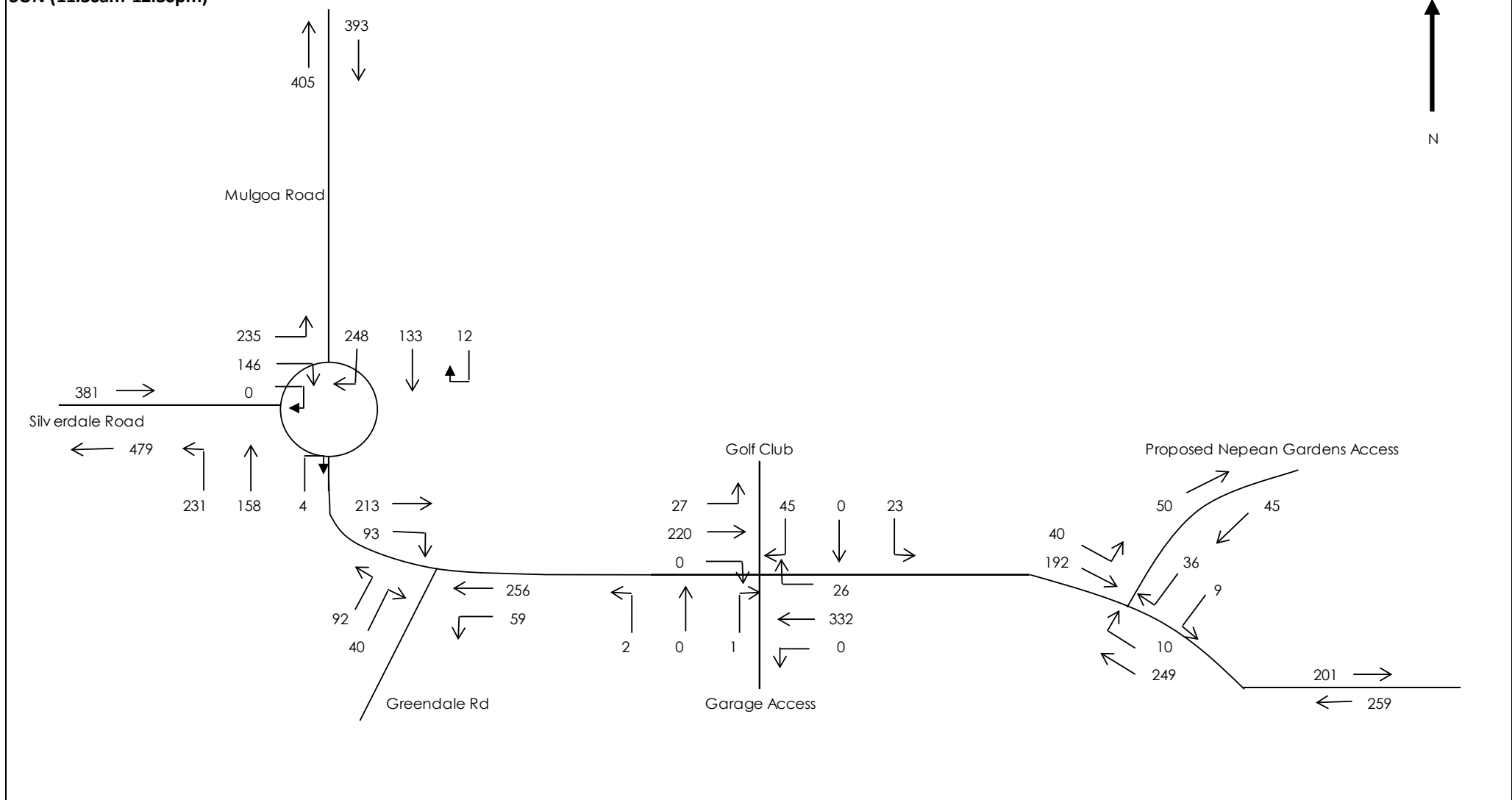
EXISTING + DEVELOPMENT TRAFFIC FLOWS



PM (3:30pm-4:30pm)



SUN (11:30am-12:30pm)



Appendix B

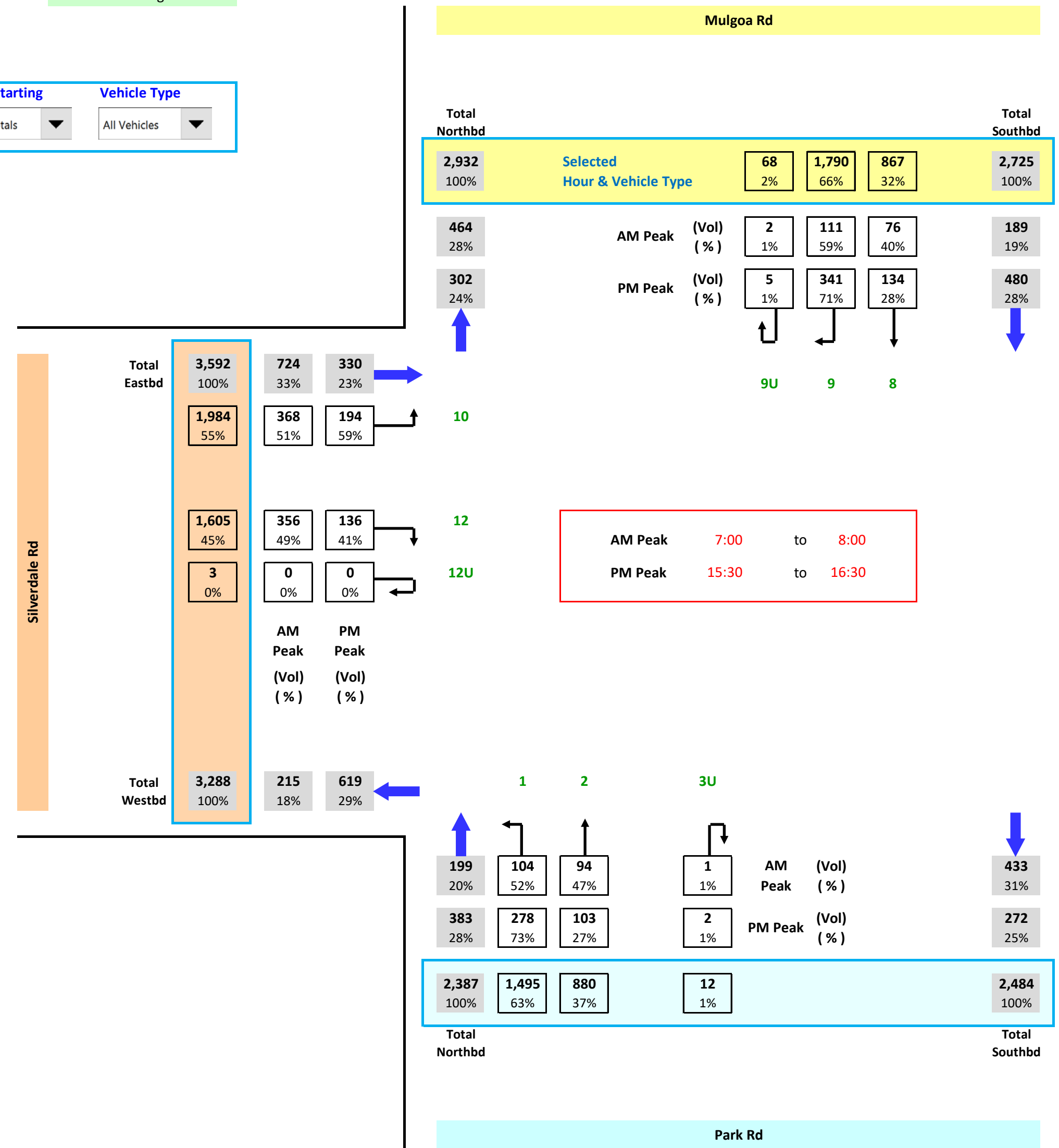
Intersection Traffic Surveys

Job No. : N3530
 Client : TTPP
 Suburb : Wallacia
 Location : 1. Park Rd / Silverdale Rd / Mulgoa Rd

Day/Date : Thu, 7th September 2017
 Weather : Fine
 Description : Classified Intersection Count
 : Intersection Diagram



Hour Starting: 10hr Totals
 Vehicle Type: All Vehicles

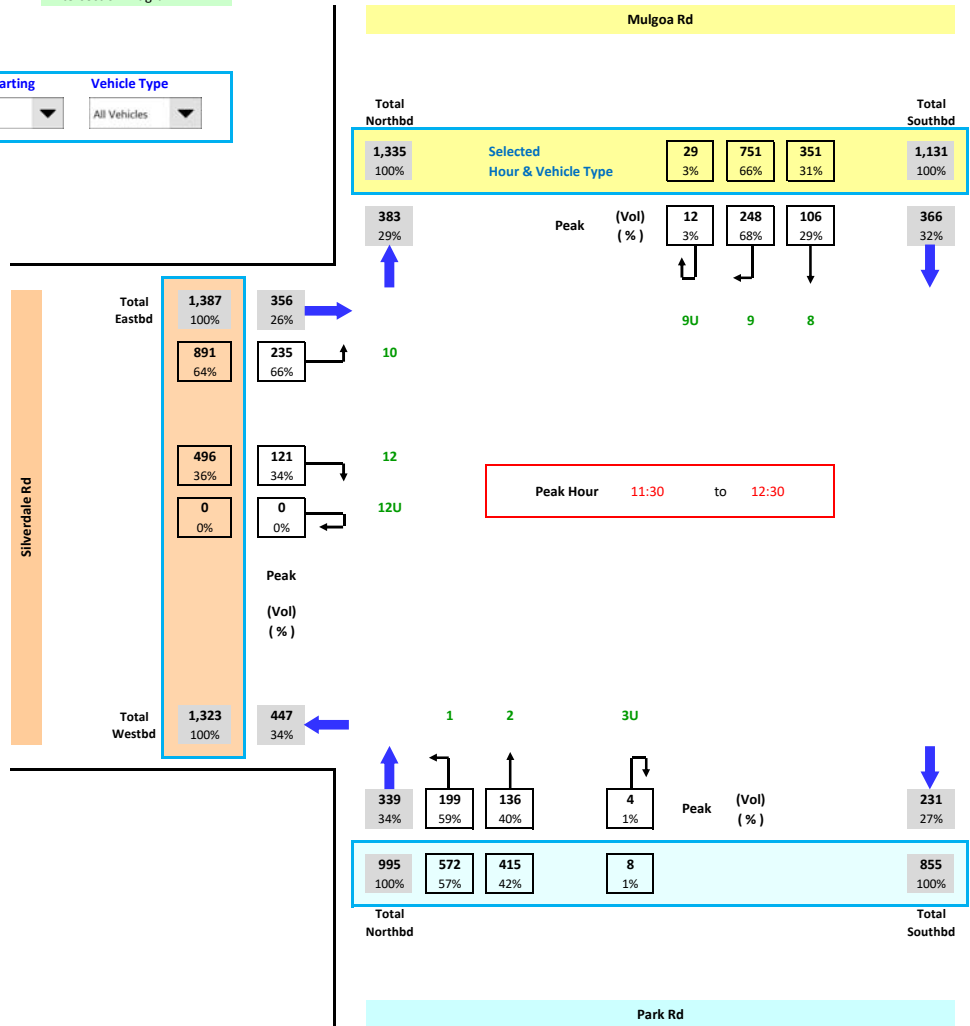


Job No. : N3530
 Client : TTPP
 Suburb : Wallacia
 Location : 1. Park Rd / Silverdale Rd / Mulgoa Rd

Day/Date : Sun, 10th September 2017
 Weather : Fine
 Description : Classified Intersection Count
 : Intersection Diagram



Hour Starting: Totals
 Vehicle Type: All Vehicles

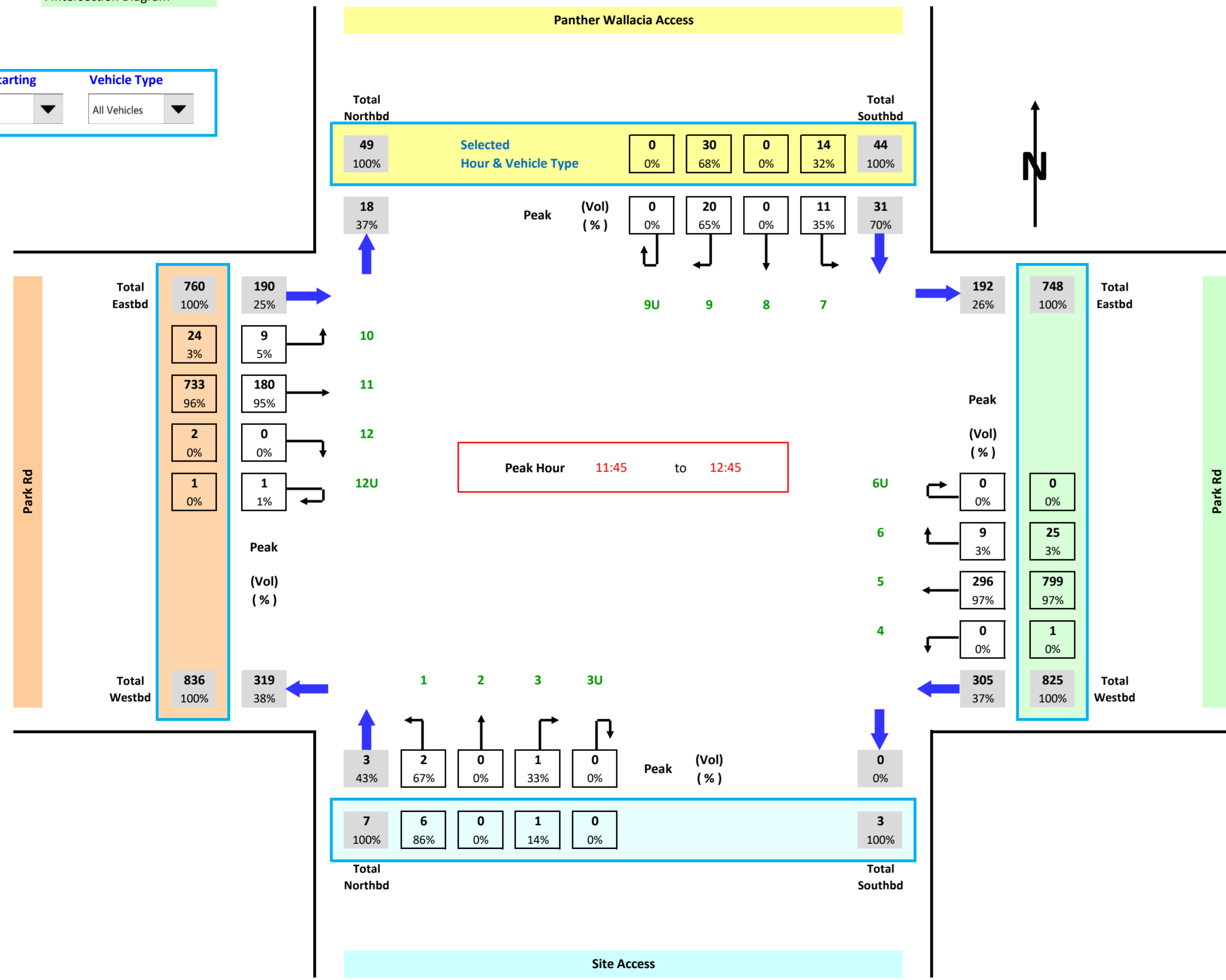


Job No. : N3530
Client : TTPP
Suburb : Wallacia
Location : 2. Park Rd / Panther Wallacia Gold Club House Access

Day/Date : Sun, 10th September 2017
Weather : Fine
Description : Classified Intersection Count
 : Intersection Diagram



Hour Starting : Totals
Vehicle Type : All Vehicles

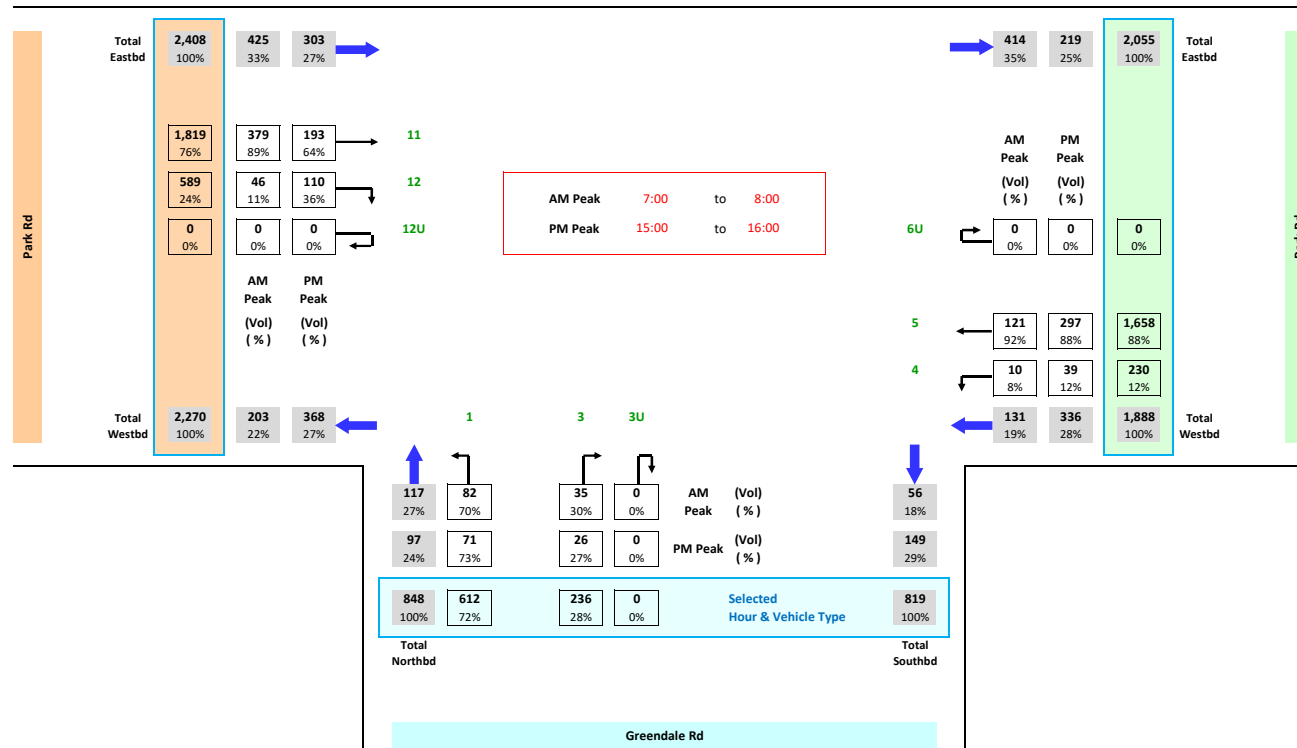


Job No. : N3970
 Client : TTPP
 Suburb : Wallacia
 Location : 1. Park Rd / Greendale Rd

Day/Date : Thu, 1st March 2018
 Weather : Fine
 Description : Classified Intersection Count
 : Intersection Diagram



Hour Starting: Totals
 Vehicle Type: All Vehicles

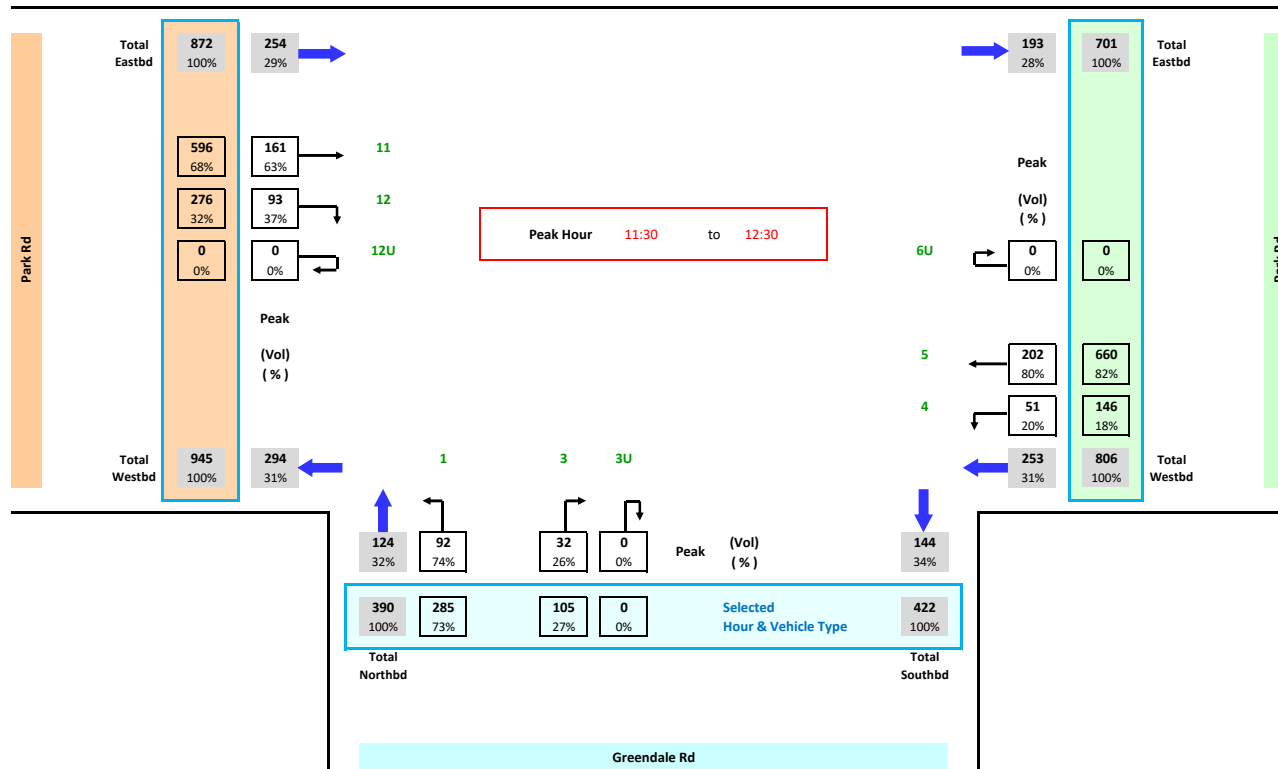


Job No. : N3970
 Client : TTPP
 Suburb : Wallacia
 Location : 1. Park Rd / Greendale Rd

Day/Date : Sun, 11th March 2018
 Weather : Fine
 Description : Classified Intersection Count
 : Intersection Diagram



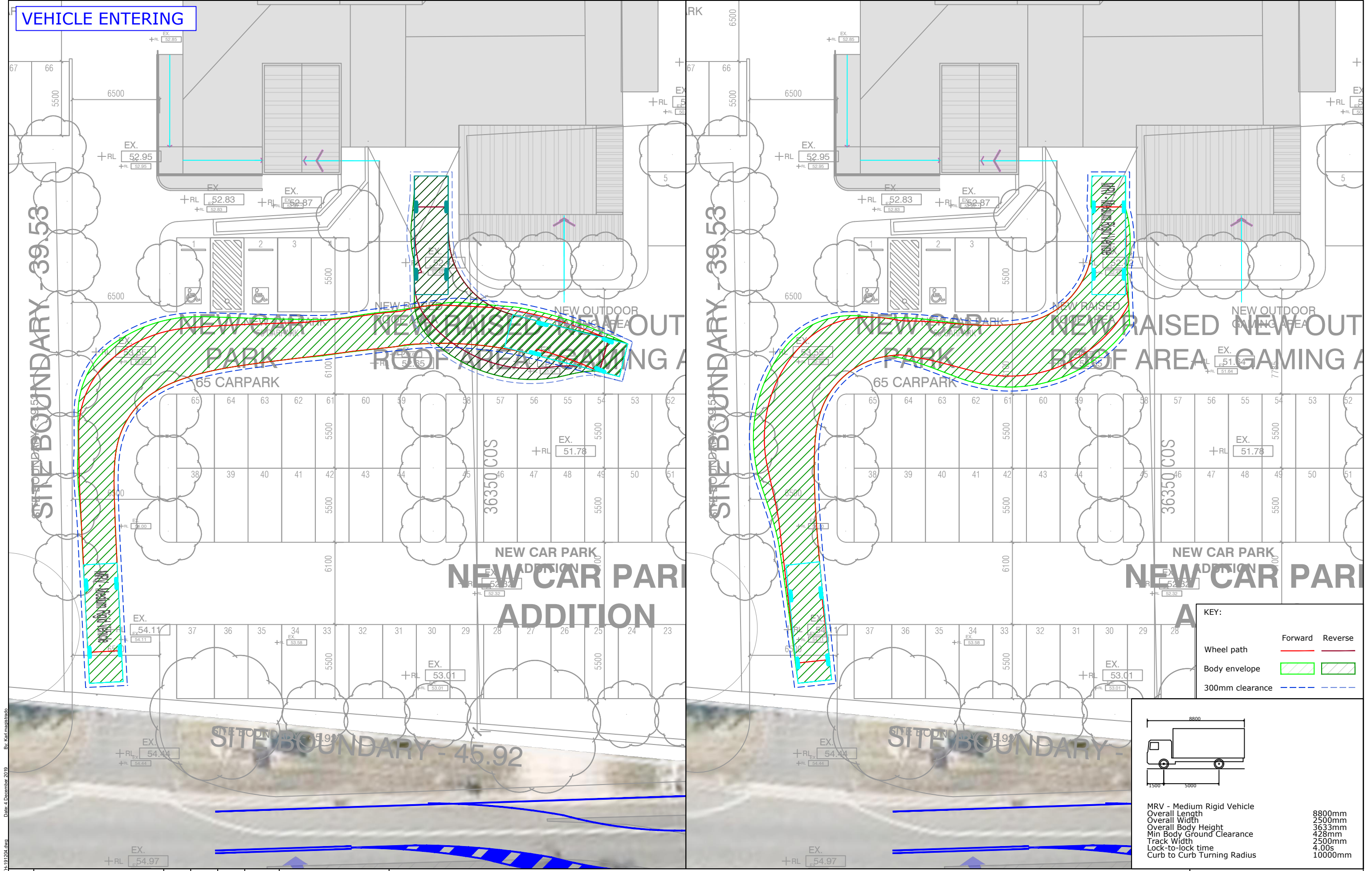
Hour Starting: Totals
 Vehicle Type: All Vehicles



Appendix C

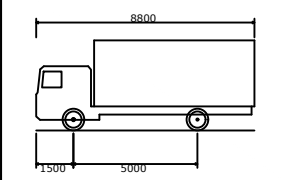
MRV Swept Paths

VEHICLE ENTERING



KEY:

Wheel path	Forward	Reverse
Body envelope		
300mm clearance		



MRV - Medium Rigid Vehicle

Overall Length	8800mm
Overall Width	2500mm
Overall Body Height	428mm
Min Body Ground Clearance	2500mm
Track Width	4.00s
Lock-to-lock time	10000mm
Curb to Curb Turning Radius	

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	KM	JN	KH	08/11/19



PROJECT: WALLACIA CROWN CEMETERY DEVELOPMENT

TITLE: SWEPT PATH ANALYSIS
AS2890.2 8.8m MEDIUM RIGID VEHICLE - LOADING DOCK (WALLACIA COUNTRY CLUB)

DWG No.	19292CAD003
	FIGURE 1
DATE STAMP	04 DECEMBER 2019
PROJECT No.	19292
SCALE	1:250 @A3
REV.	A

Appendix D

Surveyed Cemetery Sites

Job No N3325
 Client TTPP
 Site St Andrews Rd - north of Spitfire rd
 Location Varrville
 Site No 1
 Start Dat 9-Jun-17
 Descriph Volume Summary
 Direction NB

Hour	Starting	Day of Week							W/Day Ave	7 Day Ave
		Mon	Tue	Wed	Thu	Fri	Sat	Sun		
12-Jun	14	41	33	28	57	50	194			
AM Peak	15	42	55	56	49	73	24		325	
PM Peak	2	1	1	1	0	0	0	6	2	
0:00		1	1	1	0	0	0	0	2	
1:00	4	1	1	2	0	4	3	2	2	
2:00	0	0	2	0	0	0	4	0	1	
3:00	0	0	1	0	1	0	1	0	0	
4:00	0	1	0	1	2	0	1	1	1	
5:00	1	0	2	1	0	0	0	1	1	
6:00	8	6	2	8	12	2	1	7	6	
7:00	12	17	14	15	8	10	14	13	13	
8:00	11	41	33	28	57	16	62	34	35	
9:00	9	15	26	12	43	21	194	21	46	
10:00	11	18	14	16	18	50	67	15	28	
11:00	14	16	17	12	12	38	20	14	18	
12:00	11	20	22	14	13	24	24	16	18	
13:00	12	16	13	18	15	18	14	15	15	
14:00	12	42	21	13	26	16	16	23	21	
15:00	15	25	55	56	49	16	13	40	33	
16:00	12	11	20	25	15	22	16	17	17	
17:00	12	16	35	15	24	73	10	16	24	
18:00	10	15	19	15	19	38	3	16	17	
19:00	3	5	17	14	9	14	5	10	10	
20:00	5	6	6	8	9	12	5	7	7	
21:00	2	6	5	4	7	6	3	5	5	
22:00	1	6	2	3	6	8	4	4	4	
23:00	2	0	1	5	1	5	1	2	2	
Total	169	284	309	286	346	393	487	279	325	

Job No N3325
 Client TTPP
 Site St Andrews Rd - north of Spitfire rd
 Location Varrville
 Site No 1
 Start Dat 9-Jun-17
 Descriph Volume Summary
 Direction SB

Hour	Starting	Day of Week							W/Day Ave	7 Day Ave
		Mon	Tue	Wed	Thu	Fri	Sat	Sun		
12-Jun	19	30	29	32	32	19	67			
AM Peak	15	47	45	63	56	64	202		327	
PM Peak	3	0	0	0	0	0	9	1	2	
0:00		1	0	0	0	0	2	4	1	
1:00	1	0	0	0	0	0	5	1	1	
2:00	1	1	3	0	0	0	5	1	1	
3:00	0	0	1	1	1	0	5	1	1	
4:00	0	4	3	4	2	1	0	3	2	
5:00	2	3	4	4	2	1	0	3	2	
6:00	4	8	5	9	5	3	3	6	5	
7:00	8	16	10	14	18	7	6	13	11	
8:00	10	30	27	32	27	12	72	23	23	
9:00	19	20	29	15	26	19	67	22	28	
10:00	13	22	23	7	16	15	31	16	18	
11:00	14	16	20	13	32	16	51	19	23	
12:00	12	18	14	13	13	16	202	14	41	
13:00	13	13	17	18	12	24	34	15	19	
14:00	9	47	17	16	49	23	21	28	26	
15:00	11	30	45	63	56	53	18	41	39	
16:00	15	10	18	21	18	41	12	16	19	
17:00	11	11	19	17	15	27	9	15	16	
18:00	7	13	11	8	11	31	5	10	12	
19:00	9	4	12	14	12	64	5	10	17	
20:00	5	6	12	8	7	10	6	8	8	
21:00	2	3	10	3	13	3	1	6	5	
22:00	2	3	1	4	3	13	3	3	4	
23:00	1	1	0	4	2	7	0	2	2	
Total	172	279	301	288	340	388	519	276	327	

Job No N3325
 Client TTPP
 Site St Andrews Rd - north of Spitfire rd
 Location Varrville
 Site No 1
 Start Dat 9-Jun-17
 Descriph Volume Summary
 Direction Combined

Hour	Starting	Day of Week							W/Day Ave	7 Day Ave
		Mon	Tue	Wed	Thu	Fri	Sat	Sun		
12-Jun	28	71	60	60	84	65	261			
AM Peak	27	89	100	119	105	100	226		652	
PM Peak	5	1	1	1	0	0	15	2	3	
0:00		5	1	1	1	0	0	15	2	
1:00	5	1	1	2	0	6	7	2	3	
2:00	1	1	5	0	0	0	9	1	2	
3:00	0	0	2	1	2	0	6	1	2	
4:00	0	5	3	5	4	1	1	3	3	
5:00	3	3	6	5	2	1	0	4	3	
6:00	12	14	7	17	17	5	4	13	11	
7:00	20	33	24	29	26	17	20	26	24	
8:00	21	71	60	60	84	28	84	59	58	
9:00	28	35	55	27	69	40	261	43	74	
10:00	24	40	37	23	34	65	98	32	46	
11:00	28	32	37	25	44	54	71	33	42	
12:00	23	38	36	27	26	40	226	30	59	
13:00	25	29	30	36	27	42	48	29	34	
14:00	21	89	100	119	105	69	31	81	72	
15:00	26	55	100	119	105	33	28	33	37	
16:00	27	21	38	46	33	63	28	31	39	
17:00	23	27	34	32	39	100	19	31	39	
18:00	17	28	30	23	30	69	8	26	29	
19:00	12	9	29	28	21	78	10	20	27	
20:00	10	12	18	16	16	22	11	14	15	
21:00	4	9	15	7	20	9	4	11	10	
22:00	3	9	3	7	9	21	7	6	8	
23:00	3	1	1	9	3	12	1	3	4	
Total	341	563	610	574	686	781	1006	555	652	

Client TTPP
 Site Rookwood - all access points
 Location Rookwood
 Site No 2
 Start Date 9-Jun-17
 Description Volume Summary
 Direction INBOUND

Hour	Day of Week							W/Day	7 Day
	Mon 12-Jun	Tue 13-Jun	Wed 14-Jun	Thu 15-Jun	Fri 16-Jun	Sat 17-Jun	Sun 18-Jun		
0:00	0	0	2	0	0	0	0	0	0
1:00	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0
4:00	3	5	3	3	3	3	2	3	3
5:00	2	9	11	10	15	2	4	9	8
6:00	7	56	44	58	43	6	8	42	32
7:00	12	49	46	57	60	25	24	45	39
8:00	43	60	65	86	68	53	92	64	67
9:00	83	49	87	118	163	71	159	100	104
10:00	131	59	124	250	188	109	238	150	157
11:00	176	67	196	186	213	152	346	168	191
12:00	167	105	217	238	284	197	267	202	211
13:00	165	141	174	239	439	134	186	232	211
14:00	166	127	100	146	166	117	177	141	143
15:00	140	144	65	87	178	89	108	123	116
16:00	83	142	51	78	74	52	70	86	79
17:00	11	28	29	32	25	14	20	25	23
18:00	4	7	9	6	6	2	4	6	5
19:00	4	4	4	6	3	3	3	4	4
20:00	2	0	1	0	0	0	0	1	0
21:00	0	2	1	2	1	2	3	1	2
22:00	0	0	2	0	0	0	0	0	0
23:00	0	0	2	0	0	0	0	0	0
Total	1199	1054	1233	1602	1929	1031	1711	1403	1394

Client TTPP
 Site Rookwood - all access points
 Location Rookwood
 Site No 2
 Start Date 9-Jun-17
 Description Volume Summary
 Direction OUTBOUND

Hour	Day of Week							W/Day	7 Day
	Mon 12-Jun	Tue 13-Jun	Wed 14-Jun	Thu 15-Jun	Fri 16-Jun	Sat 17-Jun	Sun 18-Jun		
0:00	0	0	2	0	0	0	0	0	0
1:00	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0
4:00	3	5	3	3	3	3	2	3	3
5:00	2	4	8	5	6	1	3	5	4
6:00	5	33	21	29	27	5	4	23	18
7:00	9	28	39	36	38	19	15	30	26
8:00	29	59	59	76	53	44	68	55	55
9:00	78	56	79	97	93	70	139	81	87
10:00	123	70	118	175	109	88	193	119	125
11:00	153	81	145	216	229	145	312	165	183
12:00	163	95	168	208	234	149	328	174	192
13:00	166	183	241	247	305	191	173	228	215
14:00	173	154	147	199	273	124	198	189	181
15:00	143	203	105	149	278	108	121	176	158
16:00	105	105	65	103	158	53	90	107	97
17:00	23	35	34	36	28	20	30	31	29
18:00	5	10	11	7	10	3	7	9	8
19:00	4	3	4	8	3	4	4	4	4
20:00	2	0	0	0	0	0	0	0	0
21:00	0	2	3	2	2	3	2	2	2
22:00	0	0	1	0	0	0	0	0	0
23:00	0	0	2	0	0	0	0	0	0
Total	1186	1126	1255	1596	1849	1030	1689	1402	1390

Client TTPP
 Site Rookwood - all access points
 Location Rookwood
 Site No 2
 Start Date 9-Jun-17
 Description Volume Summary
 Direction TWO-WAY

Hour	Day of Week							W/Day	Ave	7 Day
	Mon 12-Jun	Tue 13-Jun	Wed 14-Jun	Thu 15-Jun	Fri 16-Jun	Sat 17-Jun	Sun 18-Jun			
0:00	0	0	4	0	0	0	0	0	1	1
1:00	0	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0	0
4:00	6	10	6	6	6	6	4	7	6	6
5:00	4	13	19	15	21	3	7	14	12	12
6:00	12	89	65	87	70	11	12	65	49	49
7:00	21	77	85	93	98	44	39	75	65	65
8:00	72	119	124	162	121	97	160	120	122	122
9:00	161	105	166	215	256	141	298	181	192	192
10:00	254	129	242	425	297	197	431	269	282	282
11:00	329	148	341	402	442	297	658	332	374	374
12:00	330	200	385	446	518	346	595	376	403	403
13:00	331	324	415	486	744	325	359	460	426	426
14:00	339	281	247	345	439	241	375	330	324	324
15:00	283	347	170	236	456	197	229	298	274	274
16:00	188	247	116	181	232	105	160	193	176	176
17:00	34	63	63	68	53	34	50	56	52	52
18:00	9	17	20	13	16	5	11	15	13	13
19:00	8	7	8	14	6	7	7	9	8	8
20:00	4	0	1	0	0	0	0	1	1	1
21:00	0	4	4	4	3	5	5	3	4	4
22:00	0	0	3	0	0	0	0	1	0	0
23:00	0	0	4	0	0	0	0	1	0	0
Total	2385	2180	2488	3198	3778	2061	3400	2806	2784	2784

Appendix E

SIDRA Movement Summaries

MOVEMENT SUMMARY

Site: 101 [EXAM_Proposed Site Access]

Network: N101 [Ex AM Network]

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	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles	m				km/h
East: Park Road (East)														
5	T1	143	20.6	143	20.6	0.083	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		143	20.6	143	20.6	0.083	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
West: Park Road (West)														
11	T1	429	7.1	429	7.1	0.230	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		429	7.1	429	7.1	0.230	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		573	10.5	573	10.5	0.230	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0

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.

MOVEMENT SUMMARY

Site: 101 [EXAM_ Panthers / Park Road]

Network: N101 [Ex AM Network]

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	Distance				km/h
South: Access														
1	L2	1	0.0	1	0.0	0.004	5.9	LOS A	0.0	0.1	0.35	0.57	0.35	48.3
2	T1	1	0.0	1	0.0	0.004	7.2	LOS A	0.0	0.1	0.35	0.57	0.35	52.4
3	R2	1	0.0	1	0.0	0.004	9.2	LOS A	0.0	0.1	0.35	0.57	0.35	48.3
Approach		3	0.0	3	0.0	0.004	7.5	LOS A	0.0	0.1	0.35	0.57	0.35	50.2
East: Park Road (East)														
4	L2	1	0.0	1	0.0	0.084	7.3	LOS A	0.1	0.9	0.10	0.06	0.10	57.4
5	T1	129	22.8	129	22.8	0.084	0.2	LOS A	0.1	0.9	0.10	0.06	0.10	58.0
6	R2	12	0.0	12	0.0	0.084	7.3	LOS A	0.1	0.9	0.10	0.06	0.10	56.9
Approach		142	20.7	142	20.7	0.084	0.9	NA	0.1	0.9	0.10	0.06	0.10	57.8
North: Panthers Gold Club														
7	L2	1	0.0	1	0.0	0.004	7.0	LOS A	0.0	0.1	0.49	0.61	0.49	47.8
8	T1	1	0.0	1	0.0	0.004	7.2	LOS A	0.0	0.1	0.49	0.61	0.49	52.1
9	R2	1	0.0	1	0.0	0.004	9.2	LOS A	0.0	0.1	0.49	0.61	0.49	47.8
Approach		3	0.0	3	0.0	0.004	7.8	LOS A	0.0	0.1	0.49	0.61	0.49	49.9
West: Park Road (west)														
10	L2	11	0.0	11	0.0	0.228	5.6	LOS A	0.0	0.1	0.00	0.02	0.00	57.1
11	T1	429	7.1	429	7.1	0.228	0.0	LOS A	0.0	0.1	0.00	0.02	0.00	58.6
12	R2	1	0.0	1	0.0	0.228	6.0	LOS A	0.0	0.1	0.00	0.02	0.00	56.4
Approach		441	6.9	441	6.9	0.228	0.1	NA	0.0	0.1	0.00	0.02	0.00	58.4
All Vehicles		589	10.2	589	10.2	0.228	0.4	NA	0.1	0.9	0.03	0.03	0.03	57.8

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.

MOVEMENT SUMMARY

Site: 101 [EXAM_Greendale Rd/Park Rd]

Network: N101 [Ex AM Network]

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	Distance m				km/h
South: Greendale Rd-S														
1a	L1	86	8.5	86	8.5	0.062	4.6	LOS A	0.3	1.9	0.24	0.51	0.24	44.0
3	R2	37	11.4	37	11.4	0.058	7.9	LOS A	0.2	1.4	0.49	0.72	0.49	41.2
Approach		123	9.4	123	9.4	0.062	5.6	LOS A	0.3	1.9	0.32	0.57	0.32	43.2
East: Park Rd-E														
4	L2	11	30.0	11	30.0	0.083	5.7	LOS A	0.0	0.0	0.00	0.56	0.00	49.2
6a	R1	127	19.8	127	19.8	0.083	4.8	LOS A	0.0	0.0	0.00	0.56	0.00	35.5
Approach		138	20.6	138	20.6	0.083	4.9	NA	0.0	0.0	0.00	0.56	0.00	38.8
NorthWest: Park Rd-NW														
27a	L1	399	8.4	399	8.4	0.221	4.3	LOS A	0.0	0.0	0.00	0.57	0.00	30.7
29a	R1	48	19.6	48	19.6	0.054	4.8	LOS A	0.2	1.5	0.31	0.57	0.31	44.2
Approach		447	9.6	447	9.6	0.221	4.4	LOS A	0.2	1.5	0.03	0.57	0.03	36.0
All Vehicles		708	11.7	708	11.7	0.221	4.7	NA	0.3	1.9	0.08	0.57	0.08	39.3

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.

MOVEMENT SUMMARY

 Site: 101 [EXAM_Roundabout]

 Network: N101 [Ex AM Network]

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	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: Park Rd-S														
1	L2	109	22.1	109	22.1	0.229	4.4	LOS A	1.2	9.9	0.36	0.52	0.36	49.4
2	T1	99	9.6	99	9.6	0.229	4.6	LOS A	1.2	9.9	0.36	0.52	0.36	52.0
3u	U	1	0.0	1	0.0	0.229	9.9	LOS A	1.2	9.9	0.36	0.52	0.36	30.3
Approach		209	16.1	209	16.1	0.229	4.5	LOS A	1.2	9.9	0.36	0.52	0.36	50.5
North: Park Rd-N														
8	T1	80	9.2	80	9.2	0.236	7.3	LOS A	1.4	10.3	0.59	0.72	0.59	46.1
9	R2	117	10.8	117	10.8	0.236	11.1	LOS A	1.4	10.3	0.59	0.72	0.59	51.1
9u	U	2	0.0	2	0.0	0.236	12.5	LOS A	1.4	10.3	0.59	0.72	0.59	52.2
Approach		199	10.1	199	10.1	0.236	9.6	LOS A	1.4	10.3	0.59	0.72	0.59	49.7
West: Silverdale Rd-W														
10	L2	387	4.1	387	4.1	0.576	5.1	LOS A	4.4	31.9	0.38	0.59	0.38	52.0
12	R2	375	6.5	375	6.5	0.576	9.0	LOS A	4.4	31.9	0.38	0.59	0.38	48.2
Approach		762	5.2	762	5.2	0.576	7.0	LOS A	4.4	31.9	0.38	0.59	0.38	50.7
All Vehicles		1171	8.0	1171	8.0	0.576	7.0	LOS A	4.4	31.9	0.41	0.60	0.41	50.5

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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Organisation: TTPP - THE TRANSPORT PLANNING PARTNERSHIP | Processed: Tuesday, 1 October 2019 3:34:57 PM

Project: X:\19292 Wallacia Crown Cemetery Development\07 Modelling Files\Proposed Site Access_180516 Existing Only.sip8

MOVEMENT SUMMARY

Site: 101 [EXPM_Proposed Site Access]

Network: N101 [Ex PM Network]

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	Distance m			km/h	
East: Park Road (East)														
5	T1	394	11.8	394	11.8	0.217	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		394	11.8	394	11.8	0.217	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
West: Park Road (West)														
11	T1	229	13.3	229	13.3	0.128	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		229	13.3	229	13.3	0.128	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
All Vehicles		623	12.3	623	12.3	0.217	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0

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.

MOVEMENT SUMMARY

Site: 101 [EXPM_Panthers / Park Road]

Network: N101 [Ex PM Network]

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	Distance m			km/h	
South: Access														
1	L2	1	0.0	1	0.0	0.004	6.7	LOS A	0.0	0.1	0.47	0.60	0.47	47.9
2	T1	1	0.0	1	0.0	0.004	7.3	LOS A	0.0	0.1	0.47	0.60	0.47	52.1
3	R2	1	0.0	1	0.0	0.004	9.3	LOS A	0.0	0.1	0.47	0.60	0.47	47.9
Approach		3	0.0	3	0.0	0.004	7.8	LOS A	0.0	0.1	0.47	0.60	0.47	49.9
East: Park Road (East)														
4	L2	1	0.0	1	0.0	0.191	6.5	LOS A	0.1	0.6	0.02	0.02	0.02	58.1
5	T1	344	13.5	344	13.5	0.191	0.0	LOS A	0.1	0.6	0.02	0.02	0.02	59.5
6	R2	8	0.0	8	0.0	0.191	6.5	LOS A	0.1	0.6	0.02	0.02	0.02	57.6
Approach		354	13.1	354	13.1	0.191	0.2	NA	0.1	0.6	0.02	0.02	0.02	59.4
North: Panthers Gold Club														
7	L2	9	0.0	9	0.0	0.039	6.3	LOS A	0.1	0.9	0.43	0.67	0.43	47.2
8	T1	1	0.0	1	0.0	0.039	7.5	LOS A	0.1	0.9	0.43	0.67	0.43	51.7
9	R2	17	0.0	17	0.0	0.039	9.5	LOS A	0.1	0.9	0.43	0.67	0.43	47.2
Approach		27	0.0	27	0.0	0.039	8.3	LOS A	0.1	0.9	0.43	0.67	0.43	47.5
West: Park Road (west)														
10	L2	5	0.0	5	0.0	0.127	5.8	LOS A	0.0	0.1	0.01	0.02	0.01	57.1
11	T1	229	13.3	229	13.3	0.127	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	58.3
12	R2	1	0.0	1	0.0	0.127	6.9	LOS A	0.0	0.1	0.01	0.02	0.01	56.3
Approach		236	12.9	236	12.9	0.127	0.2	NA	0.0	0.1	0.01	0.02	0.01	58.1
All Vehicles		620	12.4	620	12.4	0.191	0.6	NA	0.1	0.9	0.04	0.05	0.04	58.2

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.

MOVEMENT SUMMARY

Site: 101 [EXPM_Greendale Rd/Park Rd]

Network: N101 [Ex PM Network]

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	Distance m			km/h	
South: Greendale Rd-S														
1a	L1	75	11.3	75	11.3	0.067	5.5	LOS A	0.3	2.0	0.40	0.59	0.40	43.4
3	R2	27	23.1	27	23.1	0.047	8.4	LOS A	0.1	1.3	0.50	0.72	0.50	40.9
Approach		102	14.4	102	14.4	0.067	6.3	LOS A	0.3	2.0	0.42	0.62	0.42	42.7
East: Park Rd-E														
4	L2	41	10.3	41	10.3	0.201	5.6	LOS A	0.0	0.0	0.00	0.56	0.00	50.3
6a	R1	313	12.1	313	12.1	0.201	4.8	LOS A	0.0	0.0	0.00	0.56	0.00	35.4
Approach		354	11.9	354	11.9	0.201	4.9	NA	0.0	0.0	0.00	0.56	0.00	40.3
NorthWest: Park Rd-NW														
27a	L1	203	12.4	203	12.4	0.115	4.3	LOS A	0.0	0.0	0.00	0.57	0.00	30.7
29a	R1	116	5.5	116	5.5	0.150	6.1	LOS A	0.5	3.8	0.45	0.70	0.45	43.3
Approach		319	9.9	319	9.9	0.150	5.0	LOS A	0.5	3.8	0.16	0.62	0.16	40.2
All Vehicles		775	11.4	775	11.4	0.201	5.1	NA	0.5	3.8	0.12	0.59	0.12	40.9

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.

MOVEMENT SUMMARY

 Site: 101 [EXPM_ Roundabout]

 Network: N101 [Ex PM Network]

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	Distance m			km/h	
South: RoadName														
1	L2	293	14.0	293	14.0	0.571	8.8	LOS A	4.5	35.1	0.74	0.86	0.86	45.5
2	T1	108	9.7	108	9.7	0.571	8.9	LOS A	4.5	35.1	0.74	0.86	0.86	47.3
3u	U	2	0.0	2	0.0	0.571	14.0	LOS A	4.5	35.1	0.74	0.86	0.86	21.1
Approach		403	12.8	403	12.8	0.571	8.9	LOS A	4.5	35.1	0.74	0.86	0.86	45.9
North: RoadName														
8	T1	141	9.0	141	9.0	0.445	5.9	LOS A	3.2	23.9	0.47	0.63	0.47	46.7
9	R2	359	5.9	359	5.9	0.445	9.6	LOS A	3.2	23.9	0.47	0.63	0.47	51.7
9u	U	5	0.0	5	0.0	0.445	11.2	LOS A	3.2	23.9	0.47	0.63	0.47	52.6
Approach		505	6.7	505	6.7	0.445	8.6	LOS A	3.2	23.9	0.47	0.63	0.47	50.8
West: RoadName														
10	L2	204	7.7	204	7.7	0.292	5.0	LOS A	1.6	12.6	0.32	0.58	0.32	52.3
12	R2	143	16.2	143	16.2	0.292	9.0	LOS A	1.6	12.6	0.32	0.58	0.32	48.9
Approach		347	11.2	347	11.2	0.292	6.7	LOS A	1.6	12.6	0.32	0.58	0.32	51.4
All Vehicles		1256	9.9	1256	9.9	0.571	8.1	LOS A	4.5	35.1	0.52	0.69	0.55	49.7

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.
 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.

MOVEMENT SUMMARY

Site: 101 [EXSUN_Proposed Site Access]

Network: N101 [Ex SUN Network]

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	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles	m				km/h
East: Park Road (East)														
5	T1	244	1.7	244	1.7	0.127	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		244	1.7	244	1.7	0.127	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
West: Park Road (West)														
11	T1	189	2.2	189	2.2	0.099	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		189	2.2	189	2.2	0.099	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
All Vehicles		434	1.9	434	1.9	0.127	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0

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.

MOVEMENT SUMMARY

Site: 101 [EXSUN_Panthers / Park Road]

Network: N101 [Ex SUN Network]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total veh/h	Arrival Flows HV % Total veh/h	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h			
South: Garage Access														
1	L2	2	0.0	2	0.0	0.005	5.3	LOS A	0.0	0.1	0.41	0.56	0.41	25.9
2	T1	1	0.0	1	0.0	0.005	5.4	LOS A	0.0	0.1	0.41	0.56	0.41	49.6
3	R2	1	0.0	1	0.0	0.005	7.2	LOS A	0.0	0.1	0.41	0.56	0.41	25.9
Approach		4	0.0	4	0.0	0.005	5.8	LOS A	0.0	0.1	0.41	0.56	0.41	39.6
East: Park Road (East)														
4	L2	1	0.0	1	0.0	0.163	6.2	LOS A	0.1	0.6	0.03	0.02	0.03	55.5
5	T1	312	1.4	312	1.4	0.163	0.0	LOS A	0.1	0.6	0.03	0.02	0.03	59.4
6	R2	9	0.0	9	0.0	0.163	6.2	LOS A	0.1	0.6	0.03	0.02	0.03	57.6
Approach		322	1.3	322	1.3	0.163	0.2	NA	0.1	0.6	0.03	0.02	0.03	59.3
North: Panthers Gold Club														
7	L2	12	0.0	12	0.0	0.043	6.1	LOS A	0.1	1.0	0.38	0.64	0.38	48.0
8	T1	1	0.0	1	0.0	0.043	6.7	LOS A	0.1	1.0	0.38	0.64	0.38	46.8
9	R2	21	0.0	21	0.0	0.043	8.6	LOS A	0.1	1.0	0.38	0.64	0.38	48.0
Approach		34	0.0	34	0.0	0.043	7.7	LOS A	0.1	1.0	0.38	0.64	0.38	47.9
West: Park Road (west)														
10	L2	9	0.0	9	0.0	0.101	5.7	LOS A	0.0	0.1	0.01	0.03	0.01	56.9
11	T1	189	2.2	189	2.2	0.101	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	57.3
12	R2	1	0.0	1	0.0	0.101	6.6	LOS A	0.0	0.1	0.01	0.03	0.01	46.4
Approach		200	2.1	200	2.1	0.101	0.3	NA	0.0	0.1	0.01	0.03	0.01	57.1
All Vehicles		560	1.5	560	1.5	0.163	0.8	NA	0.1	1.0	0.04	0.07	0.04	57.8

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.

MOVEMENT SUMMARY

Site: 101 [EXSUN_Greendale Rd/Park Rd]

Network: N101 [Ex SUN Network]

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	Distance m			km/h	
South: Greendale Rd-S														
1a	L1	97	0.0	97	0.0	0.071	4.8	LOS A	0.3	2.0	0.30	0.53	0.30	43.8
3	R2	34	3.1	34	3.1	0.041	6.5	LOS A	0.1	1.0	0.41	0.64	0.41	42.5
Approach		131	0.8	131	0.8	0.071	5.2	LOS A	0.3	2.0	0.33	0.56	0.33	43.5
East: Park Rd-E														
4	L2	54	0.0	54	0.0	0.142	5.5	LOS A	0.0	0.0	0.00	0.56	0.00	50.9
6a	R1	213	3.0	213	3.0	0.142	4.7	LOS A	0.0	0.0	0.00	0.56	0.00	35.2
Approach		266	2.4	266	2.4	0.142	4.9	NA	0.0	0.0	0.00	0.56	0.00	42.8
NorthWest: Park Rd-NW														
27a	L1	169	1.2	169	1.2	0.089	4.3	LOS A	0.0	0.0	0.00	0.57	0.00	30.7
29a	R1	98	1.1	98	1.1	0.111	5.3	LOS A	0.4	2.7	0.39	0.64	0.39	44.1
Approach		267	1.2	267	1.2	0.111	4.7	LOS A	0.4	2.7	0.14	0.60	0.14	40.8
All Vehicles		664	1.6	664	1.6	0.142	4.9	NA	0.4	2.7	0.12	0.58	0.12	42.3

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.

MOVEMENT SUMMARY

 Site: 101 [EXSUN_Roundabout]

 Network: N101 [Ex SUN Network]

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	Distance m			km/h	
South: Park Rd-S														
1	L2	209	1.0	209	1.0	0.422	5.7	LOS A	2.6	18.2	0.57	0.67	0.57	49.3
2	T1	143	1.5	143	1.5	0.422	6.0	LOS A	2.6	18.2	0.57	0.67	0.57	51.0
3u	U	4	0.0	4	0.0	0.422	11.4	LOS A	2.6	18.2	0.57	0.67	0.57	27.0
Approach		357	1.2	357	1.2	0.422	5.9	LOS A	2.6	18.2	0.57	0.67	0.57	49.9
North: Park Rd-N														
8	T1	112	0.9	112	0.9	0.325	5.5	LOS A	2.1	14.9	0.38	0.61	0.38	47.1
9	R2	261	1.2	261	1.2	0.325	9.1	LOS A	2.1	14.9	0.38	0.61	0.38	52.2
9u	U	13	8.3	13	8.3	0.325	11.1	LOS A	2.1	14.9	0.38	0.61	0.38	52.5
Approach		385	1.4	385	1.4	0.325	8.1	LOS A	2.1	14.9	0.38	0.61	0.38	51.2
West: Silverdale Rd-W														
10	L2	247	1.7	247	1.7	0.311	5.1	LOS A	1.7	12.2	0.36	0.60	0.36	52.6
12	R2	127	3.3	127	3.3	0.311	9.0	LOS A	1.7	12.2	0.36	0.60	0.36	49.0
Approach		375	2.2	375	2.2	0.311	6.4	LOS A	1.7	12.2	0.36	0.60	0.36	51.8
All Vehicles		1117	1.6	1117	1.6	0.422	6.9	LOS A	2.6	18.2	0.43	0.63	0.43	51.1

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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Organisation: TTPP - THE TRANSPORT PLANNING PARTNERSHIP | Processed: Tuesday, 1 October 2019 3:35:04 PM

Project: X:\19292 Wallacia Crown Cemetery Development\07 Modelling Files\Proposed Site Access_180516 Existing Only.sip8

MOVEMENT SUMMARY

Site: 101 [PROPAM_Proposed Site Access]

Network: N101 [Fu AM Network]

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	Distance m			km/h	
East: Park Road (East)														
5	T1	145	20.3	145	20.3	0.085	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6b	R3	13	0.0	13	0.0	0.012	7.9	LOS A	0.0	0.3	0.49	0.65	0.49	51.3
Approach		158	18.7	158	18.7	0.085	0.6	NA	0.0	0.3	0.04	0.05	0.04	58.5
NorthEast: Cemetery Access														
24b	L3	7	0.0	7	0.0	0.153	8.2	LOS A	0.6	4.0	0.60	0.82	0.60	50.4
26a	R1	76	0.0	76	0.0	0.153	10.5	LOS A	0.6	4.0	0.60	0.82	0.60	44.9
Approach		83	0.0	83	0.0	0.153	10.3	LOS A	0.6	4.0	0.60	0.82	0.60	45.7
West: Park Road (West)														
10a	L1	49	0.0	49	0.0	0.260	5.3	LOS A	0.0	0.0	0.00	0.06	0.00	57.2
11	T1	437	7.0	437	7.0	0.260	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	59.4
Approach		486	6.3	486	6.3	0.260	0.6	NA	0.0	0.0	0.00	0.06	0.00	59.1
All Vehicles		727	8.2	727	8.2	0.260	1.7	NA	0.6	4.0	0.08	0.15	0.08	57.8

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.

MOVEMENT SUMMARY

Site: 101 [PROPAM_ Panthers / Park Road]

Network: N101 [Fu AM Network]

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: Access														
1	L2	1	0.0	1	0.0	0.006	6.0	LOS A	0.0	0.2	0.47	0.60	0.47	45.0
2	T1	1	0.0	1	0.0	0.006	11.2	LOS A	0.0	0.2	0.47	0.60	0.47	50.5
3	R2	1	0.0	1	0.0	0.006	13.6	LOS A	0.0	0.2	0.47	0.60	0.47	45.0
Approach		3	0.0	3	0.0	0.006	10.3	LOS A	0.0	0.2	0.47	0.60	0.47	47.6
East: Park Road (East)														
4	L2	1	0.0	1	0.0	0.089	5.5	LOS A	0.0	0.0	0.00	0.00	0.00	58.3
5	T1	159	18.5	159	18.5	0.089	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	60	0.0	60	0.0	0.056	7.5	LOS A	0.2	1.6	0.51	0.68	0.51	51.7
Approach		220	13.4	220	13.4	0.089	2.1	NA	0.2	1.6	0.14	0.19	0.14	56.1
North: Panthers Gold Club														
7	L2	7	0.0	7	0.0	0.153	7.5	LOS A	0.6	3.9	0.68	0.86	0.68	41.5
8	T1	1	0.0	1	0.0	0.153	11.9	LOS A	0.6	3.9	0.68	0.86	0.68	48.2
9	R2	51	0.0	51	0.0	0.153	14.6	LOS B	0.6	3.9	0.68	0.86	0.68	41.5
Approach		59	0.0	59	0.0	0.153	13.7	LOS A	0.6	3.9	0.68	0.86	0.68	41.7
West: Park Road (west)														
10	L2	19	0.0	19	0.0	0.257	5.6	LOS A	0.0	0.1	0.00	0.02	0.00	57.0
11	T1	479	6.4	479	6.4	0.257	0.0	LOS A	0.0	0.1	0.00	0.02	0.00	57.9
12	R2	1	0.0	1	0.0	0.257	6.2	LOS A	0.0	0.1	0.00	0.02	0.00	56.2
Approach		499	6.1	499	6.1	0.257	0.2	NA	0.0	0.1	0.00	0.02	0.00	57.7
All Vehicles		781	7.7	781	7.7	0.257	1.8	NA	0.6	3.9	0.09	0.14	0.09	54.1

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.

MOVEMENT SUMMARY

Site: 101 [PROPAM_Greendale Rd/Park Rd]

Network: N101 [Fu AM Network]

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	Distance m			km/h	
South: Greendale Rd-S														
1a	L1	86	8.5	86	8.5	0.064	4.7	LOS A	0.3	1.9	0.27	0.52	0.27	43.9
3	R2	41	10.3	41	10.3	0.072	8.7	LOS A	0.2	1.7	0.53	0.77	0.53	40.5
Approach		127	9.1	127	9.1	0.072	6.0	LOS A	0.3	1.9	0.36	0.60	0.36	42.8
East: Park Rd-E														
4	L2	13	25.0	13	25.0	0.101	5.7	LOS A	0.0	0.0	0.00	0.56	0.00	49.5
6a	R1	160	15.8	160	15.8	0.101	4.8	LOS A	0.0	0.0	0.00	0.56	0.00	35.5
Approach		173	16.5	173	16.5	0.101	4.9	NA	0.0	0.0	0.00	0.56	0.00	38.7
NorthWest: Park Rd-NW														
27a	L1	452	7.5	452	7.5	0.249	4.3	LOS A	0.0	0.0	0.00	0.57	0.00	30.7
29a	R1	48	19.6	48	19.6	0.056	5.1	LOS A	0.2	1.5	0.34	0.59	0.34	44.0
Approach		500	8.6	500	8.6	0.249	4.4	LOS A	0.2	1.5	0.03	0.58	0.03	35.5
All Vehicles		800	10.4	800	10.4	0.249	4.7	NA	0.3	1.9	0.08	0.58	0.08	38.9

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.

MOVEMENT SUMMARY

 Site: 101 [PROPAM_ Roundabout]

 Network: N101 [Fu AM Network]

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	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles	m				km/h
South: Park Rd-S														
1	L2	126	19.2	126	19.2	0.259	4.4	LOS A	1.5	11.4	0.37	0.53	0.37	49.5
2	T1	115	8.3	115	8.3	0.259	4.6	LOS A	1.5	11.4	0.37	0.53	0.37	52.0
3u	U	1	0.0	1	0.0	0.259	9.9	LOS A	1.5	11.4	0.37	0.53	0.37	30.2
Approach		242	13.9	242	13.9	0.259	4.5	LOS A	1.5	11.4	0.37	0.53	0.37	50.6
North: Park Rd-N														
8	T1	119	6.2	119	6.2	0.284	7.5	LOS A	1.7	12.8	0.62	0.73	0.62	46.2
9	R2	117	10.8	117	10.8	0.284	11.3	LOS A	1.7	12.8	0.62	0.73	0.62	51.2
9u	U	2	0.0	2	0.0	0.284	12.8	LOS A	1.7	12.8	0.62	0.73	0.62	52.3
Approach		238	8.4	238	8.4	0.284	9.4	LOS A	1.7	12.8	0.62	0.73	0.62	49.4
West: Silverdale Rd-W														
10	L2	387	4.1	387	4.1	0.598	5.2	LOS A	4.7	34.1	0.42	0.60	0.42	51.9
12	R2	389	6.2	389	6.2	0.598	9.1	LOS A	4.7	34.1	0.42	0.60	0.42	48.0
Approach		777	5.1	777	5.1	0.598	7.2	LOS A	4.7	34.1	0.42	0.60	0.42	50.5
All Vehicles		1257	7.5	1257	7.5	0.598	7.1	LOS A	4.7	34.1	0.45	0.61	0.45	50.3

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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Organisation: TTPP - THE TRANSPORT PLANNING PARTNERSHIP | Processed: Tuesday, 3 December 2019 3:47:52 PM

Project: X:\19292 Wallacia Crown Cemetery Development\07 Modelling Files\Proposed Site Access_191203 Proposed.sip8

MOVEMENT SUMMARY

Site: 101 [PROPPM_Proposed Site Access]

Network: N101 [Fu PM Network]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
		Total veh/h	HV %	Total veh/h	HV %				Vehicles veh	Distance m				
East: Park Road (East)														
5	T1	415	11.2	415	11.2	0.229	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6b	R3	9	0.0	9	0.0	0.007	6.9	LOS A	0.0	0.2	0.37	0.59	0.37	51.7
Approach		424	10.9	424	10.9	0.229	0.2	NA	0.0	0.2	0.01	0.01	0.01	59.5
NorthEast: Cemetery Access														
24b	L3	9	0.0	9	0.0	0.191	7.4	LOS A	0.7	5.0	0.61	0.81	0.61	49.8
26a	R1	86	0.0	86	0.0	0.191	11.5	LOS A	0.7	5.0	0.61	0.81	0.61	44.0
Approach		96	0.0	96	0.0	0.191	11.1	LOS A	0.7	5.0	0.61	0.81	0.61	45.0
West: Park Road (West)														
10a	L1	40	0.0	40	0.0	0.156	5.3	LOS A	0.0	0.0	0.00	0.08	0.00	57.0
11	T1	243	12.6	243	12.6	0.156	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	59.1
Approach		283	10.8	283	10.8	0.156	0.8	NA	0.0	0.0	0.00	0.08	0.00	58.8
All Vehicles		803	9.6	803	9.6	0.229	1.7	NA	0.7	5.0	0.08	0.13	0.08	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.

MOVEMENT SUMMARY

Site: 101 [PROPPM_ Panthers / Park Road]

Network: N101 [Fu PM Network]

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	Distance m			km/h	
South: Access														
1	L2	1	0.0	1	0.0	0.007	6.9	LOS A	0.0	0.2	0.59	0.66	0.59	44.3
2	T1	1	0.0	1	0.0	0.007	11.5	LOS A	0.0	0.2	0.59	0.66	0.59	50.1
3	R2	1	0.0	1	0.0	0.007	14.4	LOS A	0.0	0.2	0.59	0.66	0.59	44.3
Approach		3	0.0	3	0.0	0.007	10.9	LOS A	0.0	0.2	0.59	0.66	0.59	47.0
East: Park Road (East)														
4	L2	1	0.0	1	0.0	0.207	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	58.3
5	T1	384	12.1	384	12.1	0.207	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	76	0.0	76	0.0	0.056	6.5	LOS A	0.2	1.7	0.39	0.60	0.39	52.2
Approach		461	10.0	461	10.0	0.207	1.1	NA	0.2	1.7	0.06	0.10	0.06	57.5
North: Panthers Gold Club														
7	L2	23	0.0	23	0.0	0.285	7.4	LOS A	1.2	8.3	0.66	0.86	0.77	40.6
8	T1	1	0.0	1	0.0	0.285	13.6	LOS A	1.2	8.3	0.66	0.86	0.77	47.6
9	R2	89	0.0	89	0.0	0.285	16.6	LOS B	1.2	8.3	0.66	0.86	0.77	40.6
Approach		114	0.0	114	0.0	0.285	14.7	LOS B	1.2	8.3	0.66	0.86	0.77	40.7
West: Park Road (west)														
10	L2	21	0.0	21	0.0	0.155	5.6	LOS A	0.0	0.1	0.01	0.05	0.01	56.6
11	T1	269	11.3	269	11.3	0.155	0.0	LOS A	0.0	0.1	0.01	0.05	0.01	56.0
12	R2	1	0.0	1	0.0	0.155	7.2	LOS A	0.0	0.1	0.01	0.05	0.01	55.9
Approach		292	10.5	292	10.5	0.155	0.4	NA	0.0	0.1	0.01	0.05	0.01	56.2
All Vehicles		869	8.8	869	8.8	0.285	2.7	NA	1.2	8.3	0.12	0.18	0.14	53.8

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.

MOVEMENT SUMMARY

Site: 101 [PROPPM_Greendale Rd/Park Rd]

Network: N101 [Fu PM Network]

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	Distance m			km/h	
South: Greendale Rd-S														
1a	L1	75	11.3	75	11.3	0.071	5.8	LOS A	0.3	2.1	0.43	0.62	0.43	43.3
3	R2	33	19.4	33	19.4	0.064	9.5	LOS A	0.2	1.6	0.56	0.79	0.56	39.9
Approach		107	13.7	107	13.7	0.071	6.9	LOS A	0.3	2.1	0.47	0.67	0.47	42.2
East: Park Rd-E														
4	L2	47	8.9	47	8.9	0.236	5.6	LOS A	0.0	0.0	0.00	0.56	0.00	50.4
6a	R1	373	10.2	373	10.2	0.236	4.8	LOS A	0.0	0.0	0.00	0.56	0.00	35.4
Approach		420	10.0	420	10.0	0.236	4.9	NA	0.0	0.0	0.00	0.56	0.00	40.2
NorthWest: Park Rd-NW														
27a	L1	255	9.9	255	9.9	0.142	4.3	LOS A	0.0	0.0	0.00	0.57	0.00	30.7
29a	R1	116	5.5	116	5.5	0.164	6.7	LOS A	0.6	4.1	0.49	0.74	0.49	42.8
Approach		371	8.5	371	8.5	0.164	5.0	LOS A	0.6	4.1	0.15	0.63	0.15	39.3
All Vehicles		898	9.8	898	9.8	0.236	5.2	NA	0.6	4.1	0.12	0.60	0.12	40.3

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.

MOVEMENT SUMMARY

 Site: 101 [PROPPM_ Roundabout]

 Network: N101 [Fu PM Network]

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	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	m				km/h
South: RoadName														
1	L2	337	12.2	337	12.2	0.648	9.9	LOS A	6.0	46.1	0.80	0.92	0.98	44.5
2	T1	124	8.5	124	8.5	0.648	10.1	LOS A	6.0	46.1	0.80	0.92	0.98	46.1
3u	U	2	0.0	2	0.0	0.648	15.2	LOS B	6.0	46.1	0.80	0.92	0.98	19.5
Approach		463	11.1	463	11.1	0.648	10.0	LOS A	6.0	46.1	0.80	0.92	0.98	44.9
North: RoadName														
8	T1	166	7.6	166	7.6	0.481	6.2	LOS A	3.6	26.8	0.53	0.65	0.53	46.6
9	R2	359	5.9	359	5.9	0.481	9.8	LOS A	3.6	26.8	0.53	0.65	0.53	51.6
9u	U	5	0.0	5	0.0	0.481	11.5	LOS A	3.6	26.8	0.53	0.65	0.53	52.5
Approach		531	6.3	531	6.3	0.481	8.7	LOS A	3.6	26.8	0.53	0.65	0.53	50.6
West: RoadName														
10	L2	204	7.7	204	7.7	0.317	5.1	LOS A	1.9	14.2	0.36	0.60	0.36	52.1
12	R2	168	13.8	168	13.8	0.317	9.1	LOS A	1.9	14.2	0.36	0.60	0.36	48.6
Approach		373	10.5	373	10.5	0.317	6.9	LOS A	1.9	14.2	0.36	0.60	0.36	51.0
All Vehicles		1366	9.1	1366	9.1	0.648	8.7	LOS A	6.0	46.1	0.57	0.73	0.63	49.1

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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Project: X:\19292 Wallacia Crown Cemetery Development\07 Modelling Files\Proposed Site Access_191203 Proposed.sip8

MOVEMENT SUMMARY

Site: 101 [PROPSUN_Proposed Site Access]

Network: N101 [Fu SUN Network]

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	Distance m			km/h	
East: Park Road (East)														
5	T1	262	1.6	262	1.6	0.137	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6b	R3	11	0.0	11	0.0	0.007	6.8	LOS A	0.0	0.2	0.33	0.58	0.33	51.8
Approach		273	1.5	273	1.5	0.137	0.3	NA	0.0	0.2	0.01	0.02	0.01	59.3
NorthEast: Cemetery Access														
24b	L3	9	0.0	9	0.0	0.064	7.1	LOS A	0.2	1.7	0.46	0.67	0.46	52.0
26a	R1	38	0.0	38	0.0	0.064	8.4	LOS A	0.2	1.7	0.46	0.67	0.46	47.5
Approach		47	0.0	47	0.0	0.064	8.1	LOS A	0.2	1.7	0.46	0.67	0.46	48.9
West: Park Road (West)														
10a	L1	42	0.0	42	0.0	0.127	5.3	LOS A	0.0	0.0	0.00	0.10	0.00	56.9
11	T1	202	2.1	202	2.1	0.127	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	59.1
Approach		244	1.7	244	1.7	0.127	0.9	NA	0.0	0.0	0.00	0.10	0.00	58.7
All Vehicles		564	1.5	564	1.5	0.137	1.2	NA	0.2	1.7	0.04	0.11	0.04	58.1

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.

MOVEMENT SUMMARY

Site: 101 [PROPSUN_ Panthers / Park Road]

Network: N101 [Fu SUN Network]

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	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: Garage Access														
1	L2	2	0.0	2	0.0	0.006	5.4	LOS A	0.0	0.2	0.50	0.59	0.50	22.7
2	T1	1	0.0	1	0.0	0.006	8.4	LOS A	0.0	0.2	0.50	0.59	0.50	48.0
3	R2	1	0.0	1	0.0	0.006	10.5	LOS A	0.0	0.2	0.50	0.59	0.50	22.7
Approach		4	0.0	4	0.0	0.006	7.4	LOS A	0.0	0.2	0.50	0.59	0.50	36.5
East: Park Road (East)														
4	L2	1	0.0	1	0.0	0.176	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	55.9
5	T1	349	1.2	349	1.2	0.176	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	27	0.0	27	0.0	0.019	6.3	LOS A	0.1	0.6	0.35	0.57	0.35	52.3
Approach		378	1.1	378	1.1	0.176	0.5	NA	0.1	0.6	0.03	0.04	0.03	58.8
North: Panthers Gold Club														
7	L2	24	0.0	24	0.0	0.129	6.3	LOS A	0.5	3.4	0.52	0.74	0.52	45.0
8	T1	1	0.0	1	0.0	0.129	10.0	LOS A	0.5	3.4	0.52	0.74	0.52	44.2
9	R2	47	0.0	47	0.0	0.129	12.3	LOS A	0.5	3.4	0.52	0.74	0.52	45.0
Approach		73	0.0	73	0.0	0.129	10.3	LOS A	0.5	3.4	0.52	0.74	0.52	45.0
West: Park Road (west)														
10	L2	28	0.0	28	0.0	0.132	5.6	LOS A	0.0	0.1	0.01	0.07	0.01	56.4
11	T1	232	1.8	232	1.8	0.132	0.0	LOS A	0.0	0.1	0.01	0.07	0.01	54.8
12	R2	1	0.0	1	0.0	0.132	6.9	LOS A	0.0	0.1	0.01	0.07	0.01	45.3
Approach		261	1.6	261	1.6	0.132	0.6	NA	0.0	0.1	0.01	0.07	0.01	55.3
All Vehicles		716	1.2	716	1.2	0.176	1.6	NA	0.5	3.4	0.07	0.13	0.07	55.9

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.

MOVEMENT SUMMARY

Site: 101 [PROPSUN_Greendale Rd/Park Rd]

Network: N101 [Fu SUN Network]

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	Distance m			km/h	
South: Greendale Rd-S														
1a	L1	97	0.0	97	0.0	0.076	5.0	LOS A	0.3	2.1	0.35	0.56	0.35	43.6
3	R2	42	2.5	42	2.5	0.058	7.2	LOS A	0.2	1.4	0.46	0.70	0.46	41.8
Approach		139	0.8	139	0.8	0.076	5.7	LOS A	0.3	2.1	0.38	0.60	0.38	43.1
East: Park Rd-E														
4	L2	62	0.0	62	0.0	0.177	5.5	LOS A	0.0	0.0	0.00	0.56	0.00	50.9
6a	R1	269	2.3	269	2.3	0.177	4.7	LOS A	0.0	0.0	0.00	0.56	0.00	35.3
Approach		332	1.9	332	1.9	0.177	4.9	NA	0.0	0.0	0.00	0.56	0.00	42.4
NorthWest: Park Rd-NW														
27a	L1	224	0.9	224	0.9	0.118	4.3	LOS A	0.0	0.0	0.00	0.57	0.00	30.7
29a	R1	98	1.1	98	1.1	0.120	5.8	LOS A	0.4	2.9	0.43	0.67	0.43	43.7
Approach		322	1.0	322	1.0	0.120	4.8	LOS A	0.4	2.9	0.13	0.60	0.13	39.8
All Vehicles		793	1.3	793	1.3	0.177	5.0	NA	0.4	2.9	0.12	0.59	0.12	41.7

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.

MOVEMENT SUMMARY

Site: 101 [PROPSUN_Roundabout]

Network: N101 [Fu SUN Network]

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	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: Park Rd-S														
1	L2	243	0.9	243	0.9	0.484	5.9	LOS A	3.2	22.5	0.61	0.69	0.61	49.1
2	T1	166	1.3	166	1.3	0.484	6.2	LOS A	3.2	22.5	0.61	0.69	0.61	50.8
3u	U	4	0.0	4	0.0	0.484	11.5	LOS A	3.2	22.5	0.61	0.69	0.61	26.7
Approach		414	1.0	414	1.0	0.484	6.1	LOS A	3.2	22.5	0.61	0.69	0.61	49.7
North: Park Rd-N														
8	T1	140	0.8	140	0.8	0.360	5.7	LOS A	2.4	17.1	0.44	0.62	0.44	47.0
9	R2	261	1.2	261	1.2	0.360	9.4	LOS A	2.4	17.1	0.44	0.62	0.44	52.1
9u	U	13	8.3	13	8.3	0.360	11.3	LOS A	2.4	17.1	0.44	0.62	0.44	52.5
Approach		414	1.3	414	1.3	0.360	8.2	LOS A	2.4	17.1	0.44	0.62	0.44	51.0
West: Silverdale Rd-W														
10	L2	247	1.7	247	1.7	0.340	5.3	LOS A	1.9	13.9	0.39	0.62	0.39	52.3
12	R2	154	2.7	154	2.7	0.340	9.1	LOS A	1.9	13.9	0.39	0.62	0.39	48.6
Approach		401	2.1	401	2.1	0.340	6.7	LOS A	1.9	13.9	0.39	0.62	0.39	51.4
All Vehicles		1228	1.5	1228	1.5	0.484	7.0	LOS A	3.2	22.5	0.48	0.64	0.48	50.8

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.

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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