



Table 15: Morning Peak Modal Split

Morning Arrival	No	Car		Public Transport		Walk		School Bus		Other	
		%	No. People	No. Cars	%	No. People	%	No. People	%	No. People	
Existing											
		Student Car Occupancy		2.26		Staff Car Occupancy		1.14			
Students	920	48%	442	196	30%	276	9%	12%	110	1%	9
Staff	150	66%	99	87	16%	24	11%	-	-	7%	11
Proposed											
		Student Car Occupancy		2.26		Staff Car Occupancy		1.14			
Students	950	48%	456	202	30%	285	9%	12%	114	1%	10
Staff	160	66%	106	93	16%	26	11%	-	-	7%	11
Increase of Trips											
Students	30		14	6		9			4		1
Staff	10		7	6		2			0		0
TOTAL	40		21	12		11			4		1



Table 16: Afternoon Peak Modal Split

Morning Arrival	No	Car		Public Transport		Walk		School Bus		Other		
		%	No. People	No. Cars	%	No. People	%	No. People	%	No. People		
Existing												
Students	920	28%	258	113	42%	386	15%	138	14%	129	1%	9
Staff	150	66%	99	87	16%	24	11%	17	-	-	7%	11
Proposed												
Students	950	28%	266	117	42%	399	15%	143	14%	133	1%	10
Staff	160	66%	106	93	16%	26	11%	18	-	-	7%	11
Increase of Trips												
Students	30		8	4		13		5		4		1
Staff	10		7	6		2		1		0		0
TOTAL	40		15	10		36		13		4		1



7.3 Traffic Impacts

7.3.1 Weekday

As discussed in Section 7.1, the development will generate an additional 12 vehicle arrivals in the AM peak with 6 vehicle arrivals associated with student drop off and 6 vehicle trips associated with staff arrivals. Furthermore, 10 vehicle departures will be generated during the peak afternoon period with 4 vehicle trips being student pick up and 6 trips associated with staff departures.

The trips associated with students must however be factored to account for pick-up or drop-off movements. In this case, the school is not the end destination of the driver (parent) and therefore the impact upon the external road network would be doubled. This is referred to as a linked trip. It must also be acknowledged that the proposed volumes occur over the school peaks which range from 6-9am and 2-4pm. The impact of the above mentioned traffic volumes has been summarised below based on the findings of the questionnaire travel mode surveys

• Staff Peaks

- AM peak (6-9am) with 73% of staff arriving between 7-8 am
- PM Peak (3-6pm) with 53% of staff departing between 4-5 pm

• Student Peaks

- AM peak (7-9am) with 61% of students arriving between 8-9am
- PM Peak (3-6pm) with 85% of students departing between 3-4pm

In this regard, the following volumes represent the additional vehicle movements taking into account linked trips and the peak splits that will occur on the external road network. The results are summarised in **Table 17** and **Table 18**.



Table 17: Proposed Morning Hourly Volumes: Weekday

Period	In Veh/hr	Out Veh/hr	Total Veh/hr
6-7am	1	0	1
7-8am	11	6	17
8-9am	11	11	22
Total	23	17	40

Table 18: Proposed Evening Hourly Volumes: Weekday

Period	In Veh/hr	Out Veh/hr	Total Veh/hr
3-4pm	9	9	18
4-5pm	1	4	5
5-6pm	0	2	2
Total	10	15	25

Table 17 identifies that the peak AM period occurs between 8-9am and results in an additional traffic generation of 22 veh/hr. Table 18 indicates that the peak PM period will occur from 3-4pm generating an additional 18 veh/hr over and above the existing development traffic generation. It is highly noteworthy also that the PM peak occurs outside of the external road network peak experienced between 5-6pm.

The above volumes are not significant and will have a negligible impact on the external road network. In fact, if all 22 veh/hr during the AM peak or 18 veh/hr during the PM peak were distributed to a single intersection, there would be a minimal impact noting that this would represent very minor increase over and above existing traffic volumes. Indeed, taking into consideration the various arrival and departure routes that are available, the additional impacts will be further minimised through the dispersion of traffic surrounding the site. Finally, it is highly noteworthy that school has historically accommodated over 1,000 students which has reduced over the past years. The increased student population that is now proposed will not exceed the previous peaks which have been previously fully accommodated by the surrounding road network.

In summary, the additional impacts of Redlands' Senior Campus redevelopment are minor and will have little measurable impact on the external road network.



7.3.2 Bus Related Trips

Access to the site's through link will be appropriately managed for general use by the school's mini bus fleet per week. Anticipated volumes are as expected to reach a maximum of:

- AM peak (8-9am): 6 veh/hr primarily associated with Redland's Senior Campus mini-buses departing for extracurricular activities.
- PM Peak (3-4pm): 12 veh/hr (worst case associated with school mini fleet buses and Thursday use of 65 seater buses (14.5m Buses).

The through link will be capable of accommodating larger buses (14.5m or 65 seater) and these are generally only required on Thursdays for transportation of students to external sporting facilities. The buses are generally used to transport students to external sporting venues however with the proposed redevelopment of the entire site and provision of the Sports and Performing Arts Centre, the school's reliance upon the minibuses will reduce over time and be utilised for general excursions.

In addition to the above, the infrequent attendance of waste collection vehicles (5 times per week) and general deliveries (1-2) times per day will ensure that the through site link will remain a low volume thoroughfare utilised only by service vehicles and buses. This will be appropriately managed by the school and it is anticipated that a Management Plan would be developed as part of a suitable condition of consent to ensure efficient operation of the thoroughfare and that only authorised vehicles are provided with access.

7.3.3 Weekend

The sports facility weekend operation is capable of generating up to 146 veh/hr with 73 in, and 73 out. The existing analysis undertaken in Section 3.3 demonstrated the weekend intersection analysis results.

With consideration for the above, it is not anticipated that the 146 veh/hr will have a major impact on the road network as the nearby intersections currently operate with acceptable Level of Service. Nonetheless, the estimated vehicle volume has been superimposed onto the weekend (Saturday) period. The trip adopted trip distribution has been developed on the basis of the travel mode survey and origin suburbs of the school's student population. The results of this survey are summarise in Table 19 below for information purposes. Furthermore, the adoption of the trip distribution and impact of the 146 veh/hr is graphically illustrated in **Figure 21**.



Table 19: Adopted Weekend Trip Distribution based on Travel Mode Surveys

	IN			OUT	
% Split o	Intersection	Approach	Movement	Approach	Movement
37%	Gerard / Winnie	East	Through	West	Through
7%		North	Right		Left
16%		South	Left		Right
6%	Waters / Gerard	South	Right	East	Left
34%		West	Through		Through



Figure 21: Additional Weekend Traffic Volume Superimposed to Traffic Model

Based on the above traffic volumes, **Table 20** below provides a summary of the modelled results and modelling analysis of Winnie Street/Gerrard Street and Gerard Street/Waters Road intersections during the weekend peak period.



Table 20: Intersection Performance –Proposed Weekend

Intersection Description	Weekend Scenario	Period	Degree of Saturation	Intersection Delay	Level of Service
Winnie Street / Gerard Street	Future Weekend	AM	0.882	37.2	C
Waters Road / Belgrave Street/Gerard Street	Future Weekend	AM	0.636	8.3	A

The above results indicate that the impact of the 146 veh/hr will have a negligible effect on the nearby intersections with very minor increases in delay estimated. The intersections will continue to operate at an acceptable Level of Service during the weekend peak periods which for analysis purposes occurs from 12-1pm.

7.3.4 Summary

In summary, the concept proposal and redevelopment of the site does not create significant traffic impacts during the weekday operation of the school or during the weekend operation of the extra-curricular school activities. The proposed modifications will create additional demand during the weekend (Saturday) period which as demonstrated above can be accommodated within the external road network.



8. Sustainable Travel Plan

A comprehensive Workplace Travel Plan (WTP) is considered to be the most effective travel planning measure to encourage travel by alternative means other than private car. A draft Travel Access Guide Figure (TAG) has been prepared and is attached at **Appendix G**. The TAG provides relevant transport and access information that would be relayed to school employees. In addition, the school proposes bicycle parking within the car park in order to encourage additional cycle trips with employees safe in the knowledge that secure bike parking is available. This WTP information that would be provided to staff includes:

- Local bus facilities and network maps;
- Local cycle route maps; and

The development of a WTP is encouraged to promote alternative modes of transport however it is highly noteworthy that such a document is generally more effective for new developments. Whilst Council's objective to reduce private vehicle usage is acknowledged, it is clear that if no parking was provided on site, then staff would continue to utilise the on-street parking in the area. Therefore, the travel targets in this case must be uniquely tailored to encourage alternative modes of transport. In this regard, it is recommended that a car pool scheme be considered by the school. Car pooling can be an effective method reducing the impact of private vehicle usage. Travel Mode data gathered indicates that there is a staff car occupancy of 1.14 people. By developing such a scheme, the school will actively attempt to reduce vehicular reliance.

Notwithstanding any of the above, journey to work data discussed in Section 3.9 of this report indicates that the school currently generates 66% proportion of private vehicle drivers and the census information for the locality does in fact indicate that the same percentage of people that work in the area are vehicles drivers. In this regard, the existing school does in fact reflect the travel mode characteristics in the area and it is considered with a robust Sustainable Travel Plan, that preferential modal splits towards alternative modes of transport could be achieved.



9. DGR Assessment & Compliance

Section 5 of the Director General's Environmental Assessment provided a number of considerations in relation to traffic and transport to be addressed within the concept proposal traffic report. The following DGR Assessment & Compliance Table is provided confirming that all conditions have been addressed in the report and providing a summary of the relevant responses in relation to specific traffic matters.

Table 21: Concept Proposal DGR Requirements

Item	Section	Compliance (Y/N)	Comments
(5) Traffic & Transport			
1) The EIS shall provide an estimate of the total daily and peak hour trips generated by staff and students at each stage of the staged development, including vehicle, public transport, pedestrian and cycle trips. Identify accurate details of the current and future daily vehicle movements and assess the impacts of the traffic generated on the local road network, including intersection capacity and any potential need for upgrading or road works, having regard to local planning controls.	Section 6.1 & Section 6.2	Y	Section 6.1 and in particular, Table 12 and Table 13 provide the existing and future travel movements and modes for the existing and ultimate development. Resultant traffic impacts are discussed in Section 6.2 . The concept proposal and associated additional traffic generation can be accommodated within the existing external road network



2) Detail existing pedestrian and cycle movements within the vicinity of and to the site, and determine the adequacy of the proposal to meet the likely Future demand for increased public transport and pedestrian and cycle access.	Section 2.2 & Section 6	Y	The development is surrounded by signalised intersections which provide signalised pedestrian crossings for safe pedestrian movements. In addition, the site is bound by and provided with footpaths on all sides of the development. This is further discussed in Section 2.2 and Section 3.2 which demonstrates that the proposal is more than capable of accommodating future walking trips noting that the development seeks to increase the student population by only 30 students and 10 staff. Bicycle parking is proposed in the basement car park for staff use and will meet the requirements of Planning guidelines for walking and cycling 2004 thereby satisfying the future needs of staff.
3) The EIS shall detail proposed access arrangements at all stages of operation and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and cycle networks	Section 10.2	Y	The development will necessitate detailed management plans at the various DA stages that will occur in the coming years. A management plan will be developed so that all staff, students and parents are provided with the necessary advice relating to the operational access points (vehicular and pedestrian) during these stages and this plan would form a condition of each DA submitted. Indeed, this is addressed in the Stage 1 DA report



			that accompanies this concept masterplan report. Reference to be made to Section 10.2 of the report for general overview of the access arrangements for each stage.
4) Describe the measures to be implemented to promote sustainable means of transport including public transport usage and pedestrian and bicycle linkages in addition to addressing the potential for implementing a location specific sustainable travel plan	Section 7	. Y	The merits of a detailed Workplace Travel Plan (WTP) are discussed in Section 7 for the proposed development and will be developed and implemented prior to occupation any development stage. A working draft Travel Access Guide is provided in Appendix G of this report.
5) Demonstrate how users of the development will be able to make travel choices that support the achievement of State Plan targets.	Section 7	Y	See above. Reference to be made to Section 7 of the report
6) The EIS shall demonstrate the provision of appropriate on-site car parking and pickup and drop-off facilities	Section 5	Y	Reference to be made to Section 5 of the report.



10. Access & Internal Design

10.1 Access

The proposed development requires a Category 3 Access Driveway with consideration for the ultimate master plan car park layout to accommodate between 101-300 parking spaces and User Class 2 type parking (sports facilities/medium term parking). A Category 3 Access Driveway in turn requires the following dimensions:

- 6.0 metre entry width
- 4.0 – 6.0 metre exit width and
- Separation of driveways for 1.0-3.0 metres

In our view, a 4.0 metre entry and exit width separated by a 2 metre median is suitable for adoption noting that a swept path analysis assessment has been undertaken demonstrating that entering movements can occur from the nearside lane. In summary, the design generally complies with the requirements of AS 2890.1 (2004) and will ensure satisfactory operation.

10.2 Access Locations during various Stages

The access locations for vehicles and pedestrian movements during all stages of the development is presented in **Figure 22** and **Figure 23**.

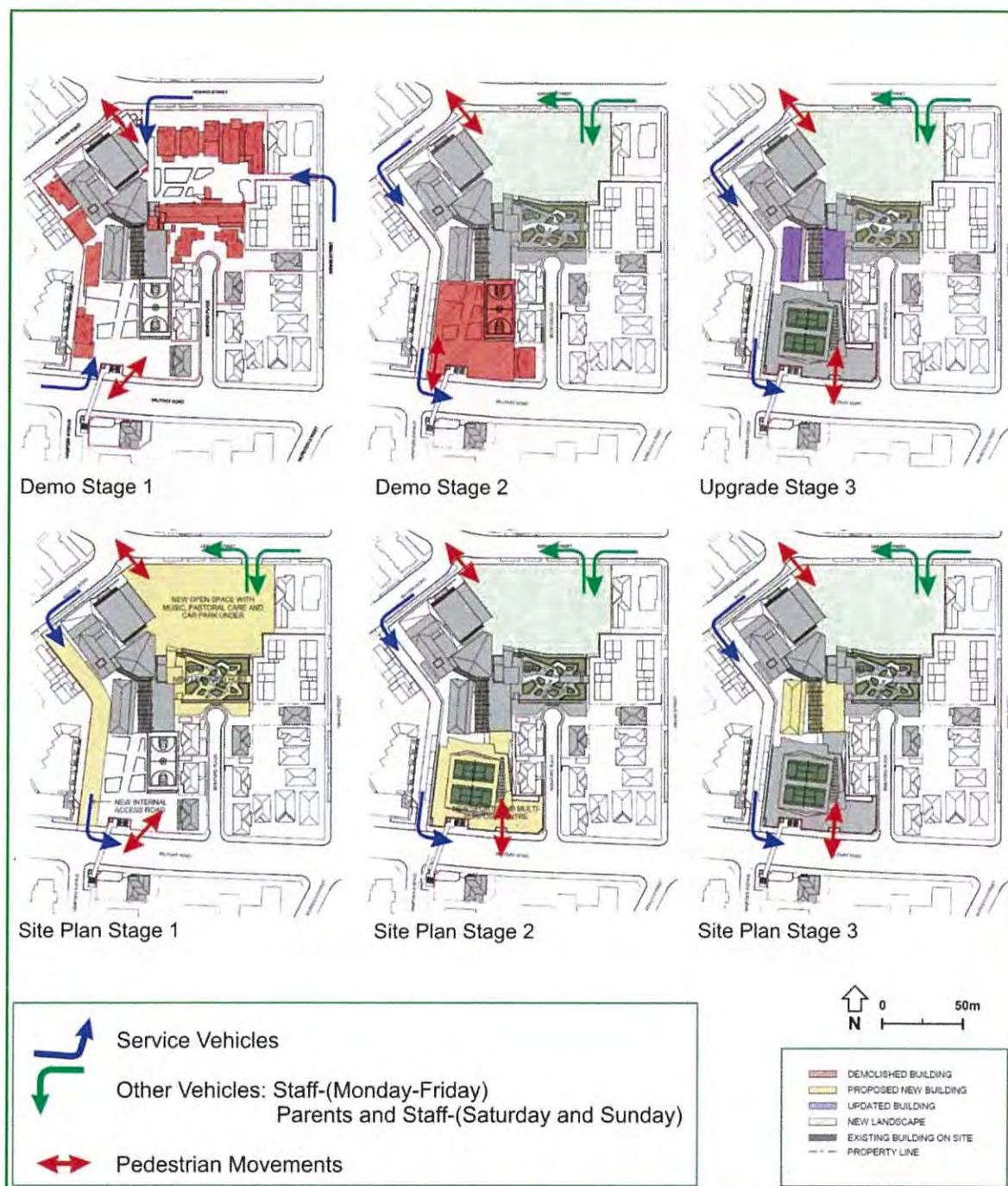


Figure 22: Access Location Stage 1 – Stage 3

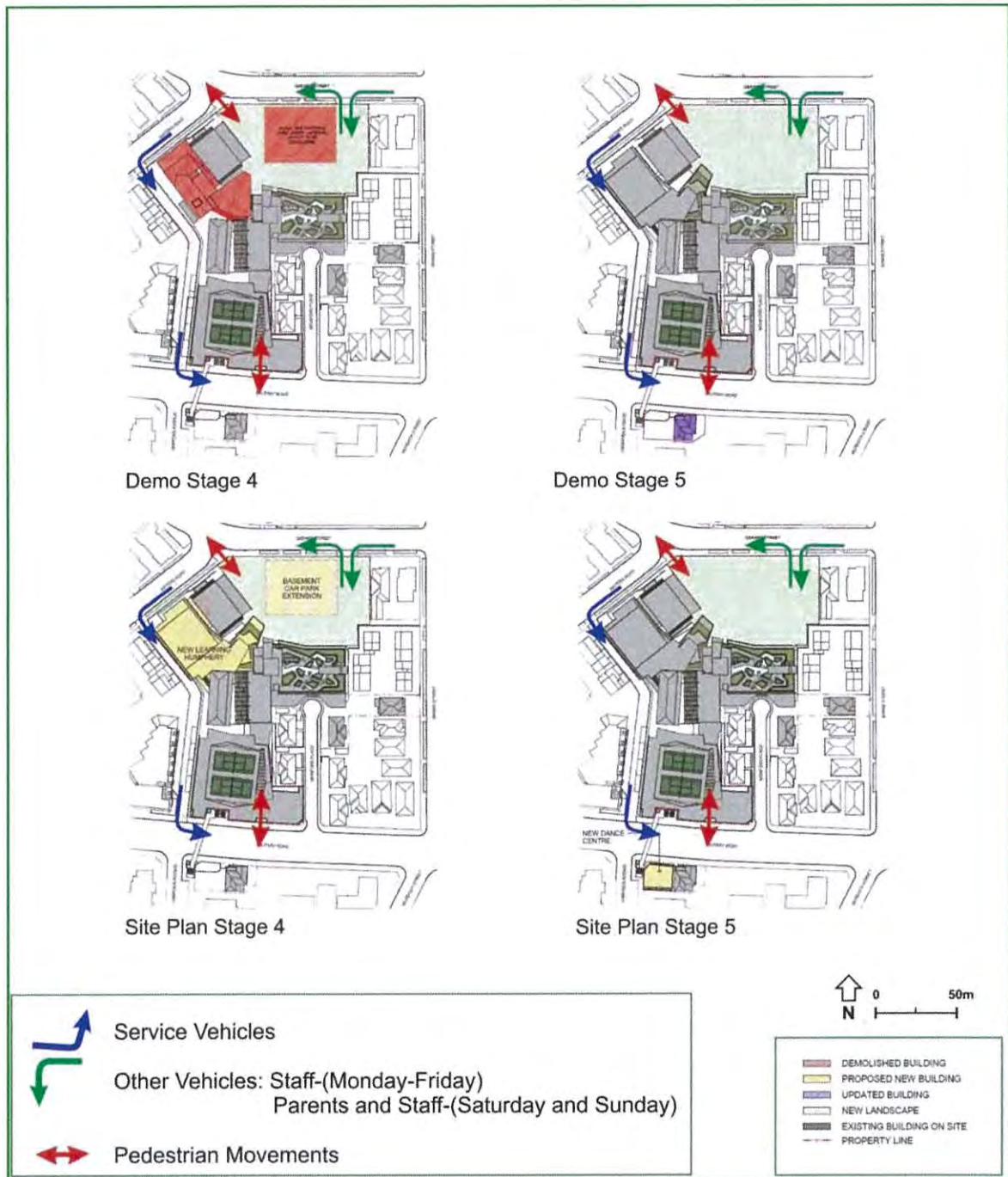


Figure 23: Access Location Stage 3 – Stage 5



10.3 Internal Design Aspects

The car park layout as shown in the reduced plans included as Appendix D has been developed based upon the requirements of the relevant standards and guidelines, as outlined in the following sections.

10.3.1 Parking Modules

- Parking spaces are generally 2.5m wide and 5.4m long, in accordance with the dimensional requirements for a medium turnover parking facility (User Class 2) under AS 2890.1.
- Parking aisle widths of minimum 5.8m are provided which complies with the minimum requirement under AS 2890.1.
- Dead-end aisles are provided with the required 1.0m aisle extension in accordance with Figure 2.3 of AS2890.1.
- Disabled parking spaces are designed in accordance with AS2890.6. Spaces are provided with a clear width of 2.4m and located adjacent to a minimum shared area of 2.4m.
- The position of columns complies with the required design envelope as shown in Figure 5.2 of AS2890.1 (generally 750mm – 1750mm from the open end of the parking bays).

10.3.2 Ramps

- The ramp providing access to the car park level has a maximum gradient of 1:8 with transitions at the top and bottom, to meet the requirements of AS2890.1.
- A maximum grade of 1:20 is to be provided for a distance of 18m inside the property boundary.

10.3.3 Clear Head Heights

- A minimum clear head height of 2.2m is to be provided for all areas within the basement car park, as required under AS2890.1.
- A clear head height of 2.5m is to be provided above the disabled parking spaces and adjacent shared zones, as required under AS2890.6.

10.3.4 Other Considerations

- Appropriate visual splays are provided in accordance with the requirements of Figure 3.3 of AS2890.1 at the access driveway.



10.3.5 Through Site Link

To be updated upon receipt and confirmation of the substation location

- A 6.6m driveway width (at the Waters Road boundary) is provided and is splayed externally to provide a 7.4 m width. This width is necessary to facilitate the spatial requirements of a 14.5m bus which will attend the site intermittently for excursions and visiting schools.
- The curvature of the roadway requires extensive spatial requirements. Upon entry (from Waters Road), the following cross section is generally required to accommodate a 14.5m bus and in order for the vehicle to negotiate the road curvature:
 - 300mm kerb
 - 6.5 road width
 - 300mm kerb and
 - 1.2m footpath.
- The road cross section required to accommodate parking for four mini bus vehicles necessitates the following:
 - 300mm kerb
 - 3.5m road width
 - 3.0m parking aisle suitable for access by School Mini Bus
 - 300mm Kerb
 - 1.2m footpath
- Visual splays of 2.5mX2.0m are provided on both sides of the driveway to ensure safe sightlines towards pedestrians.
- A 4.8m driveway width (at the Military Road boundary) which is required to be splayed externally to a 7.8 m width is provided to accommodate exiting manoeuvres for the largest vehicle that will access the sites through link.
- The exit driveway on Military Road will require the relocation of the existing bus stop for approx. 3-4 metres. The existing bus stop is provided with an approximate 27m length and by relocating and maintain this facility, it will result in the loss of one (1) on street parking space.
- Swept Path Analysis has been undertaken for the largest vehicle required to access the site's through link and is provided in **Appendix H**

10.3.6 Internal Design Summary

In summary, the internal configuration of the basement car park and site's through link has been designed generally in accordance with the requirements of AS 2890.1, AS 2890.2, and AS 2890.6. It is however envisaged that any minor amendments considered necessary (if any) can be dealt with as a condition of consent for the requisite Staged DA, or prior to the release of a construction certificate.



11. Recommendations

The following recommendations are provided in order to improve the efficiency of existing systems in place and reduce the ultimate parking demand of the existing development which is currently accommodated on street.

- It is clear from the parking surveys undertaken and on site observations that the Winnie street (south) pick-up drop-off facility (5 spaces) is not adequately utilised. It is recommended that parents are re-informed in relation to the dedicated areas for school use during these peak periods. This is in line with the recommendation outlined in the Lyle Marshall & Associates report which recommended a "Traffic Management Policy" document be prepared identifying signage and time restrictions of each zone to inform parents.
- Staff members to monitor zones and ensure time limits (2-5minute parking) are not exceeded.
- The travel mode questionnaire survey undertaken identified a demonstrated demand for drop off at Hampden Avenue. Although it is not relied upon, it is recommended that a formal pick up, drop off area be provided on the western side of Hampden Avenue in order to provide a safe pick up and drop off facility. This would ideally provide 5 parking spaces with a 2 minute time limit during school peak periods. This is of course provided for information purposes and discussion with Council and would enhance the dispersion of traffic surrounding the site rather than the concentration of traffic on streets such as Winnie Street, Gerard Street and Waters Road.
- The new car park will provide a direct benefit to the parking amenity in the locality removing the existing demand of staff vehicles that are parked on-street. The car park will accommodate 115 parking spaces and provided suitable parking to improve conditions during a typical weekday and maintain conditions on a typical Saturday.
- The provision of a site through link will ensure that the development can store the school mini-bus vehicles internally. The through link will also accommodate waste collection vehicles and ensure forward entry and forward exit manoeuvres. Finally, the delivery of this facility will accommodate the storage of visiting 14.5m buses which are currently accommodated on-street.
- It is recommended that in addition to the 'Traffic Management Policy' for parent information, a Workplace Travel Plan (WTP) be developed for staff. The implementation of a car pooling scheme could ultimately reduce the impact of private vehicle use.



12. Conclusion

12.1 Context

- The concept proposal seeks to provide improved facilities for the Redlands' Senior Campus with the delivery of state of the art education facilities and new indoor sporting facilities. The redevelopment of the site will also result in the delivery of an underground car park with a single level accommodating 115 vehicles and provision for drop-off and pick-up at weekend periods.
- The proposed modifications are intended to cater more safely and efficiently for the requirements of the school, than the current facilities.

12.2 Parking Assessment

- Extensive surveys have been undertaken to establish the traffic and parking demands at the school. The school presently generates a demand for approximately 99 staff cars, of which about 19 park on-site and 80 park on-street in the locality. The provision of a 115 space car park for staff use only during weekdays will enable this demand to be accommodated within the school campus, resulting in an enhanced residential amenity in the surrounding area.
- The additional parking capacity will deliver an overall parking quantum approaching 115 spaces. This is a very satisfactory level of provision that exceeds the DCP requirement however it provides sufficient capacity to accommodate weekend demand (Stage 2 & Stage 4 Recreational Facilities) and also it benefits the flexibility to accommodate a wide range of events that presently create on-street impacts.
- The ability to accommodate sporting needs within the college will overcome the present need (weekday) to transport staff and students to external leased facilities, which will remove these impacts from the road network.
- The car park access has been discussed with RMS and is supported in principle by RMS, noting that the analysis provided herein demonstrates a very satisfactory outcome.



12.3 Traffic Assessment Summary

To summarise, the following findings and outcomes have been derived from the traffic assessment. The following proposed weekday development and hourly flows have been estimated based on current travel behaviour of the existing Redlands' Senior Campus.

Table 22: Proposed Morning Hourly Volumes: Weekday

Period	In Veh/hr	Out Veh/hr	Total Veh/hr
6-7am	1	0	1
7-8am	11	6	17
8-9am	11	11	22
Total	23	17	40

Table 23: Proposed Evening Hourly Volumes: Weekday

Period	In Veh/hr	Out Veh/hr	Total Veh/hr
3-4pm	9	9	18
4-5pm	1	4	5
5-6pm	0	2	2
Total	10	15	25

- A modelling assessment of the above mentioned flows is not warranted based on the low nature of the volumes and the various arrival departure routes that exist surrounding the site.
- The concept proposal and overall weekend operation will generate up to 146 veh/hr with 73 in, and 73 out.
- A modelling assessment of the nearby intersections has been undertaken and demonstrates that the nearby intersections would be capable of accommodating the additional traffic volume during the peak weekend period.



In conclusion, it can be said that the proposed modifications are intended to largely cater more efficiently and more safely for the existing requirements of the college. It is expected that the car park will generally cater for traffic that is currently experienced by the school during the typical weekday (with only very minor increases in staff and student numbers now proposed), and most significantly the current parking demands of the school are accommodated in the local streets surrounding the college due to a limited parking supply within the site itself.

In summary, the impacts of the proposal on the surrounding road network are generally expected to be positive with a minor increase in traffic that can be fully accommodated by the external road network during weekend periods.

12.4 Conclusion

On the basis of the above, it is concluded that the concept proposal is supportable on traffic planning grounds, and should be approved from a traffic perspective. The Stage 1 DA report is appended to this report and is provided in Appendix I.



Appendix A

Photographic Record



View looking north across Military Road at the access driveway of the subject site



View looking northwest across Military Road towards the pedestrian footpath





View looking southwest along Military Road (Site Access on the Right)



View looking south across Military Road towards the Redlands School Adams Centre





View looking south at the access driveway of the subject site on Gerard Street



View looking south from the subject site along Waters Road





View looking south along Monford Place



View looking east along Military Road towards the intersection with Winnie Street and Murdoch Street





View looking north across Winnie Street towards the intersection with Parraween Street



View looking northeast across Gerard Street towards the intersection with Winnie Street





View looking west along Gerard Street towards the intersection with Belgrave Street and Waters Road



View looking south along Waters Road towards the intersection with Grosvenor Street





Appendix B

Intersection Survey Results

Intersection of Winnie Street and Belgrave Street Wednesday, 26 November 2014 Austlii

Survey Start
7:00 AM 14:00 PM

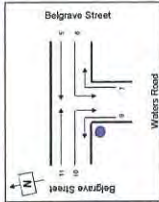
Location
Cox Junction
1 Winnie Street
North Approach
Grand Street
East Approach
Belgrave Street
West Approach

Date
26/11/14

Classification
Light Heavy

TIME PERIOD		VEHICLE MOVEMENT												GRAND TOTAL	
		1			2			3			4				
		Light Heavy			Light Heavy			Light Heavy			Light Heavy				
14:00	14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30	18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45	19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00	19:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:15	19:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:30	19:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:45	20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:00	20:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:15	20:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:30	20:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:45	21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00	21:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:15	21:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:30	21:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:45	22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	22:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:15	22:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:30	22:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:45	23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	23:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:15	23:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:30	23:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:45	24:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24:00	24:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24:15	24:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24:30	24:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24:45	25:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25:00	25:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25:15	25:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25:30	25:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25:45	26:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26:00	26:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26:15	26:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26:30	26:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26:45	27:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27:00	27:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27:15	27:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27:30	27:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27:45	28:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28:00	28:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28:15	28:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28:30	28:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28:45	29:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:00	29:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:15	29:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:30	29:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:45	30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30:00	30:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30:15	30:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30:30	30:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30:45	31:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31:00	31:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31:15	31:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31:30	31:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31:45	32:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32:00	32:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32:15	32:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32:30	32:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32:45	33:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33:00	33:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33:15	33:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33:30	33:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33:45	34:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34:00	34:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34:15	34:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34:30	34:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34:45	35:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35:00	35:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35:15	35:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35:30	35:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35:45	36:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36:00	36:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36:15	36:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36:30	36:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36:45	37:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37:00	37:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37:15	37:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37:30	37:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37:45	38:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38:00	38:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38:15	38:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38:30	38:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38:45	39:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39:00	39:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39:15	39:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39:30	39:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39:45	40:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40:00	40:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40:15	40:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40:30	40:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40:45	41:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41:00	41:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41:15	41:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41:30	41:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41:45	42:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42:00	42:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42:15	42:30	0</													

Survey Sheet
 Intersection Type
 1 Junction
 2
 East Approach
 West Approach
 Date
 20/11/14
 Classification
 Light Heavy



TIME PERIOD		VEHICLE MOVEMENT												GRAND TOTAL	
		1			2			3			4				
		Light Heavy			Light Heavy			Light Heavy			Light Heavy				
14.00	14.15	170	0	0	22	1	0	21	0	0	0	0	0	191	1
14.15	14.30	180	0	0	21	0	0	21	0	0	0	0	0	191	1
14.30	14.45	180	0	0	21	0	0	21	0	0	0	0	0	191	1
14.45	15.00	180	0	0	21	0	0	21	0	0	0	0	0	191	1
15.00	15.15	215	0	0	21	0	0	21	0	0	0	0	0	236	1
15.15	15.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
15.30	15.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
15.45	16.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
16.00	16.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
16.15	16.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
16.30	16.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
16.45	17.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
17.00	17.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
17.15	17.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
17.30	17.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
17.45	18.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
18.00	18.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
18.15	18.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
18.30	18.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
18.45	19.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
19.00	19.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
19.15	19.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
19.30	19.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
19.45	20.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
20.00	20.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
20.15	20.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
20.30	20.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
20.45	21.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
21.00	21.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
21.15	21.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
21.30	21.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
21.45	22.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
22.00	22.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
22.15	22.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
22.30	22.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
22.45	23.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
23.00	23.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
23.15	23.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
23.30	23.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
23.45	24.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
24.00	24.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
24.15	24.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
24.30	24.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
24.45	25.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
25.00	25.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
25.15	25.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
25.30	25.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
25.45	26.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
26.00	26.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
26.15	26.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
26.30	26.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
26.45	27.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
27.00	27.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
27.15	27.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
27.30	27.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
27.45	28.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
28.00	28.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
28.15	28.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
28.30	28.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
28.45	29.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
29.00	29.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
29.15	29.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
29.30	29.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
29.45	30.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
30.00	30.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
30.15	30.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
30.30	30.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
30.45	31.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
31.00	31.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
31.15	31.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
31.30	31.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
31.45	32.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
32.00	32.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
32.15	32.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
32.30	32.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
32.45	33.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
33.00	33.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
33.15	33.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
33.30	33.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
33.45	34.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
34.00	34.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
34.15	34.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
34.30	34.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
34.45	35.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
35.00	35.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
35.15	35.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
35.30	35.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
35.45	36.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
36.00	36.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
36.15	36.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
36.30	36.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
36.45	37.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
37.00	37.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
37.15	37.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
37.30	37.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
37.45	38.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
38.00	38.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
38.15	38.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
38.30	38.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
38.45	39.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
39.00	39.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
39.15	39.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
39.30	39.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
39.45	40.00	240	0	0	21	0	0	21	0	0	0	0	0	261	1
40.00	40.15	240	0	0	21	0	0	21	0	0	0	0	0	261	1
40.15	40.30	240	0	0	21	0	0	21	0	0	0	0	0	261	1
40.30	40.45	240	0	0	21	0	0	21	0	0	0	0	0	261	1
40.45	41.00	240													

Wednesday, 26 November 2014



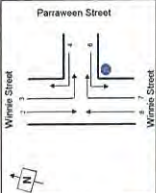
TIME PERIOD			ENTERED DOCUMENT												GRAND TOTAL
1	2	3	4	5	6	7	8	9	10	11	12				
Light History	Light History	Light History	Light History	Light History	Light History	Light History	Light History	Light History	Light History	Light History	Light History	Light History			
1400	1415	1430	1445	1460	1475	1490	1505	1520	1535	1550	1565	1580			
1415	1430	1445	1460	1475	1490	1505	1520	1535	1550	1565	1580	1595			
1430	1445	1460	1475	1490	1505	1520	1535	1550	1565	1580	1595	1610			
1445	1460	1475	1490	1505	1520	1535	1550	1565	1580	1595	1610	1625			
1460	1475	1490	1505	1520	1535	1550	1565	1580	1595	1610	1625	1640			
1475	1490	1505	1520	1535	1550	1565	1580	1595	1610	1625	1640	1655			
1490	1505	1520	1535	1550	1565	1580	1595	1610	1625	1640	1655	1670			
1505	1520	1535	1550	1565	1580	1595	1610	1625	1640	1655	1670	1685			
1520	1535	1550	1565	1580	1595	1610	1625	1640	1655	1670	1685	1700			
1535	1550	1565	1580	1595	1610	1625	1640	1655	1670	1685	1700	1715			
1550	1565	1580	1595	1610	1625	1640	1655	1670	1685	1700	1715	1730			
1565	1580	1595	1610	1625	1640	1655	1670	1685	1700	1715	1730	1745			
1580	1595	1610	1625	1640	1655	1670	1685	1700	1715	1730	1745	1760			
1595	1610	1625	1640	1655	1670	1685	1700	1715	1730	1745	1760	1775			
1610	1625	1640	1655	1670	1685	1700	1715	1730	1745	1760	1775	1790			
1625	1640	1655	1670	1685	1700	1715	1730	1745	1760	1775	1790	1805			
1640	1655	1670	1685	1700	1715	1730	1745	1760	1775	1790	1805	1820			
1655	1670	1685	1700	1715	1730	1745	1760	1775	1790	1805	1820	1835			
1670	1685	1700	1715	1730	1745	1760	1775	1790	1805	1820	1835	1850			
1685	1700	1715	1730	1745	1760	1775	1790	1805	1820	1835	1850	1865			
1700	1715	1730	1745	1760	1775	1790	1805	1820	1835	1850	1865	1880			
1715	1730	1745	1760	1775	1790	1805	1820	1835	1850	1865	1880	1895			
1730	1745	1760	1775	1790	1805	1820	1835	1850	1865	1880	1895	1910			
1745	1760	1775	1790	1805	1820	1835	1850	1865	1880	1895	1910	1925			
1760	1775	1790	1805	1820	1835	1850	1865	1880	1895	1910	1925	1940			
1775	1790	1805	1820	1835	1850	1865	1880	1895	1910	1925	1940	1955			
1790	1805	1820	1835	1850	1865	1880	1895	1910	1925	1940	1955	1970			
1805	1820	1835	1850	1865	1880	1895	1910	1925	1940	1955	1970	1985			
1820	1835	1850	1865	1880	1895	1910	1925	1940	1955	1970	1985	2000			
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1940	1955	1970	1985	2000	2015	2030	2045	2060	2075	2090	2105	2120			
1955	1970	1985	2000	2015	2030	2045	2060	2075	2090	2105	2120	2135			
1970	1985	2000	2015	2030	2045	2060	2075	2090	2105	2120	2135	2150			
1985	2000	2015	2030	2045	2060	2075	2090	2105	2120	2135	2150	2165			
2000	2015	2030	2045	2060	2075	2090	2105	2120	2135	2150	2165	2180			
2015	2030	2045	2060	2075	2090	2105	2120	2135	2150	2165	2180	2195			
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2090	2105	2120	2135	2150	2165	2180	2195	2210	2225	2240	2255	2270			
2105	2120	2135	2150	2165	2180	2195	2210	2225	2240	2255	2270	2285			
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2900	2915	2930	2945	2960	2975	2990	30								

[illegible]

Survey Start	Intersection Type	7:00 AM	14:00 PM
Intersection No.		Cross Junction	
North Approach		5	
East Approach		Waters Road	
South Approach		Military Road	
West Approach		Rangers Road	
		Military Road	
Date		20/11/14	
Classification		Light	Heavy

[illegible][illegible][illegible][illegible]

Intersection of Winnie Street and Paraween Street
 Wednesday, 26 November 2014
 Australia

Survey Date: 7:00 AM 14:00 PM
 Intersection Type: T-Junction
 North Approach: Winnie Street
 East Approach: Paraween Street
 South Approach: Winnie Street
 West Approach: Paraween Street

Date: 26/11/14
 Classification: Light Heavy

TIME 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R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849.
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Client : Traffic
Job No/Name : 5561 CREMORNE Gerard St
Day/Date : Saturday 28th March 2015

Lights		WEST			SOUTH			EAST		
		Belgrave St		Gerard St	Waters Rd		Gerard St	Gerard St		
Time Per		I	R	L	I	R	L	I	R	L
1000 - 1015		193	0	8	31	38	205	475		
1015 - 1030		166	0	14	20	25	216	441		
1030 - 1045		168	0	20	25	36	225	474		
1045 - 1100		183	0	13	21	31	219	467		
1100 - 1115		205	0	9	36	28	200	478		
1115 - 1130		199	0	16	30	25	215	485		
1130 - 1145		218	0	15	22	34	186	475		
1145 - 1200		198	0	20	23	37	202	480		
1200 - 1215		225	0	16	20	32	196	489		
1215 - 1230		262	0	25	22	40	192	541		
1230 - 1245		206	0	17	40	45	237	545		
1245 - 1300		228	0	19	23	30	216	516		
Per End		2451	0	192	313	401	2509	5866		

Heavies		WEST			SOUTH			EAST		
		Belgrave St		Gerard St	Waters Rd		Gerard St	Gerard St		
Time Per		I	R	L	I	R	L	I	R	L
1000 - 1015		3	0	0	0	0	0	1	4	
1015 - 1030		0	0	0	0	0	0	1	1	
1030 - 1045		0	0	0	0	0	0	1	1	
1045 - 1100		1	0	0	0	0	0	0	1	
1100 - 1115		1	0	0	0	0	0	0	1	
1115 - 1130		2	0	0	0	0	0	0	2	
1130 - 1145		0	0	0	0	0	0	1	1	
1145 - 1200		1	0	0	0	0	0	0	1	
1200 - 1215		0	0	0	0	0	0	1	1	
1215 - 1230		1	0	0	0	0	0	1	2	
1230 - 1245		0	0	0	0	0	0	0	0	
1245 - 1300		1	0	0	0	0	0	0	1	
Per End		10	0	0	0	0	0	6	16	

Combined		WEST			SOUTH			EAST		
		Belgrave St		Gerard St	Waters Rd		Gerard St	Gerard St		
Time Per		I	R	L	I	R	L	I	R	L
1000 - 1015		196	0	8	31	38	206	479		
1015 - 1030		166	0	14	20	25	217	442		
1030 - 1045		168	0	20	25	36	226	475		
1045 - 1100		184	0	13	21	31	219	468		
1100 - 1115		206	0	9	36	28	200	479		
1115 - 1130		201	0	16	30	25	215	487		
1130 - 1145		218	0	15	22	34	187	476		
1145 - 1200		199	0	20	23	37	202	481		
1200 - 1215		225	0	16	20	32	197	490		
1215 - 1230		263	0	25	22	40	193	543		
1230 - 1245		206	0	17	40	45	237	545		
1245 - 1300		229	0	19	23	30	216	517		
Per End		2461	0	192	313	401	2515	5882		

Lights		WEST			SOUTH			EAST		
		Belgrave St		Gerard St	Waters Rd		Gerard St	Gerard St		
Peak Per		I	R	L	I	R	L	I	R	L
1000 - 1100		710	0	55	97	130	865	1857		
1015 - 1115		722	0	56	102	120	860	1860		
1030 - 1130		755	0	58	112	120	859	1904		
1045 - 1145		805	0	53	109	118	820	1905		
1100 - 1200		820	0	60	111	124	803	1918		
1115 - 1215		840	0	67	95	128	799	1929		
1130 - 1230		903	0	76	87	143	776	1985		
1145 - 1245		891	0	78	105	154	827	2055		
1200 - 1300		921	0	77	105	147	841	2091		
PEAK HR		921	0	77	105	147	841	2091		

Heavies		WEST			SOUTH			EAST		
		Belgrave St		Gerard St	Waters Rd		Gerard St	Gerard St		
Peak Per		I	R	L	I	R	L	I	R	L
1000 - 1100		4	0	0	0	0	0	3	7	
1015 - 1115		2	0	0	0	0	0	2	4	
1030 - 1130		4	0	0	0	0	0	1	5	
1045 - 1145		4	0	0	0	0	0	1	5	
1100 - 1200		4	0	0	0	0	0	1	5	
1115 - 1215		3	0	0	0	0	0	2	5	
1130 - 1230		2	0	0	0	0	0	3	5	
1145 - 1245		2	0	0	0	0	0	2	4	
1200 - 1300		2	0	0	0	0	0	2	4	
PEAK HR		2	0	0	0	0	0	2	4	

Combined		WEST			SOUTH			EAST		
		Belgrave St		Gerard St	Waters Rd		Gerard St	Gerard St		
Peak Per		I	R	L	I	R	L	I	R	L
1000 - 1100		714	0	55	97	130	868	1864		
1015 - 1115		724	0	56	102	120	862	1864		
1030 - 1130		759	0	58	112	120	860	1909		
1045 - 1145		809	0	53	109	118	821	1910		
1100 - 1200		824	0	60	111	124	804	1923		
1115 - 1215		843	0	67	95	128	801	1934		
1130 - 1230		905	0	76	87	143	779	1990		
1145 - 1245		893	0	78	105	154	829	2059		
1200 - 1300		923	0	77	105	147	843	2095		
PEAK HR		923	0	77	105	147	843	2095		



R.O.A.R. DATA

Reliable, Original & Authentic Results
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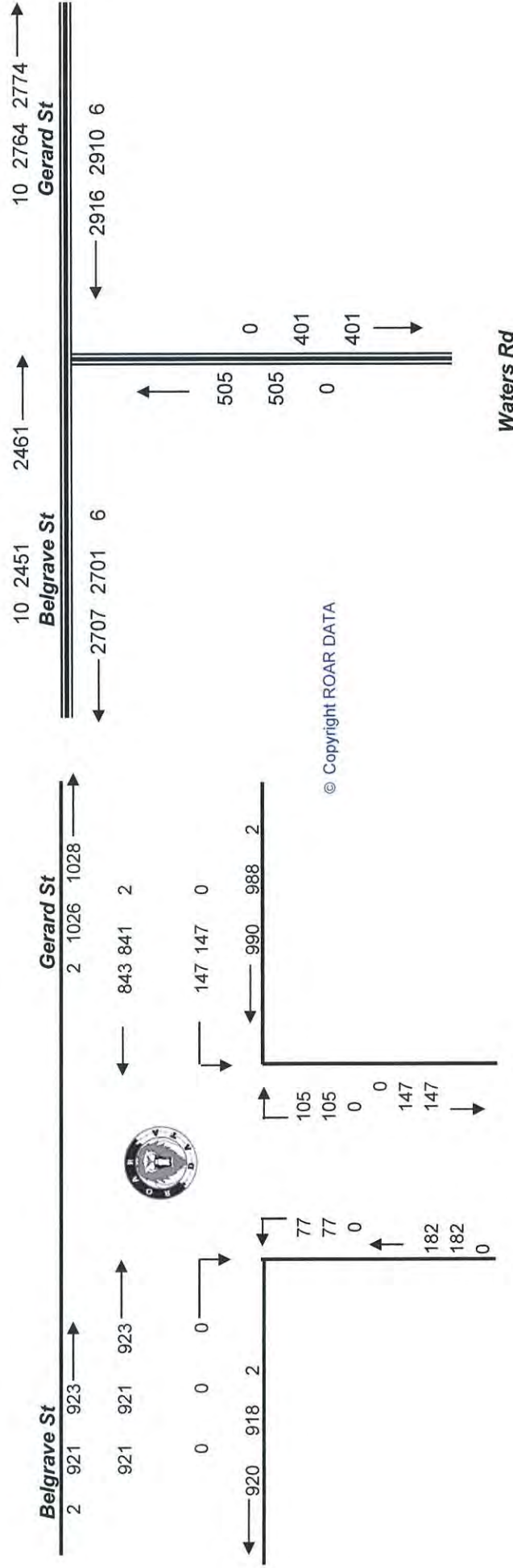
Client : Traffic

Job No/Name : 5561 CREMORNE Gerard St

Day/Date : Saturday 28th March 2015

PEAK HR
1200 - 1300

TOTAL VOLUMES
FOR COUNT
PERIOD



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client

Job No/Name

Day/Date

Traffic

: 5561 CREMORNE Gerard St

: Saturday 28th March 2015

Lights

Time Per	NORTH			WEST			SOUTH			EAST		
	Winnie St			Gerard St			Winnie St			Gerard St		
	L	I	R	L	I	R	L	I	R	L	I	R
1000 - 1015	21	35	6	9	166	42	33	16	13	17	213	0
1015 - 1030	24	42	4	5	144	20	25	29	21	19	213	2
1030 - 1045	13	25	2	5	147	40	51	28	18	19	210	0
1045 - 1100	22	39	5	5	157	44	32	26	9	7	215	0
1100 - 1115	24	51	6	7	190	41	42	19	19	19	179	0
1115 - 1130	17	28	4	10	161	46	41	22	13	15	210	0
1130 - 1145	13	34	5	6	185	49	32	33	17	25	190	0
1145 - 1200	24	39	6	8	163	47	35	24	12	14	194	0
1200 - 1215	18	35	7	5	171	59	27	25	13	14	196	0
1215 - 1230	15	46	6	8	222	48	38	30	13	17	190	2
1230 - 1245	20	33	11	15	172	48	52	24	14	19	212	0
1245 - 1300	23	31	8	12	207	50	44	27	22	13	212	0
Period End	234	438	70	95	2085	534	452	303	184	198	2434	4

Heavies

Time Per	NORTH			WEST			SOUTH			EAST		
	Winnie St			Gerard St			Winnie St			Gerard St		
	L	I	R	L	I	R	L	I	R	L	I	R
1000 - 1015	0	1	0	0	1	2	1	1	0	0	1	0
1015 - 1030	0	0	0	0	0	0	0	0	0	1	0	0
1030 - 1045	0	0	0	0	0	0	0	0	0	0	1	0
1045 - 1100	0	1	0	0	0	1	0	1	1	0	0	4
1100 - 1115	0	0	0	0	0	1	0	0	0	0	0	1
1115 - 1130	0	0	0	0	1	0	0	0	0	1	0	0
1130 - 1145	0	1	0	0	1	0	1	0	0	0	0	3
1145 - 1200	0	0	0	0	1	0	0	1	1	0	0	3
1200 - 1215	0	0	0	0	0	0	0	0	1	0	0	1
1215 - 1230	0	1	0	0	1	0	1	0	0	1	1	0
1230 - 1245	0	0	0	0	0	0	0	1	0	0	0	1
1245 - 1300	0	0	0	0	1	0	0	0	1	1	0	0
Period End	0	4	0	0	6	4	3	4	4	4	3	0

Combined

Time Per	NORTH			WEST			SOUTH			EAST		
	Winnie St			Gerard St			Winnie St			Gerard St		
	L	I	R	L	I	R	L	I	R	L	I	R
1000 - 1015	21	36	6	9	167	44	34	17	13	17	214	0
1015 - 1030	24	42	4	5	144	20	25	29	21	20	213	2
1030 - 1045	13	25	2	5	147	40	51	28	18	19	211	0
1045 - 1100	22	40	5	5	157	45	32	27	10	7	215	0
1100 - 1115	24	51	6	7	190	42	42	19	19	19	179	0
1115 - 1130	17	28	4	10	162	46	41	22	13	16	210	0
1130 - 1145	13	35	5	6	186	49	33	33	17	25	190	0
1145 - 1200	24	39	6	8	164	47	35	25	13	14	194	0
1200 - 1215	18	35	7	5	171	59	27	25	14	14	196	0
1215 - 1230	15	47	6	8	223	48	39	30	13	18	191	2
1230 - 1245	20	33	11	15	172	48	52	25	14	19	212	0
1245 - 1300	23	31	8	12	208	50	44	27	23	14	212	0
Period End	234	442	70	95	2091	538	455	307	188	202	2437	4

Lights

Peak Time	NORTH			WEST			SOUTH			EAST		
	Winnie St			Gerard St			Winnie St			Gerard St		
	L	I	R	L	I	R	L	I	R	L	I	R
1000 - 1100	80	141	17	24	614	146	141	99	61	62	851	2
1015 - 1115	83	157	17	22	638	145	150	102	67	64	817	2
1030 - 1130	76	143	17	27	655	171	166	95	59	60	814	0
1045 - 1145	76	152	20	28	693	180	147	100	58	66	794	0
1100 - 1200	78	152	21	31	699	183	150	98	61	73	773	0
1115 - 1215	72	136	22	29	680	201	135	104	55	68	790	0
1130 - 1230	70	154	24	27	741	203	132	112	55	70	770	2
1145 - 1245	77	153	30	36	728	202	152	103	52	64	792	2
1200 - 1300	76	145	32	40	772	205	161	106	62	63	810	2
PEAK HOUR	76	145	32	40	772	205	161	106	62	63	810	2

Heavies

Peak Per	NORTH			WEST			SOUTH			EAST		
	Winnie St			Gerard St			Winnie St			Gerard St		
	L	I	R	L	I	R	L	I	R	L	I	R
1000 - 1100	0	2	0	0	1	3	1	2	1	1	2	0
1015 - 1115	0	1	0	0	0	2	0	1	1	1	1	0
1030 - 1130	0	1	0	0	1	2	0	1	1	1	1	0
1045 - 1145	0	2	0	0	2	2	1	1	1	1	0	0
1100 - 1200	0	1	0	0	3	1	1	1	1	1	0	0
1115 - 1215	0	1	0	0	3	0	1	1	2	1	0	0
1130 - 1230	0	2	0	0	3	0	2	1	2	1	1	0
1145 - 1245	0	1	0	0	2	0	1	2	2	1	1	0
1200 - 1300	0	1	0	0	2	0	1	1	2	2	1	0
PEAK HOUR	0	1	0	2	2	0	1	1	2	2	1	0

Combined

Peak Per	NORTH			WEST			SOUTH			EAST		
	Winnie St			Gerard St			Winnie St			Gerard St		
	L	I	R	L	I	R	L	I	R	L	I	R
1000 - 1100	80	143	17	24	615	149	142	101	62	63	853	2
1015 - 1115	83	158	17	22	638	147	150	103	68	65	818	2
1030 - 1130	76	144	17	27	656	173	166	96	60	61	815	0
1045 - 1145	76	154	20	28	695	182	148	101	59	67	794	0
1100 - 1200	78	153	21	31	702	184	151	99	62	74	773	0
1115 - 1215	72	137	22	29	683	201	136	105	57	69	790	0
1130 - 1230	70	156	24	27	744	203	134	113	57	71	771	2
1145 - 1245	77	154	30	36	730	202	153	105	54	65	793	2
1200 - 1300	76	146	32	40	774	205	162	107	64	65	811	2
PEAK HOUR	76	146	32	40	774	205	162	107	64	65	811	2

Period End	NORTH			WEST			SOUTH			EAST		
	Winnie St			Gerard St			Winnie St			Gerard St		
	L	I	R	L	I	R	L	I	R	L	I	R
Period End	234	442	70	95	2091	538	455	307	188	202	2437	4

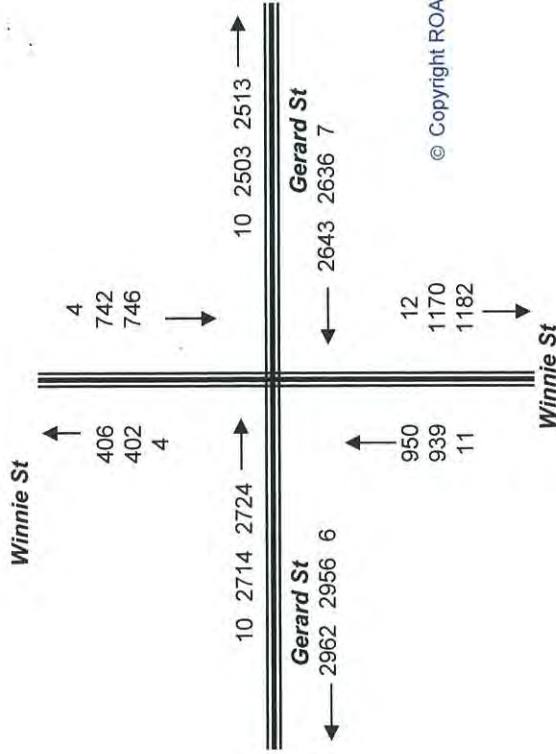
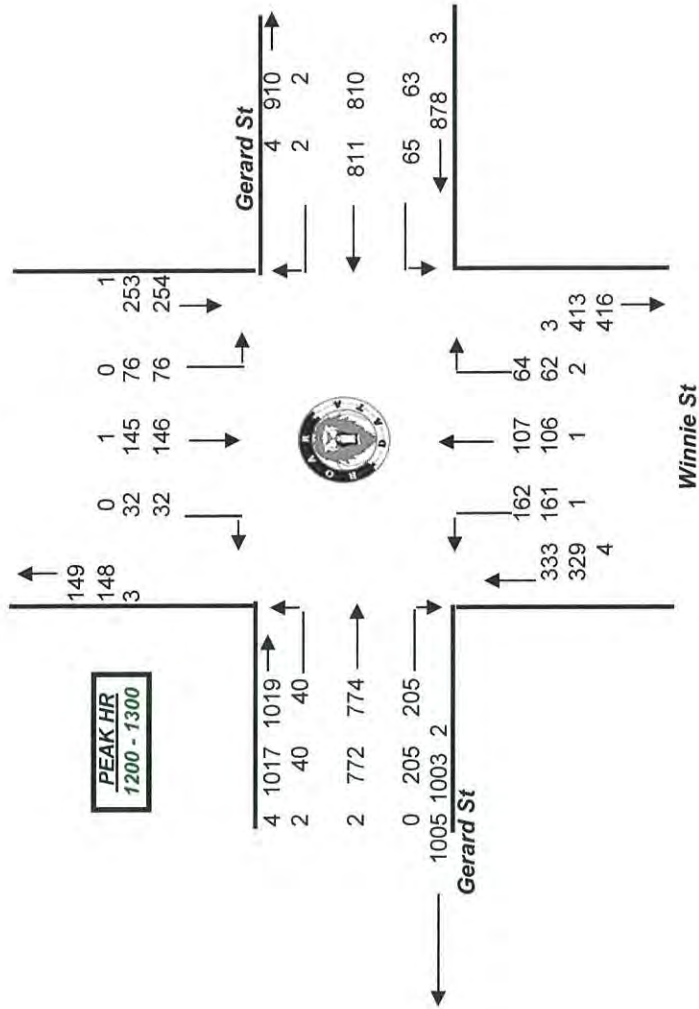


Reliable, Original & Authentic Results
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Client : Traffic
Job No/Name : 5561 CREMORNE Gerard St
Day/Date : Saturday 28th March 2015



TOTAL VOLUMES FOR COUNT PERIOD	
1	1
2	2
3	3
4	4
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100	100



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Appendix C

SIDRA Intersection Analysis

SITE LAYOUT

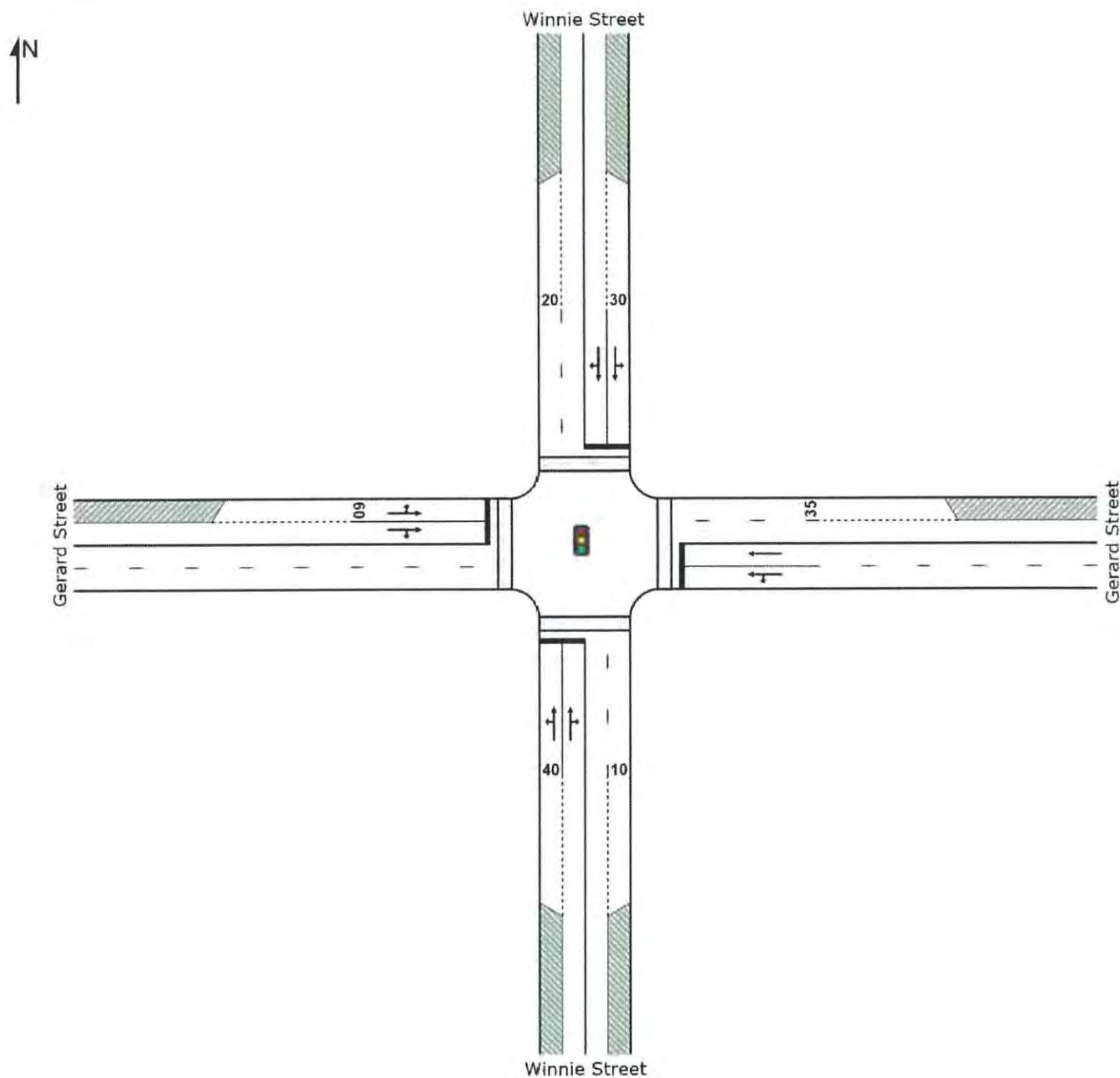
 Site: J01 - Winnie St / Gerard St - Existing _AM

Intersection: Winnie Street x Gerard Street (Signal Controlled)

Scenario: Existing

Period: AM Peak

Signals - Fixed Time



Created: Monday, 15 December 2014 2:31:33 PM
SIDRA INTERSECTION 6.0.24.4877

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Project: T:\Synergy\Projects\14\14.397\Modelling\14.397m01 Redlands School.sip6
8000844, 6018849, TRAFFIX, NETWORK / 1PC

SIDRA
INTERSECTION 6

MOVEMENT SUMMARY

Site: J01 - Winnie St / Gerard St - Existing _AM

Intersection: Winnie Street x Gerard Street (Signal Controlled)
 Scenario: Existing
 Period: AM Peak
 Signals - Fixed Time Cycle Time = 85 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Winnie Street											
1	L2	259	2.4	0.431	27.6	LOS B	8.5	60.6	0.83	0.78	16.6
2	T1	127	5.0	0.812	45.3	LOS D	8.2	59.7	1.00	1.01	22.3
3	R2	53	2.0	0.812	48.8	LOS D	8.2	59.7	1.00	1.01	19.7
Approach		439	3.1	0.812	35.3	LOS C	8.5	60.6	0.90	0.87	19.6
East: Gerard Street											
4	L2	42	12.5	0.917	39.5	LOS C	46.7	330.7	0.99	1.10	22.2
5	T1	1835	0.9	0.917	36.0	LOS C	46.9	331.0	0.99	1.10	22.9
Approach		1877	1.1	0.917	36.1	LOS C	46.9	331.0	0.99	1.10	22.9
North: Winnie Street											
7	L2	79	0.0	0.258	37.7	LOS C	2.9	20.6	0.91	0.75	28.0
8	T1	195	1.6	0.923	55.7	LOS D	11.9	84.6	1.00	1.23	20.4
9	R2	34	0.0	0.923	59.1	LOS E	11.9	84.6	1.00	1.23	21.0
Approach		307	1.0	0.923	51.4	LOS D	11.9	84.6	0.98	1.11	22.5
West: Gerard Street											
10	L2	26	8.0	0.273	9.4	LOS A	5.7	41.3	0.43	0.40	36.5
11	T1	442	2.9	1.023	25.9	LOS B	20.5	146.5	0.59	0.67	25.8
12	R2	174	2.4	1.023	82.6	LOS F	20.5	146.5	1.00	1.41	7.7
Approach		642	3.0	1.023	40.6	LOS C	20.5	146.5	0.69	0.86	20.1
All Vehicles		3265	1.7	1.023	38.3	LOS C	46.9	331.0	0.92	1.02	22.0

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	35	14.7	LOS B	0.0	0.0	0.59	0.59	
P2	East Full Crossing	51	36.8	LOS D	0.1	0.1	0.93	0.93	
P3	North Full Crossing	24	14.7	LOS B	0.0	0.0	0.59	0.59	
P4	West Full Crossing	86	36.8	LOS D	0.2	0.2	0.93	0.93	
All Pedestrians		196	30.2	LOS D			0.83	0.83	

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

SITE LAYOUT

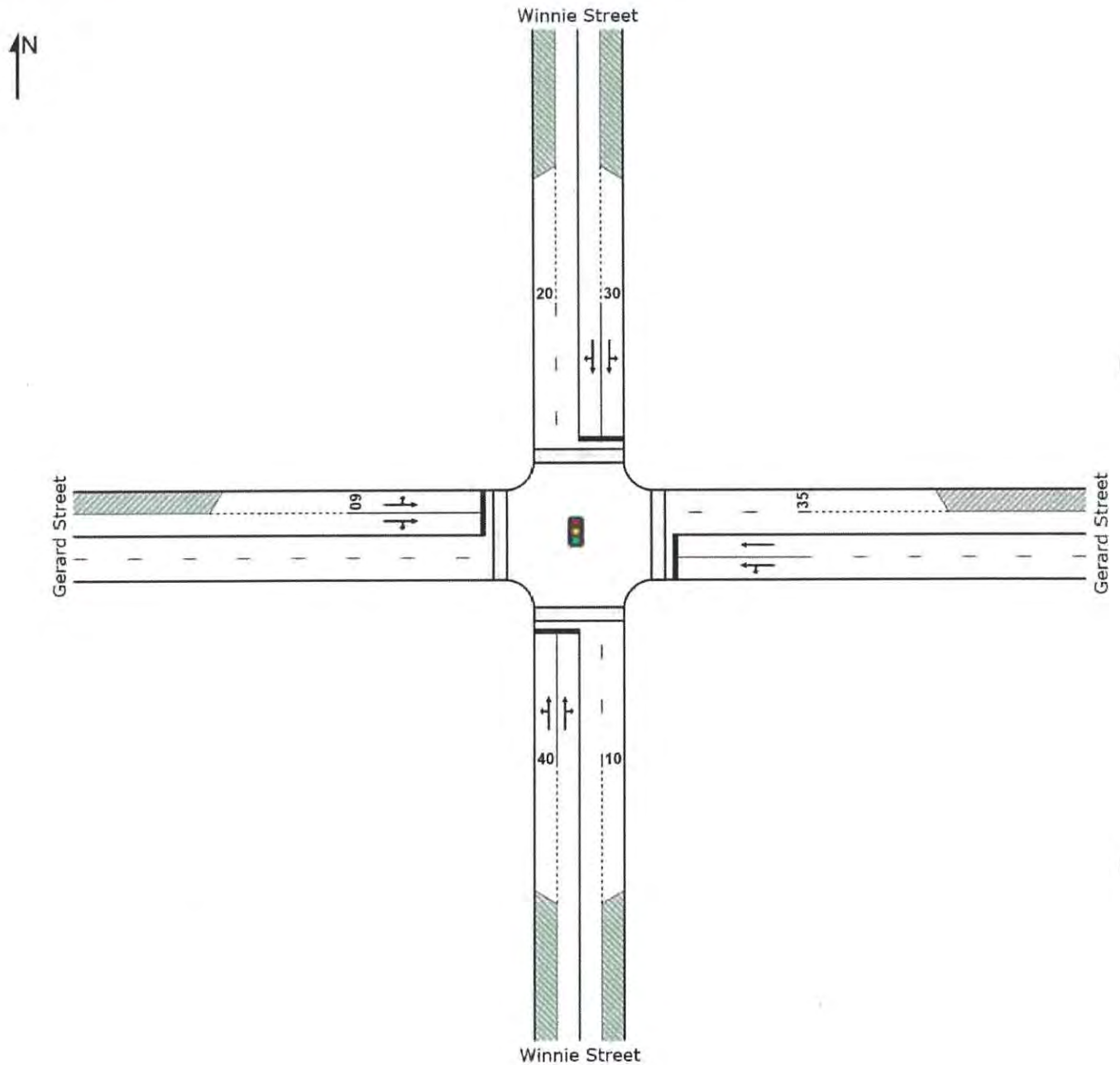
Site: J01 - Winnie St / Gerard St - Existing _AM

Intersection: Winnie Street x Gerard Street (Signal Controlled)

Scenario: Existing

Period: AM Peak

Signals - Fixed Time



Created: Monday, 15 December 2014 2:31:33 PM

SIDRA INTERSECTION 6.0.24.4877

Project: T:\Synergy\Projects\14\14.397\Modelling\14.397m01 Redlands School.sip6
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**SIDRA
INTERSECTION 6**

MOVEMENT SUMMARY

 **Site: J01 - Winnie St / Gerard St - Existing _PM**

Intersection: Winnie Street x Gerard Street (Signal Controlled)

Scenario: Existing

Period: PM Peak

Signals - Fixed Time Cycle Time = 100 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Winnie Street											
1	L2	135	0.8	0.238	32.3	LOS C	4.9	34.6	0.79	0.75	16.0
2	T1	135	3.9	0.938	67.8	LOS E	10.8	78.5	1.00	1.15	20.2
3	R2	41	5.1	0.938	72.4	LOS F	10.8	78.5	1.00	1.15	16.9
Approach		311	2.7	0.938	53.0	LOS D	10.8	78.5	0.91	0.98	18.6
East: Gerard Street											
4	L2	63	15.0	0.196	24.9	LOS B	4.4	33.1	0.68	0.63	30.3
5	T1	713	1.2	0.910	41.9	LOS C	34.7	245.6	0.91	1.01	23.9
Approach		776	2.3	0.910	40.5	LOS C	34.7	245.6	0.89	0.98	24.3
North: Winnie Street											
7	L2	107	0.0	0.413	48.2	LOS D	4.9	34.6	0.96	0.78	29.3
8	T1	197	1.6	0.938	66.4	LOS E	13.1	92.6	1.00	1.17	20.5
9	R2	17	0.0	0.938	71.0	LOS F	13.1	92.6	1.00	1.17	21.1
Approach		321	1.0	0.938	60.6	LOS E	13.1	92.6	0.99	1.04	23.6
West: Gerard Street											
10	L2	35	0.0	0.920	30.5	LOS C	65.0	456.9	0.91	0.96	32.4
11	T1	1684	0.5	0.920	32.1	LOS C	65.0	456.9	0.93	1.04	27.1
12	R2	256	0.4	0.920	54.3	LOS D	34.3	241.3	1.00	1.28	11.5
Approach		1975	0.5	0.920	34.9	LOS C	65.0	456.9	0.94	1.07	25.3
All Vehicles		3382	1.2	0.938	40.3	LOS C	65.0	456.9	0.93	1.04	24.1

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

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

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

The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	32	23.8	LOS C	0.1	0.1	0.69	0.69	
P2	East Full Crossing	35	44.2	LOS E	0.1	0.1	0.94	0.94	
P3	North Full Crossing	33	23.8	LOS C	0.1	0.1	0.69	0.69	
P4	West Full Crossing	44	44.3	LOS E	0.1	0.1	0.94	0.94	
All Pedestrians		143	35.1	LOS D			0.83	0.83	

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

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

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

SITE LAYOUT

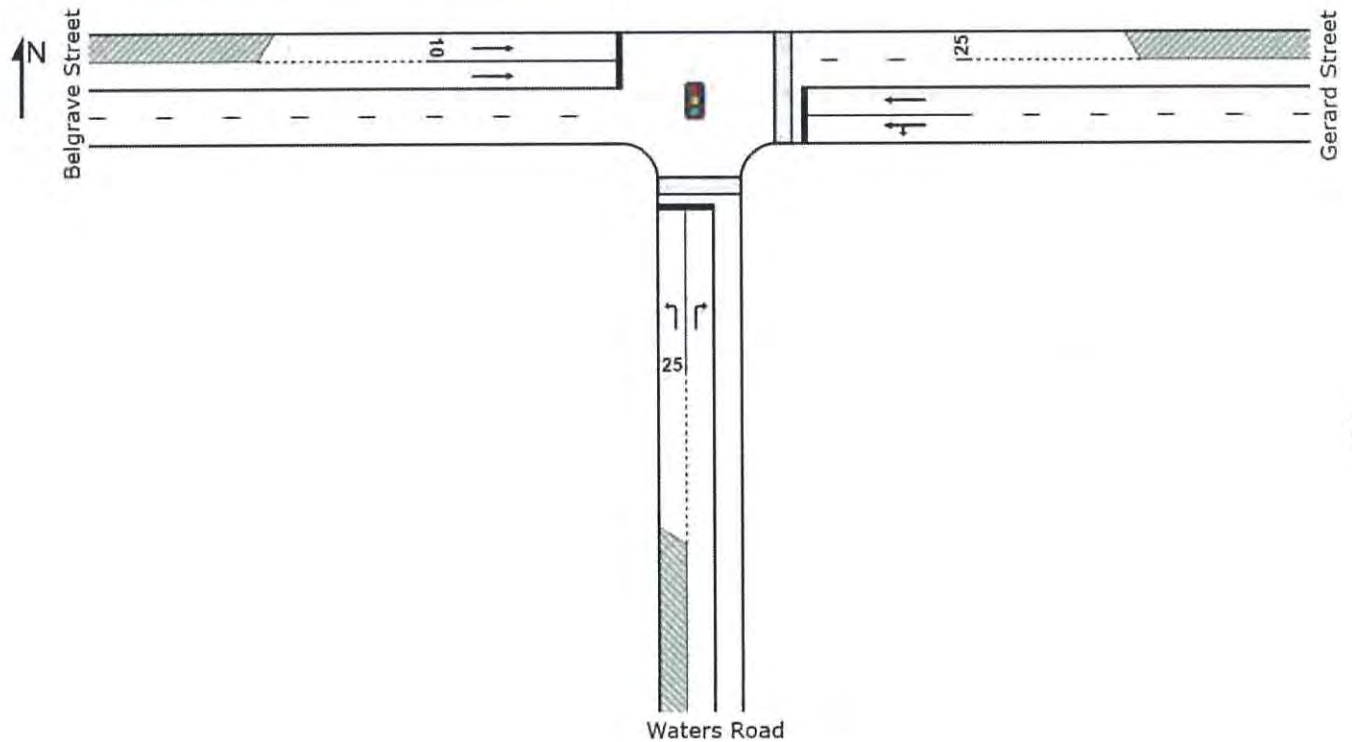
Site: J02 - Waters Rd / Belgrave St - Existing_AM

Intersection: Waters Road x Belgrave Street x Gerard Street (Signal Controlled)

Scenario: Existing

Period: AM Peak

Signals - Fixed Time



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SIDRA INTERSECTION 6.0.24.4877

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SIDRA
INTERSECTION 6

MOVEMENT SUMMARY

Site: J02 - Waters Rd / Belgrave St - Existing_AM

Intersection: Waters Road x Belgrave Street x Gerard Street (Signal Controlled)

Scenario: Existing

Period: AM Peak

Signals - Fixed Time Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Waters Road											
1	L2	76	1.4	0.195	17.7	LOS B	2.4	17.2	0.68	0.72	25.4
3	R2	57	1.9	0.194	43.5	LOS D	2.5	17.5	0.90	0.73	13.7
Approach		133	1.6	0.195	28.8	LOS C	2.5	17.5	0.78	0.73	19.4
East: Gerard Street											
4	L2	172	1.8	0.764	12.7	LOS A	31.7	223.3	0.68	0.66	28.3
5	T1	1955	0.6	0.764	9.2	LOS A	32.0	225.0	0.68	0.64	30.4
Approach		2126	0.7	0.764	9.5	LOS A	32.0	225.0	0.68	0.65	30.2
West: Belgrave Street											
11	T1	633	3.8	0.438	5.4	LOS A	9.1	65.8	0.39	0.34	33.9
Approach		633	3.8	0.438	5.4	LOS A	9.1	65.8	0.39	0.34	33.9
All Vehicles		2892	1.5	0.764	9.5	LOS A	32.0	225.0	0.62	0.58	30.3

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	29	6.1	LOS A	0.0	0.0	0.35	0.35	
P2	East Full Crossing	201	44.6	LOS E	0.5	0.5	0.95	0.95	
All Pedestrians		231	39.6	LOS D			0.87	0.87	

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

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

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

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SIDRA
INTERSECTION 6

SITE LAYOUT

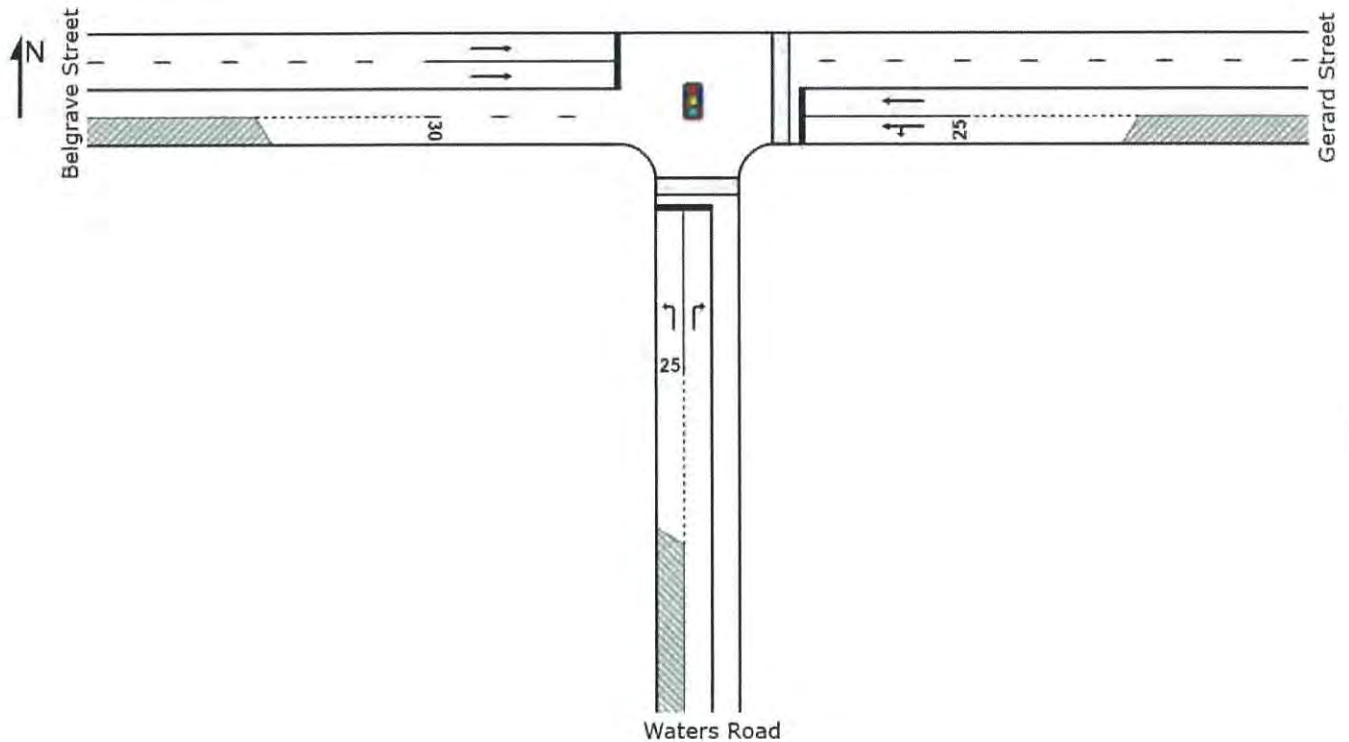
Site: J02 - Waters Rd / Belgrave St - Existing_PM

Intersection: Waters Road x Belgrave Street x Gerard Street (Signal Controlled)

Scenario: Existing

Period: PM Peak

Signals - Fixed Time



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**SIDRA
INTERSECTION 6**

MOVEMENT SUMMARY

Site: J02 - Waters Rd / Belgrave St - Existing_PM

Intersection: Waters Road x Belgrave Street x Gerard Street (Signal Controlled)

Scenario: Existing

Period: PM Peak

Signals - Fixed Time Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Waters Road											
1	L2	51	0.0	0.090	7.5	LOS A	0.6	4.2	0.31	0.62	37.2
3	R2	166	0.0	0.588	47.6	LOS D	7.7	54.0	0.97	0.80	13.6
Approach		217	0.0	0.588	38.2	LOS C	7.7	54.0	0.82	0.76	16.7
East: Gerard Street											
4	L2	108	1.0	0.137	9.1	LOS A	2.7	19.4	0.33	0.49	34.8
5	T1	764	1.4	0.578	6.2	LOS A	14.3	101.4	0.46	0.43	39.3
Approach		873	1.3	0.578	6.6	LOS A	14.3	101.4	0.44	0.44	38.8
West: Belgrave Street											
11	T1	1805	0.5	0.645	7.8	LOS A	22.7	159.4	0.57	0.53	37.8
Approach		1805	0.5	0.645	7.8	LOS A	22.7	159.4	0.57	0.53	37.8
All Vehicles		2895	0.7	0.645	9.7	LOS A	22.7	159.4	0.55	0.52	35.3

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	17	6.1	LOS A	0.0	0.0	0.35	0.35	
P2	East Full Crossing	95	44.4	LOS E	0.3	0.3	0.94	0.94	
All Pedestrians		112	38.6	LOS D			0.85	0.85	

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

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

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

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**SIDRA
INTERSECTION 6**

SITE LAYOUT

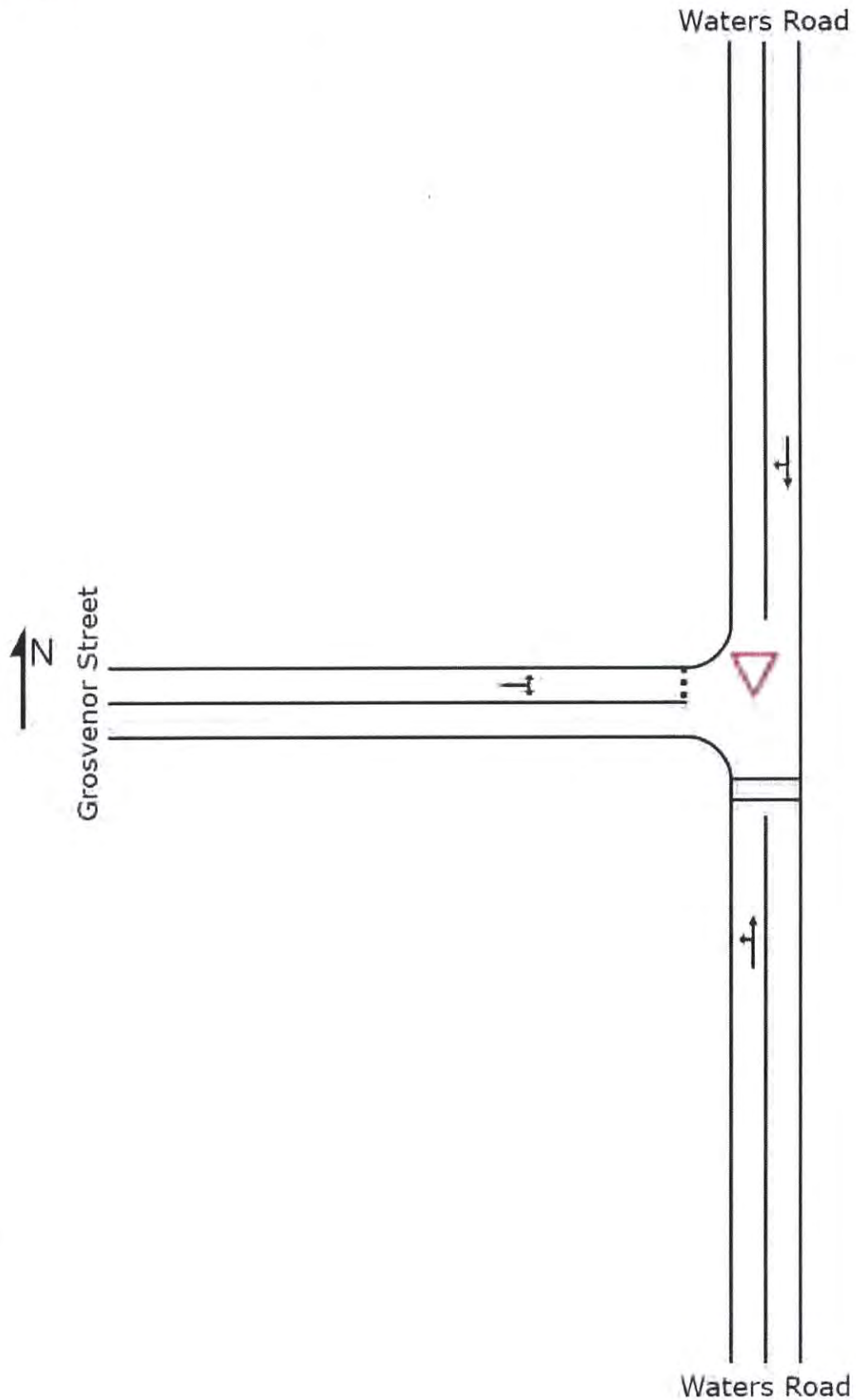
▽ Site: J03 - Waters Rd / Grosvenor St - Existing_AM

Intersection: Waters Road x Grosvenor Street (Giveaway Controlled)

Scenario: Existing

Period: AM Peak

Giveaway / Yield (Two-Way)



MOVEMENT SUMMARY

▽ Site: J03 - Waters Rd / Grosvenor St - Existing_AM

Intersection: Waters Road x Grosvenor Street (Giveway Controlled)

Scenario: Existing

Period: AM Peak

Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Waters Road											
1	L2	58	7.3	0.104	4.6	LOS A	0.6	4.6	0.32	0.25	39.5
2	T1	62	1.7	0.104	1.2	LOS A	0.6	4.6	0.32	0.25	35.3
Approach		120	4.4	0.104	2.8	NA	0.6	4.6	0.32	0.25	37.5
North: Waters Road											
8	T1	47	0.0	0.132	0.6	LOS A	0.5	3.7	0.21	0.39	34.6
9	R2	124	0.8	0.132	4.2	LOS A	0.5	3.7	0.21	0.39	38.2
Approach		172	0.6	0.132	3.2	NA	0.5	3.7	0.21	0.39	37.3
West: Grosvenor Street											
10	L2	62	1.7	0.074	3.9	LOS A	0.3	2.0	0.15	0.47	35.5
12	R2	35	3.0	0.074	4.0	LOS A	0.3	2.0	0.15	0.47	34.4
Approach		97	2.2	0.074	3.9	LOS A	0.3	2.0	0.15	0.47	35.1
All Vehicles		388	2.2	0.132	3.3	NA	0.6	4.6	0.23	0.37	36.7

Level of Service (LOS) Method: Delay (RTA NSW).

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 (Akcelik M3D).

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

MOVEMENT SUMMARY

▽ Site: J03 - Waters Rd / Grosvenor St - Existing_PM

Intersection: Waters Road x Grosvenor Street (Giveway Controlled)

Scenario: Existing

Period: PM Peak

Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Waters Road											
1	L2	78	0.0	0.155	4.4	LOS A	1.0	6.8	0.29	0.23	40.1
2	T1	101	2.1	0.155	1.0	LOS A	1.0	6.8	0.29	0.23	35.6
Approach		179	1.2	0.155	2.4	NA	1.0	6.8	0.29	0.23	37.7
North: Waters Road											
8	T1	22	4.8	0.095	0.6	LOS A	0.4	2.6	0.23	0.44	33.9
9	R2	106	0.0	0.095	4.2	LOS A	0.4	2.6	0.23	0.44	37.6
Approach		128	0.8	0.095	3.6	NA	0.4	2.6	0.23	0.44	37.1
West: Grosvenor Street											
10	L2	108	1.0	0.114	3.9	LOS A	0.5	3.2	0.21	0.47	35.2
12	R2	42	2.5	0.114	4.1	LOS A	0.5	3.2	0.21	0.47	34.2
Approach		151	1.4	0.114	4.0	LOS A	0.5	3.2	0.21	0.47	34.9
All Vehicles		458	1.1	0.155	3.3	NA	1.0	6.8	0.25	0.37	36.5

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

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

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

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

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**SIDRA
INTERSECTION 6**

SITE LAYOUT

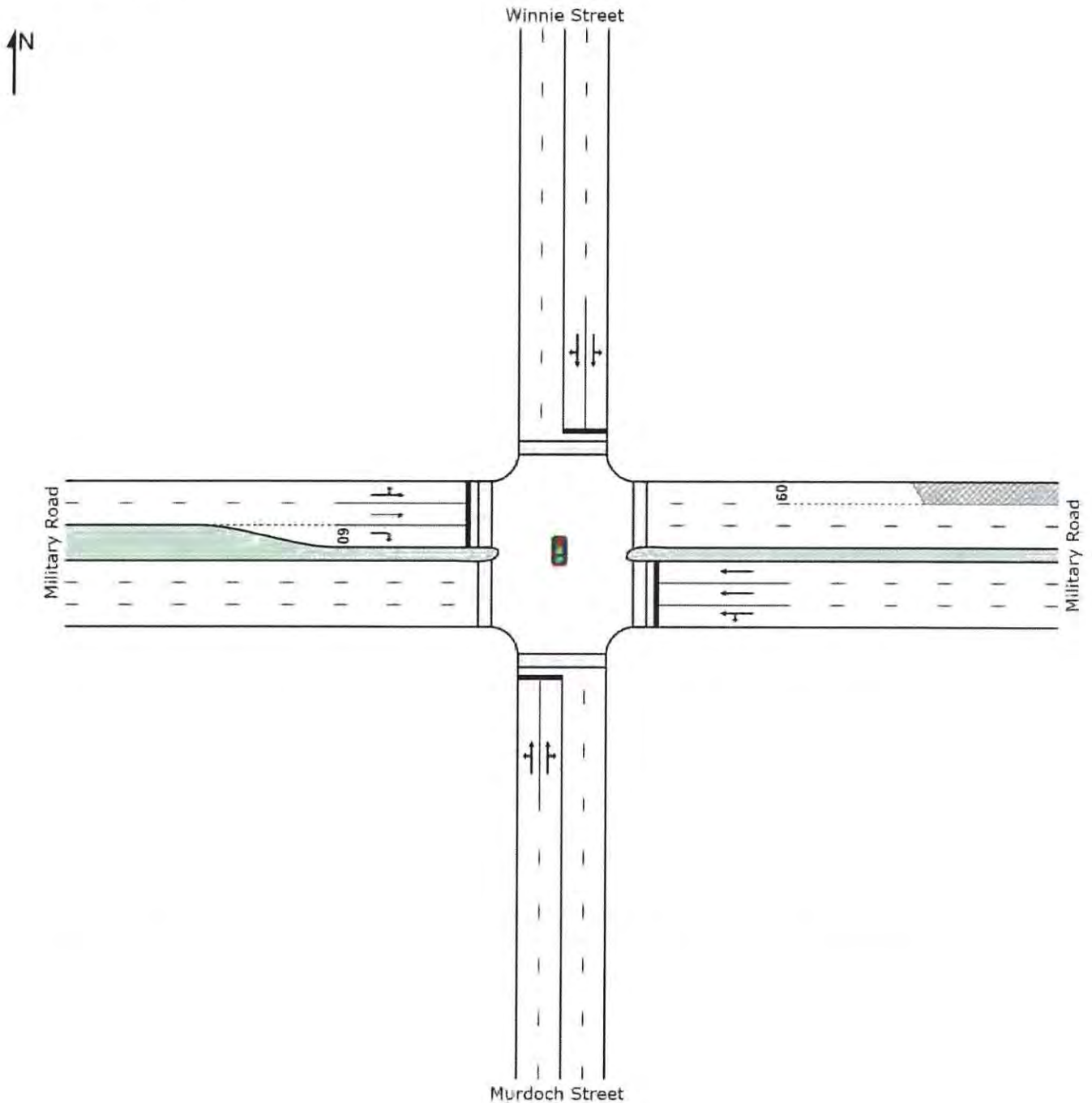
Site: J04 - Winnie St / Military Rd - Existing_AM

Intersection: Winnie Street x Military Road x Murdoch Street (Signal Controlled)

Scenario: Existing

Period: AM Peak

Signals - Fixed Time



Created: Monday, 15 December 2014 1:49:08 PM

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**SIDRA
INTERSECTION 6**

MOVEMENT SUMMARY

 **Site: J04 - Winnie St / Military Rd - Existing_AM**

Intersection: Winnie Street x Military Road x Murdoch Street (Signal Controlled)

Scenario: Existing

Period: AM Peak

Signals - Fixed Time Cycle Time = 145 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Murdoch Street											
1	L2	42	7.5	0.482	64.9	LOS E	8.8	63.6	0.96	0.78	21.0
2	T1	221	2.9	0.482	61.5	LOS E	8.8	63.6	0.96	0.78	15.9
3	R2	3	100.0	0.482	65.1	LOS E	8.7	63.8	0.96	0.78	21.4
Approach		266	4.7	0.482	62.1	LOS E	8.8	63.8	0.96	0.78	16.9
East: Military Road											
4	L2	40	5.3	0.754	25.2	LOS B	41.9	319.3	0.79	0.74	30.5
5	T1	2482	10.6	0.754	21.4	LOS B	42.1	321.6	0.78	0.73	30.8
Approach		2522	10.5	0.754	21.5	LOS B	42.1	321.6	0.78	0.73	30.8
North: Winnie Street											
7	L2	177	1.8	0.779	72.3	LOS F	14.5	103.0	1.00	0.90	15.2
8	T1	241	1.7	0.779	67.3	LOS E	16.0	116.4	1.00	0.91	15.0
9	R2	6	100.0	0.779	70.7	LOS F	16.0	116.4	1.00	0.91	15.6
Approach		424	3.2	0.779	69.5	LOS E	16.0	116.4	1.00	0.91	15.1
West: Military Road											
10	L2	47	4.4	0.395	4.5	LOS A	2.2	17.0	0.06	0.10	38.9
11	T1	1872	9.7	1.071	71.9	LOS F	89.7	679.7	0.22	0.55	20.0
12	R2	128	19.7	0.573	46.6	LOS D	6.9	56.8	0.99	0.95	23.9
Approach		2047	10.2	1.071	68.7	LOS E	89.7	679.7	0.27	0.56	20.3
All Vehicles		5260	9.5	1.071	45.8	LOS D	89.7	679.7	0.61	0.68	23.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	124	15.1	LOS B	0.2	0.2	0.46	0.46	
P2	East Full Crossing	75	66.8	LOS F	0.3	0.3	0.96	0.96	
P3	North Full Crossing	106	15.1	LOS B	0.2	0.2	0.46	0.46	
P4	West Full Crossing	209	67.2	LOS F	0.8	0.8	0.97	0.97	
All Pedestrians		515	43.8	LOS E			0.74	0.74	

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

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

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

SITE LAYOUT

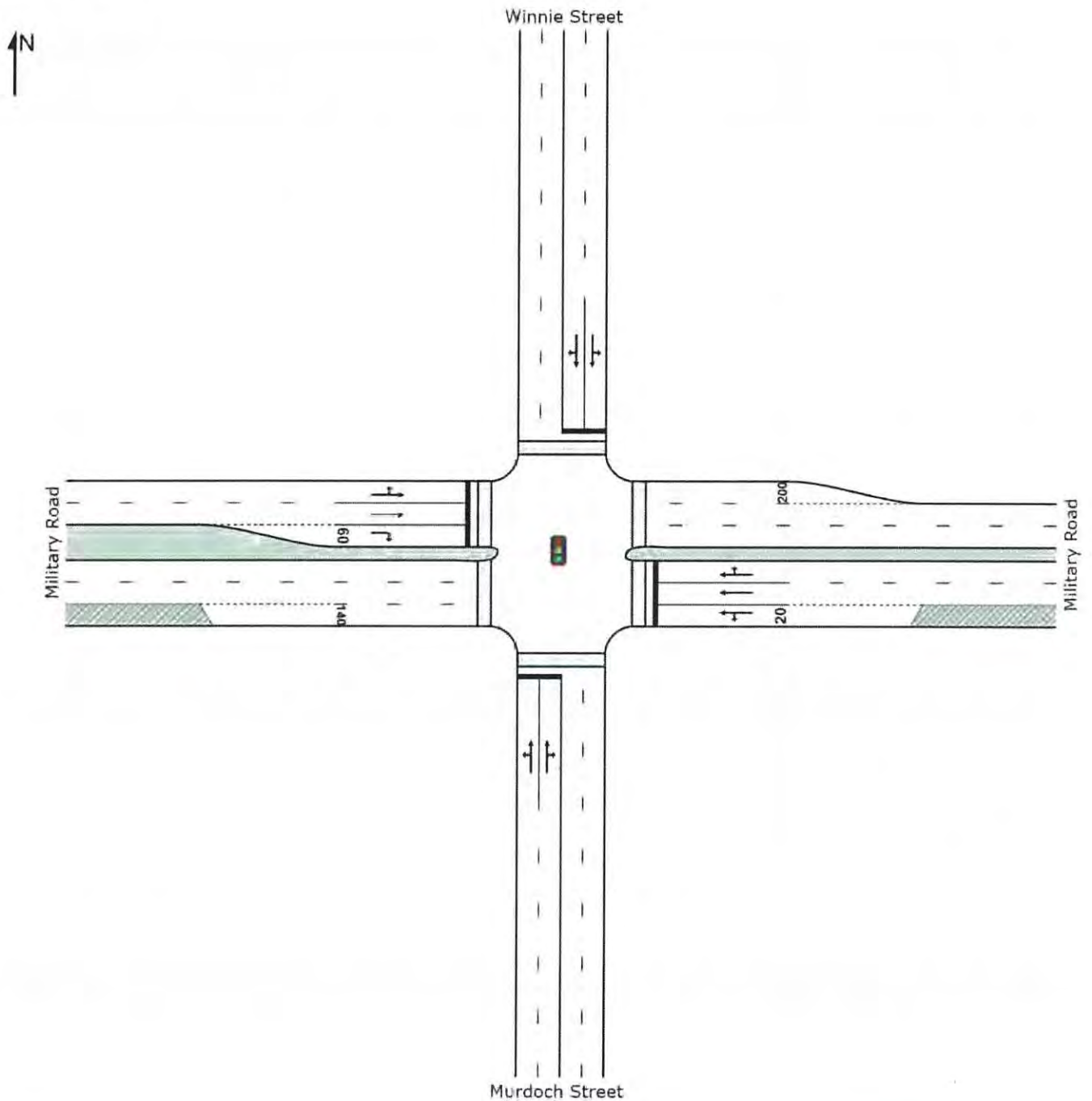
Site: J04 - Winnie St / Military Rd - Existing_PM

Intersection: Winnie Street x Military Road x Murdoch Street (Signal Controlled)

Scenario: Existing

Period: PM Peak

Signals - Fixed Time



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**SIDRA
INTERSECTION 6**

MOVEMENT SUMMARY

 **Site: J04 - Winnie St / Military Rd - Existing_PM**

Intersection: Winnie Street x Military Road x Murdoch Street (Signal Controlled)

Scenario: Existing

Period: PM Peak

Signals - Fixed Time Cycle Time = 120 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Murdoch Street											
1	L2	18	5.9	0.260	48.6	LOS D	4.7	33.2	0.89	0.71	28.2
2	T1	169	0.0	0.260	44.4	LOS D	4.7	33.1	0.89	0.71	21.0
3	R2	1	0.0	0.260	49.3	LOS D	4.7	33.1	0.89	0.71	28.8
Approach		188	0.6	0.260	44.8	LOS D	4.7	33.2	0.89	0.71	21.9
East: Military Road											
4	L2	35	3.0	0.642	23.8	LOS B	26.3	197.1	0.73	0.67	39.8
5	T1	1951	8.6	0.642	18.2	LOS B	26.5	199.0	0.73	0.67	43.4
6	R2	2	100.0	0.642	24.4	LOS B	24.5	184.8	0.73	0.66	23.8
Approach		1987	8.6	0.642	18.3	LOS B	26.5	199.0	0.73	0.67	43.3
North: Winnie Street											
7	L2	174	2.4	0.597	54.7	LOS D	10.1	72.1	0.97	0.81	20.2
8	T1	212	0.5	0.597	48.5	LOS D	11.4	82.4	0.97	0.80	20.0
9	R2	8	75.0	0.597	53.1	LOS D	11.4	82.4	0.97	0.80	20.4
Approach		394	2.9	0.597	51.3	LOS D	11.4	82.4	0.97	0.81	20.1
West: Military Road											
10	L2	57	9.3	1.037	78.5	LOS F	129.5	951.5	1.00	1.35	13.1
11	T1	2295	5.6	1.037	77.0	LOS F	129.5	951.5	0.71	1.09	23.0
12	R2	107	2.0	0.438	21.8	LOS B	3.4	23.9	0.83	0.79	37.9
Approach		2459	5.6	1.037	74.6	LOS F	129.5	951.5	0.72	1.09	23.1
All Vehicles		5028	6.4	1.037	49.4	LOS D	129.5	951.5	0.75	0.88	28.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

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

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

The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	83	15.6	LOS B	0.1	0.1	0.51	0.51	
P2	East Full Crossing	58	54.3	LOS E	0.2	0.2	0.95	0.95	
P3	North Full Crossing	98	15.6	LOS B	0.2	0.2	0.51	0.51	
P4	West Full Crossing	76	54.3	LOS E	0.2	0.2	0.95	0.95	
All Pedestrians		315	32.0	LOS D			0.70	0.70	

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

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

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

SITE LAYOUT

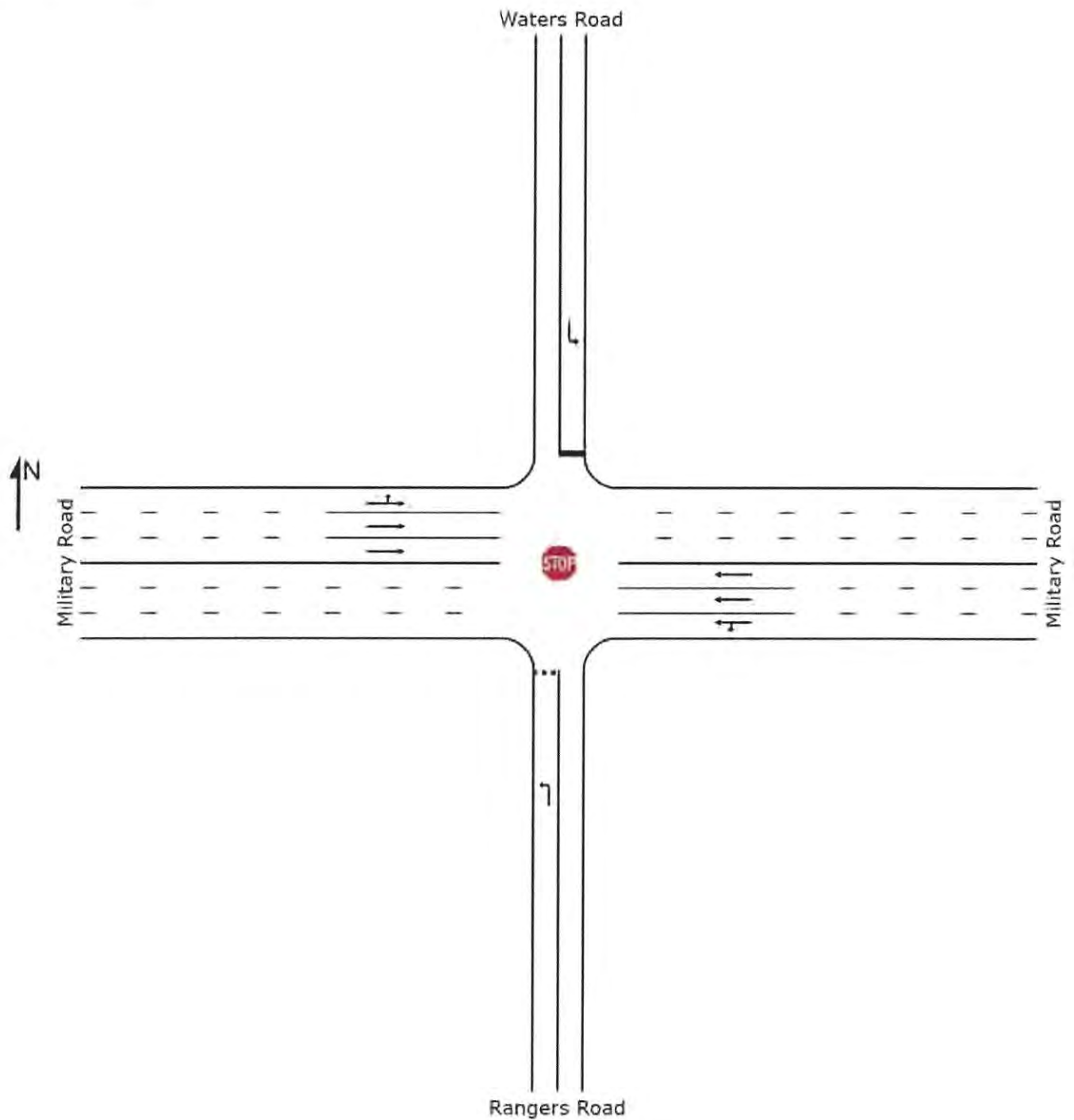
Site: J05 - Waters Rd / Military Rd - Existing_AM

Intersection: Waters Road x Military Road (Stop Controlled)

Scenario: Existing

Period: AM Peak

Stop (Two-Way)



MOVEMENT SUMMARY

 **Site: J05 - Waters Rd / Military Rd - Existing_AM**

Intersection: Waters Road x Military Road (Stop Controlled)

Scenario: Existing

Period: AM Peak

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Rangers Road											
1	L2	54	23.5	0.141	14.4	LOS A	0.4	3.7	0.71	0.88	37.5
Approach		54	23.5	0.141	14.4	LOS A	0.4	3.7	0.71	0.88	37.5
East: Military Road											
4	L2	32	3.3	0.472	5.6	LOS A	0.0	0.0	0.00	0.02	57.0
5	T1	2593	8.2	0.472	0.0	LOS A	0.0	0.0	0.00	0.01	59.7
Approach		2624	8.1	0.472	0.1	NA	0.0	0.0	0.00	0.01	59.6
North: Waters Road											
7	L2	76	5.6	0.143	13.8	LOS A	0.5	3.5	0.59	0.99	37.2
Approach		76	5.6	0.143	13.8	LOS A	0.5	3.5	0.59	0.99	37.2
West: Military Road											
10	L2	49	2.1	0.391	5.0	LOS A	0.0	0.0	0.00	0.04	50.4
11	T1	2099	9.9	0.391	0.0	LOS A	0.0	0.0	0.00	0.01	59.6
Approach		2148	9.7	0.391	0.1	NA	0.0	0.0	0.00	0.01	59.5
All Vehicles		4902	8.9	0.472	0.5	NA	0.5	3.7	0.02	0.03	58.5

Level of Service (LOS) Method: Delay (RTA NSW).

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 (Akcelik M3D).

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

Processed: Monday, 15 December 2014 12:46:12 PM

SIDRA INTERSECTION 6.0.24.4877

Project: T:\Synergy\Projects\14\14.397\Modelling\14.397m01 Redlands School.sip6

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INTERSECTION 6