MAYORAL MINUTES

1 WELCOME MR JOHN HULL TO HERITAGE ADVISORY COMMITTEE - The Mayor, Councillor Ivan Petch

RESOLUTION: (Moved by the Mayor, Councillor Petch and Councillor Yedelian OAM)

That Council endorse and welcome Mr John Hull to the Ryde Heritage Advisory Committee for its present term.

Record of Voting:

For the Motion: Unanimous

MATTERS OF URGENCY

Councillor Chung requested to raise two Matters of Urgency regarding the Section 96 modifications sought for a development application at 1-9 Monash Road and 407-417 Victoria Road, Gladesville and Traffic Issues related to Eltham Street, Gladesville.

The Mayor, Councillor Petch accepted these as Urgent Items.

RESOLUTION: (Moved by Councillors Chung and The Mayor, Councillor Petch)

That Council consider Matters of Urgency regarding the Section 96 modifications sought for a development application at 1-9 Monash Road and 407-417 Victoria Road, Gladesville and Traffic Issues related to Eltham Street, Gladesville, the time being 7.50pm.

Record of Voting:

For the Motion: Unanimous

OBJECTION TO THE JRPP - LDA2011/0648 (1-9 MONASH ROAD AND 407-417 VICTORIA ROAD, GLADESVILLE)

Note: Photographs of Eltham Street were tabled in relation to this Item and copies are ON FILE.

RESOLUTION: (Moved by Councillors Chung and Maggio)

The Acting General Manager submits an objection to the JRPP and the independent assessor on behalf of Council for the S.96 modifications sought for LDA2011/0648 (1-9 Monash Road and 407-417 Victoria Road, Gladesville) based on the following:

1. **Condition 153** – The proposed modification to the hours of operation are inconsistent with the operating hours of other ALDI stores in NSW and are inconsistent with the good order and amenity of the residential street in which it will operate.
2. **Condition 133 and 146** – The proposed extension of delivery hours will unduly disturb the residential street in which the development is located.
3. **Condition 133** – The proposed increase in deliveries from 2 per day to 6 per day triples the heavy vehicle load on the residential street. This is considered unacceptable to the quiet amenity of the street.
4. **Condition 20** – The increase in the size of delivery vehicles of over 20% from rigid (12.5m) to articulated (15.2m) vehicles presents an unacceptable safety hazard to pedestrians on Monash Road without a heavy safety gate across the Monash Road exit to the Loading dock area locked into position at all times except immediately prior to departure of a heavy vehicle.
5. **Condition 68(g)** – This condition is a safety condition as well as an amenity condition and must not be deleted.
6. **Condition 80** – This clause defines the parameters of noise attenuation and should not be deleted.
7. **Condition 117** – Is a post-construction report and cannot be deleted.

And further submit any objections to the S.96 application that fulfil the intent of this Motion.

And further that Councillor Chung on behalf of Council, present a verbal objection at the public hearing of the JRPP in terms that expand on the written objection and in terms that do not diminish the objection of the Council in any way.

Record of Voting:

For the Motion: Unanimous

TRAFFIC ISSUES RELATED TO ELTHAM STREET, GLADESVILLE

RESOLUTION: (Moved by Councillor Chung and Maggio)

(a) The Acting General Manager prepare a report detailing appropriate traffic solutions to reduce the flow of vehicular traffic and speeds of vehicles along Eltham Street, Gladesville between Monash Road and Westminster Road and to further improve the flow of traffic at the intersection of Eltham Street, College Street and Monash Road and that this report be brought back to Council by 7 May 2013.

(b) That traffic monitoring and investigation be extended by two weeks until 19 April 2013.

Record of Voting:

For the Motion: Unanimous

Milestone

Development Management
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23 April 2013

Ms Danielle Dickson
The Acting General Manager
City of Ryde
Locked Bag 2069
North Ryde NSW 1670

Attention: Ms Sandra Bailey, Team Leader Major Development.

Dear Ms Dickson,

RE: Section 96 Application No. MOD2012/0207 – 407-417 VICTORIA ROAD & 1-9 MONASH ROAD, GLADESVILLE
Council Resolution of Council Meeting No. 5/13.

We refer to the above site and to LDA2012/0207 (S96 Application). Milestone (AUST) Pty Limited acts for the land owner of the site, Hanna and Hanna Group Pty Ltd. We have obtained a copy of the Minutes of the Council Meeting No. 5/13, dated 26 March 2013 and respond accordingly to the issues which have been raised by the Councillors. We would also request that this response be included in the agenda for the Sydney East Joint Regional Planning Panel (JRPP) on the 15 May 2013 and a copy be provided to the independent planning consultants (Willana Associates Pty Ltd) who are undertaking the reporting and environmental assessment of this application.

The resolution of Council requires that the Acting General Manager submits an objection to the JRPP and the independent assessor on behalf of Council, based on the following:

***"Condition 153** – The proposed modification to the hours of operation are inconsistent with the operating hours of other ALDI stores in NSW and are inconsistent with good order and amenity of the residential street in which it will operate."*

Comment: The proposed hours of operation (trading hours) of the subject ALDI Store are consistent with standard ALDI Store trading hours which are applied for as part of development consent conditions across Australia. However the ALDI Stores does not always trade for the full extent of the approved hours. In this case, while trading hours of 7am until 10pm, 7 days are being applied for, the subject ALDI Store will generally trade in accordance with the ALDI Stores standard trading hours in NSW which are 8.30am until 8pm (Mondays – Wednesdays and Fridays), 8.30am until 9pm on Thursdays and 8.30am until 7pm on Saturdays and Sundays. A review of ALDI's website will confirm the trading hours of all ALDI Stores are generally in line with the above.

We note that there are other land uses within the immediate neighbourhood which have extended trading hours beyond those the ALDI Store is seeking consent for. The McDonalds Restaurant at 385 Victoria Road, Gladesville which is in the same block as the subject site trades from 6am to midnight, 7 days. The Sawdust Hotel, which is located opposite the McDonalds Restaurant at 386 Victoria Road trades from 11am until midnight, 7 days.

The site is located within a zone permitted for commercial/business uses on the corner of Victoria Road and Monash Road, which is a signalised intersection. Both roads contain a mixture of residential and commercial development, particularly close to the intersection. In view of the above, the proposed operating hours for the approved retail space is considered to be reasonable and will not adversely affect the amenity of the locality.

***"Condition 133 and 146** – The proposed extension of delivery hours will unduly disturb the residential street in which the development is located."*

Comment:
The proposed amendment to loading dock hours is **for an increase of one hour in the morning as it is currently approved from 7am in Condition 146 of the development consent.** In support of the extension of one hour, the application is accompanied by an acoustic report which concludes that there will be no adverse affect upon the amenity of the immediate locality from noise associated with the proposed extension to delivery hours. We note that traffic noise level counts have been taken in the vicinity of the site and a thorough assessment has been carried out with regard to noise. In this regard reference should be made to the Acoustic Report prepared by SLR Consulting dated 18 April 2013 which has addressed all potential noise issues in relation to the Section 96 application.

Further to the above, the ALDI Store delivery trucks will not drive down the residential part of Eltham Street. The delivery vehicles will turn from Monash Road into Eltham Street and into the loading dock area, and out again onto the main roads.

Conditions 133 and 146 impose different delivery times and it is logical that Condition 133 is modified to bring it into line with Condition 146. The proposed amendment will ensure that both conditions restrict deliveries to the approved retail floor space from 6am until 10pm, 7 days.

***"Condition 133** – The proposed increase in deliveries from 2 per day to 6 per day triples the heavy load on the residential street. This is considered unacceptable to the quiet amenity of the street."*

Comment: Both the Traffic and Parking Assessment Report prepared by Varga Traffic Planning Pty Ltd and the Acoustic Report prepared by SLR Consulting Pty Ltd raise no concerns in regard to any decrease in overall amenity which would prevent the modification of this condition. The increase in deliveries to the site by larger delivery vehicles will decrease the overall number of deliveries to the approved retail floor space by smaller vehicles.

As discussed in relation to Condition 133 and 146 above, the ALDI delivery trucks (maximum 15.2m) will not travel down Eltham Street and are restricted to the commercial section of the street. Further, we understand that the previous use of the site which was a sand, soil and landscaping supply yard business had regular deliveries of landscaping supplies using large heavy articulated vehicles of 19 metres minimum length entering and exiting the site on numerous occasions during the day. Many of these vehicles would use both Monash Road and Eltham Street as truck routes to and from the site. We have also been reliably advised that the previous use also used a large dozer to load and unload trucks in the open on a continuous basis throughout the day and noise could be heard from the end of Eltham Street. In addition, noise emanated from the premises from the dozer bucket hitting the ground on a continual basis. We consider that a maximum of six (6) deliveries a day from a large, well managed fleet of trucks which are owned and operated by ALDI Stores and where loading and unloading is carried out in a well organised manner within an acoustically designed, safe and clean loading dock is an improved situation on the previous operating practices and can be supported on planning merit.

***"Condition 20** – The increase in the size of delivery vehicles of over 20% from rigid (12.5m) to articulated (15.2m) vehicles presents an unacceptable safety hazard to pedestrians on Monash Road without a heavy safety gate across the Monash Road exit to the loading dock are locked into position at all times except immediately prior to the departure of a heavy vehicle."*

Comment: The Traffic and Parking Assessment Report which has been prepared by Varga Traffic Planning Pty Ltd and which forms part of the proposed modified application concludes that the swept path analysis for the larger vehicle is satisfactory and it is able to park wholly within the loading dock area without encroaching onto the footpath in the same manner as the smaller vehicle (12.5m) and there is no potential safety issue which would prevent the modification of this condition.

Further, we reiterate that the previous use of the site used large heavy articulated vehicles of 19 metres minimum length with several deliveries to the site being carried out during the day. The proposed delivery methods are superior to those of the previous use and will improve safety in and around the site when compared to the previous use of the land.

***"Condition 68(g)** – This condition is a safety condition as well as an amenity condition and must not be deleted."*

Comment: It is agreed that this condition should not be deleted however it should be reworded to reflect the larger delivery ALDI vehicles, as proposed (15.2m).

***"Condition 80** – This clause defines the parameters of noise attenuation and should not be deleted."*

Comment: Agreed. The applicant has no objection to the retention of this condition.

***"Condition 117** – is a post- construction report and cannot be deleted."*

Comment: Agreed. While additional information has now been submitted, the applicant has no objections to the retention of this condition.

Yours sincerely
Milestone (AUST) Pty Limited

Lisa Bella Esposito
Director

Issue History

File Name	Prepared by	Reviewed by	Issued by	Date	Issued to
P1203.001T 1-9 Monash Road, s.96 TPA Review	M. Mahmud	A. Finlay	A. Finlay	29/01/2013	Sandra Bailey City of Ryde
P1203 002T 1-9 Monash Road s 96 TPA Review	D.Yu	A. Finlay	A. Finlay	11/02/2013	Sandra Bailey City of Ryde
P1203 003T 1-9 Monash Road s 96 TPA Review	D.Yu	A. Finlay	A. Finlay	11/02/2013	Sandra Bailey City of Ryde
P1203 004T 1-9 Monash Road s 96 TPA Review.doc	D.Yu M Mahmud	A. Finlay	A. Finlay	25/02/2013	Sandra Bailey City of Ryde
P1203 005T 1-9 Monash Road s 96 TPA Review.doc	M Mahmud	A. Finlay	A. Finlay	6/03/2013	Sandra Bailey City of Ryde
P1203 006T 1-9 Monash Road s 96 TPA Review.doc	M Mahmud	A. Finlay	A. Finlay	27/03/2013	Sandra Bailey City of Ryde

1. DEVELOPMENT DETAILS

Location:	407-417 Victoria Road and 1-9 Monash Road, Gladesville
Application for:	Proposed Modifications to the Residential/Retail Development

2. BACKGROUND/SCOPE

Bitzios Consulting has been commissioned by the City of Ryde to undertake a technical review of the Traffic and Parking Assessment (TPA) Report for a Section 96 Application for proposed modifications to the Development Application LDA 2011/0648 (as approved by the Sydney East Region Joint Regional Planning Panel) at 407-417 Victoria Road and 1-9 Monash Road in Gladesville. The proposed modified mixed use development contains some 74 apartments (an increase of 4) and a retail area of approximately 2565m^2 (an increase of about 45m^2).

This review was undertaken in accordance with Council's DCP and Strategic Plans, and with relevant RMS and AustRoads guidelines and Australian Standards.

The documents and attachments covered under this review include:

- Traffic and Parking Assessment Report for Proposed Mixed-use Development at 407-417 Victoria Road and 1-9 Monash Road in Gladesville by Varga Traffic Planning Pty Ltd in December 2012;
- Statement of Environmental Effects by Milestone (Aust) Pty Ltd;
- Drawing plans (dated December 2012) as follows:
  - A-008 Basement 3 Floor Plan;
  - A-009 Basement 2 Floor Plan;
  - A-010 Basement 1 Floor Plan; and
  - A-011 Ground Floor Plan.

A review of the SIDRA model files prepared by Varga Traffic Planning was also undertaken and discussed in Section 3.4 of this Technical Note.

3. REVIEW FINDINGS/RECOMMENDATIONS

3.1 PARKING PROVISION

Section 4 of the TPA Report calculated the development parking provision on the basis of the following rates (in line with Ryde DCP 2010 Parts 3.4 and 9.3):

- one space per dwelling with one bedroom;

- 1.2 spaces per dwelling two bedrooms;
- 1.6 spaces per dwelling with three or more bedrooms;
- one space per four dwellings for visitors; and
- one space per 25sqm of retail area.

Based on the above, the applicant is required to provide 105 spaces for the residential component and 103 spaces for the retail component of the proposed development.

In response, the applicant proposed 211 parking spaces, comprising 107 spaces for the residential component (a surplus of 2) and 104 spaces for the retail component (a surplus of 1), *resulting in compliance with requirements.*

Based on part 9.3 of the RYDE DCP 2010, proposed development should provide bicycle parking equivalent to 10% of the required car parking spaces for the residential component, that is 11 bicycle spaces. The applicant's latest drawings (December 2012) show four spaces on Basement 3, three spaces on Basement 2, and four spaces on Basement 1, for a total of 11 bicycle parking spaces. *Therefore the proposed bicycle parking spaces are deemed adequate in accordance with DCP's objectives.*

The proposed development should also be providing the following parking spaces for disabled persons (in line with Ryde DCP 2010 Part 9.2):

- residential component (Building Class 3) – four parking spaces; and
- retail component (Building Class 6) – four parking spaces.

The s96 application proposes seven adaptable units, and each would be allocated an accessible parking bay. Based on the submitted plans, the applicant proposed 10 disabled parking spaces for the residential component and six spaces for the retail component. In addition, the locations of the proposed disabled parking spaces are generally consistent with the DCP's objectives to place disabled parking spaces as near as possible to entry/exit for the convenience of disabled users. *The proposed parking spaces for disabled persons are deemed adequate and acceptable.*

3.2 DEVELOPMENT TRAFFIC GENERATION/ DISTRIBUTION

The applicant calculated the development generated traffic for the residential component in accordance with the RTA *Guide to Traffic Generating Developments (2002).* For the retail component, traffic generation rates were based on a recent research paper prepared by Halcrow titled *Trip Generation and Parking Demand Surveys of Shopping Centre Analysis Report (September 2011).* The research paper was prepared for RMS as a way of updating the *Guide to Traffic Generating Developments (2002).*

We calculated the retail traffic generation (per square metre of GLFA) based on the Halcrow vehicle traffic generation rates. The Thursday (PM) future traffic generation for retail was calculated to be 152 peak hour vehicle trips (compared to Varga report's 145.1). The Saturday future traffic generation for retail was calculated to be 182.4 peak hour vehicle trips (compared to Varga report's 172.6). The differences between the traffic generation values in the Varga report and our calculations are most likely due to estimation differences of the GLFA. In our calculations, we estimated the separate GLFA components for the Aldi supermarket and the speciality shops. It is not clear if the Varga report did likewise. Table 3.1 overleaf shows a comparison of the trip generation calculations for the original DA and the s96 application.

Table 3.1: Trip Generation

	Original DA		S96 DA	
	PM	Sat	PM	Sat
Residential 0.29 trips/dwelling PM and Saturday	(70 apts) 20.3	(70 apts) 20.3	(74 apts) 21.5	(74 apts) 21.5
Retail *RTA guide toTraffic Generating Developments* Thurs – 12.3 trips/100m² GLFA Sat – 16.3 trips/100m² GLFA *Halcrow Report* Thurs – 5.8 trips/100m² GLFA Sat – 6.9 trips/100m² GLFA	295.2 (2540m²) 147.3	391.2 (2540m²) 175.3	(2501m²) 145.1	(2501m²) 172.6
TOTAL (using Halcrow Report rates for Retail component))	167.6	195.6	166.6 (say) 167	194.1 (say) 195

It should be noted that Varga Traffic Planning supplied additional information to Council on 20 March 2012, outlining the revised (Halcrow Report) traffic generation calculation methodology. This was prior to Council's consent to the original DA, indicating that Council had accepted the revised traffic generation rates.

Given the small differences in calculated trips for the retail component, the Varga report traffic generation calculation is deemed acceptable for the proposed development. On the basis of the calculation, the applicant claimed a total of 167 trips generated for the Thursday afternoon peak, and a total of 195 trips for the Saturday peak.

For the residential trips, it was assumed that there would be a ratio of 80% IN and 20% OUT on a Thursday afternoon peak (so 17.2 IN and 4.3 OUT), and 50:50 on a Saturday (so 10.75 IN and 10.75 OUT).

For the retail component, it was assumed that the ratio would be 50:50 in both peaks (so 72.55 IN and 72.55 OUT on Thursday, and 86.3 IN and 86.3 OUT on Saturday). With rounding, this resulted in the following trip patterns:

- 90 incoming trips during the Thursday afternoon peak;
- 98 incoming trips during the Saturday peak;
- 77 outgoing trips during the Thursday afternoon peak; and
- 98 outgoing trips during the Saturday peak.

Figure 5 of the Varga Traffic Planning report had the following corresponding trip numbers:

- 91 incoming trips during the Thursday afternoon peak;
- 99 incoming trips during the Saturday peak;

- 79 outgoing trips during the Thursday afternoon peak; and
- 99 outgoing trips during the Saturday peak.

It can be seen that the Varga figures are in all cases slightly, but insignificantly, higher.

The applicant subsequently distributed this estimated traffic into the network, with emphasis placed on the following intersections:

- Monash Road/ Victoria Road intersection;
- Monash Road/ Eltham Street intersection; and
- Eltham Street/ proposed driveway.

The applicant undertook SIDRA intersection assessment for the above intersections for the periods of Thursday afternoon peak and Saturday peak. The details of the traffic generating calculations are discussed in Section 3 of the applicant's report. The SIDRA results are reviewed and discussed in Section 3.4 of this review Technical Note.

We assessed the methodology and assumptions that the applicant employed when assigning development traffic onto the background traffic and find that the approach employed by the applicant is acceptable.

3.3 SITE PARKING LAYOUT

AS2890.1 Section	Criteria	Requirements	Comply	Notes
1.0	User Class	Class 1A	-	
2.4	Parking Dimensions	2.4m wide 5.4m long 5.8m isle width	Yes	
2.5	Circulation roadways/ ramp grades	Minimum 3m width (5.5m two-way) No more than 16.7% where > 20m, otherwise No more than 20% < 20m	Yes	
2.5	Grade transitions	Required where Grade change > 12.5% in summit Grade change > 15% in sag	Yes	
3.2	Access driveway width	6m - 9m combined	Yes	
3.3	Access driveway grades	No more than 5%	Yes	

Appendix B	Manoeuvrability	Turning paths should include ingress/egress manoeuvrability for applicable vehicle types	Yes	We assessed the manoeuvrability of service vehicles on the basis of the applicant's claim that the access and manoeuvring area has been designed in accordance with turning analysis. Reference: Section 4 Loading/Servicing Provisions The applicant claimed the loading dock manoeuvring area was designed to accommodate the swept turning path for a special short 15.2m articulated truck, allowing such trucks to enter and exit the site in a forward direction at all times. However, the applicant only provided swept path analysis for entry to the site from Eltham Street. There was no exit turning path analysis in the TPA report. In addition, the swept path analysis did not illustrate the complete right turn movement from Eltham Street to the proposed site. We assessed the swept path analysis for both entry and exit to and from the site and found that it is achievable based on the supplied layout. In addition, exit path of the trucks must remain within the southbound Monash Road lanes.

3.4 INTERSECTION OPERATION ANALYSES

Generally, the following SIDRA assessment outputs are assessed carefully to quantify the traffic impact of the development on an existing traffic network:

- consistency of signal cycle time;
- consistency of traffic volumes and development traffic volumes;
- consistency of version of SIDRA software;
- consistency of Delay method used;
- acceptability of change in approach delays;
- acceptability of change in queue distance;
- acceptability of change in Level of Service (LoS) ; and
- if any default settings have been adjusted with no justification.

The applicant tabulated the results of their SIDRA assessment in Tables 3.1, 3.2 and 3.3 of their traffic report. The results generally indicated minimal delay increases and LoS maintained.

Tables 3.2 to 3.5 show a comparison of the SIDRA results for the existing situation, the original DA, and the s96 application.

Table 3.2: Victoria Road / Monash Road Intersection – PM Peak Hour SIDRA Assessment Summary

Intersection		Existing				Original DA with New Trip Generation Rate				S.96 Application			
Approach	Movement	DOS	Avg. Delay (s)	LOS	95% Queue (m)	DOS	Avg. Delay (s)	LOS	95% Queue (m)	DOS	Avg. Delay (s)	LOS	95% Queue (m)
Victoria Road Eastern Approach	T	0.646	9.2	A	197.4	0.657	9.6	A	197.7	0.657	9.6	A	197.7
	R	0.468	39.2	C	36.9	0.609	43.8	D	50.8	0.609	43.8	D	50.8
Monash Road Northern Approach	L	0.600	57.6	E	82.9	0.641	55.4	D	90.3	0.641	55.4	D	90.3
	R	0.600	58.5	E	82.9	0.641	56.3	D	90.3	0.641	56.3	D	90.3
Victoria Road Western Approach	L	0.640	20.9	B	182.4	0.654	20.5	B	180.1	0.654	20.5	B	180.1
	T	0.640	15.2	B	204.6	0.654	15.2	B	204.1	0.654	15.2	B	204.1

Table 3.3: Victoria Road / Monash Road Intersection – Saturday Peak Hour SIDRA Assessment Summary

Intersection		Existing				Original DA with New Trip Generation Rate				S.96 Application			
Approach	Movement	DOS	Avg. Delay (s)	LOS	95% Queue (m)	DOS	Avg. Delay (s)	LOS	95% Queue (m)	DOS	Avg. Delay (s)	LOS	95% Queue (m)
Victoria Road Eastern Approach	T	0.501	7.9	A	124.2	0.519	8.7	A	124.6	0.519	8.7	A	124.6
	R	0.329	34.0	C	21.0	0.452	38.7	C	31.7	0.452	38.7	C	31.7
Monash Road Northern Approach	L	0.600	54.9	D	84.2	0.617	49.0	D	87.1	0.617	49.0	D	87.1
	R	0.600	55.9	D	84.2	0.617	50.5	D	87.1	0.617	50.5	D	87.1
Victoria Road Western Approach	L	0.654	12.3	A	27.7	0.692	12.9	A	31.5	0.692	12.9	A	31.5
	T	0.654	15.5	B	203.9	0.692	16.9	B	204.1	0.692	16.9	B	204.1

Table 3.4: Monash Road / Eltham Street Intersection – PM Peak Hour SIDRA Assessment Summary

Intersection		Existing				Original DA with New Trip Generation Rate				S.96 Application			
Approach	Movement	DOS	Avg. Delay (s)	LOS	95% Queue (m)	DOS	Avg. Delay (s)	LOS	95% Queue (m)	DOS	Avg. Delay (s)	LOS	95% Queue (m)
Monash Road Southern Approach	L	0.047	6.4	A	-	0.056	6.4	A	-	0.056	6.4	A	-
	T	0.234	1.8	A	12.2	0.281	2.0	A	14.5	0.281	2.0	A	14.5
	R	0.234	8.5	A	12.2	0.281	8.8	A	14.5	0.281	8.8	A	14.5
Eltham Street Eastern Approach	L	0.107	11.1	A	1.6	0.206	11.3	A	3.3	0.206	11.3	A	3.3
	T	0.095	22.8	B	2.3	0.191	26.9	B	4.7	0.191	26.9	B	4.7
	R	0.095	22.6	B	2.3	0.191	26.7	B	4.7	0.191	26.7	B	4.7
Monash Road Northern Approach	L	0.115	6.4	A	-	0.120	6.4	A	-	0.120	6.4	A	-
	T	0.115	0.9	A	5.9	0.120	1.0	A	6.2	0.120	1.0	A	6.2
	R	0.115	8.7	A	5.9	0.120	8.7	A	6.2	0.120	8.7	A	6.2
College Street Western Approach	L	0.157	11.6	A	2.5	0.157	11.6	A	2.5	0.157	11.6	A	2.5
	T	0.173	23.1	B	4.3	0.202	26.4	B	5.1	0.202	26.4	B	5.1
	R	0.173	22.9	B	4.3	0.202	26.2	B	5.1	0.202	26.2	B	5.1

Table 3.5: Monash Road / Eltham Street Intersection – Saturday Peak Hour SIDRA Assessment Summary

Intersection		Existing				Original DA with New Trip Generation Rate				S.96 Application			
Approach	Movement	DOS	Avg. Delay (s)	LOS	95% Queue (m)	DOS	Avg. Delay (s)	LOS	95% Queue (m)	DOS	Avg. Delay (s)	LOS	95% Queue (m)
Monash Road Southern Approach	L	0.030	6.4	A	-	0.039	6.4	A	-	0.039	6.4	A	-
	T	0.149	1.4	A	6.9	0.194	1.5	A	8.4	0.194	1.5	A	8.4
	R	0.149	8.0	A	6.9	0.194	8.3	A	8.4	0.194	8.3	A	8.4
Eltham Street Eastern Approach	L	0.155	11.0	A	2.4	0.265	11.2	A	4.3	0.265	11.2	A	4.3
	T	0.056	17.2	B	1.4	0.126	19.4	B	3.2	0.126	19.4	B	3.2
	R	0.056	17.1	B	1.4	0.126	19.2	B	3.2	0.126	19.2	B	3.2
Monash Road Northern Approach	L	0.096	6.4	A	-	0.101	6.4	A	-	0.101	6.4	A	-
	T	0.096	0.6	A	4.7	0.101	0.6	A	5.0	0.101	0.6	A	5.0
	R	0.096	7.8	A	4.7	0.101	7.8	A	5.0	0.101	7.8	A	5.0
College Street Western Approach	L	0.035	10.6	A	0.5	0.035	10.6	A	0.5	0.035	10.6	A	0.5
	T	0.083	18.5	B	2.1	0.098	20.7	B	2.4	0.098	20.7	B	2.4
	R	0.083	18.3	B	2.1	0.098	20.6	B	2.4	0.098	20.6	B	2.4

The submitted results were assessed for adequacy and the following conclusions are drawn:

- *the applicant used optimum cycle time which reflected higher cycle length (deemed suitable in view of high SCATS cycle lengths during the peak periods on Victoria Road vicinity);*
- *the traffic volumes were consistent with the calculations;*
- *the applicant had used a peak hour flow factor parameter of 100% in place of the default 95%. This usually results in slightly more optimistic results;*
- *the queue lengths from the analysis indicates that queuing on the northern approach of the Monash Road/Victoria Road intersection would be within the available queuing space. In particular, the Thursday afternoon peak period returned maximum queuing of 91m which would not extend through the Eltham Street intersection. Therefore the modelling indicated that queuing caused by the development is acceptable;*
- *the change in LoS is acceptable; and*
- *the applicant had used "extra bunching" feature for the Monash Road/Victoria Road intersection analysis. This parameter is mainly used for sign controlled intersections or roundabouts. In this case, the applicant should have used the "signal coordination" parameter under the movement data settings. However, this is not viewed as critical to the outcome of the analysis.*

Other than the extra bunching parameter which had been applied on the Monash Road/Victoria Road intersection analysis, the results of the model appear to be adequate and acceptable.

It is not necessary to re-analyse the associated intersections on the basis of the extra bunching error.

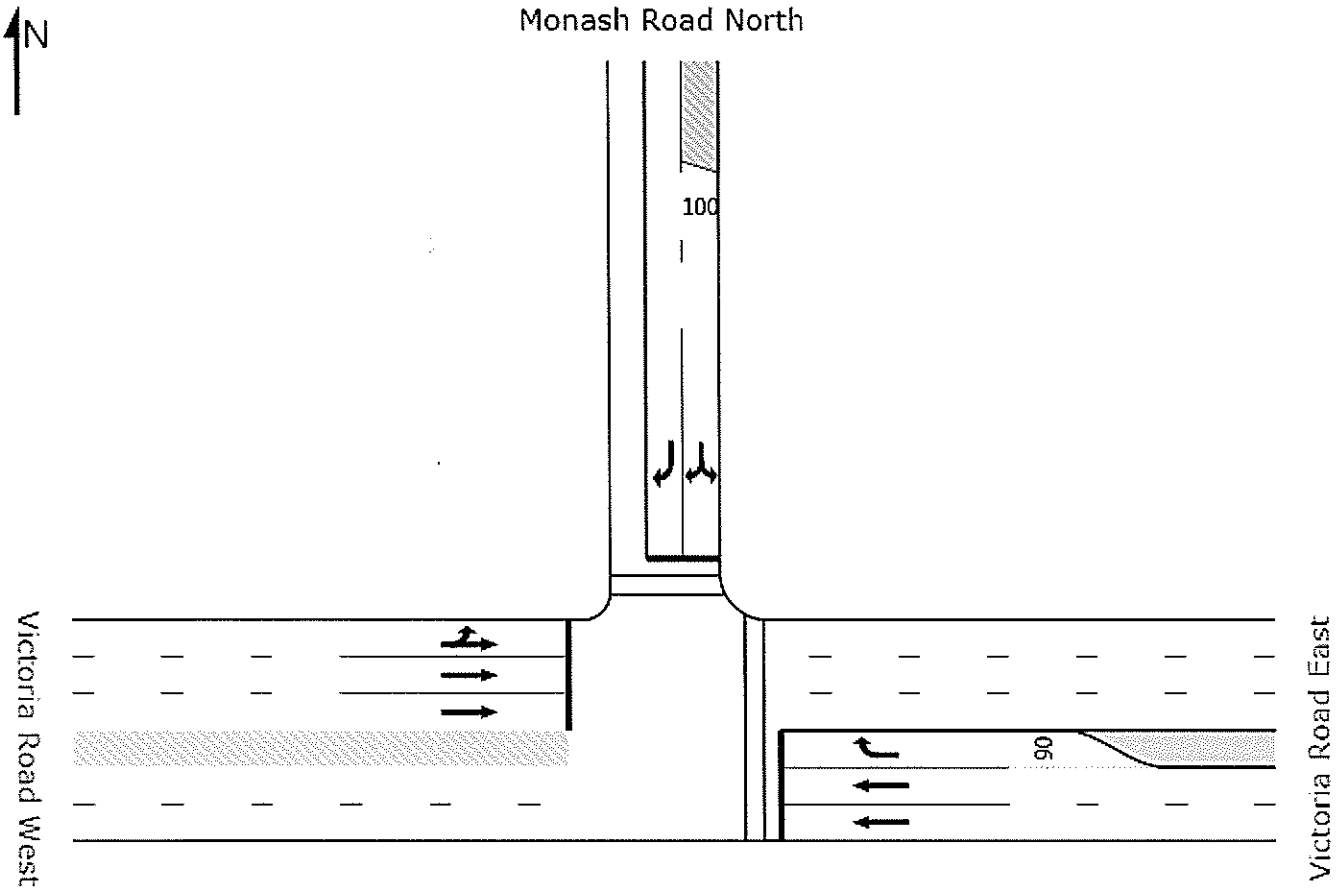
The SIDRA modelling techniques and assumptions used by Varga Traffic Planning in the s96 TPA report are consistent with those used in the original DA traffic impact assessment.

4. CONCLUSION

- the applicant satisfactorily addressed bicycle parking spaces requirements in accordance with RYDE DCP Part 9.3;
- the applicant satisfactorily addressed disabled parking spaces requirements in accordance with RYDE DCP Part 9.2;
- the applicant satisfactorily addressed the parking layout/access requirements in accordance with AS2890.1:2004;
- a sign, "TO VICTORIA ROAD" with an arrow pointing towards the west, should be erected at the exit driveway in Eltham Street to discourage traffic departing the site using Eltham Street east;
- the applicant satisfactorily addressed the traffic generation calculation in accordance with the RTA *Guide to Traffic Generating Developments (2002)* and the Halcrow *Trip Generation and Parking Demand Surveys of Shopping Centre Analysis Report (September 2011)* ;
- the applicant's traffic distribution methodology is satisfactory; and
- the applicant's SIDRA model assessment is deemed acceptable.

ATTACHMENT A

SIDRA RESULTS


N
Monash Road North
100
Victoria Road West
90
Victoria Road East

MOVEMENT SUMMARY

Site: Existing PM

Victoria Road & Monash Road
Signals - Fixed Time Cycle Time = 125 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

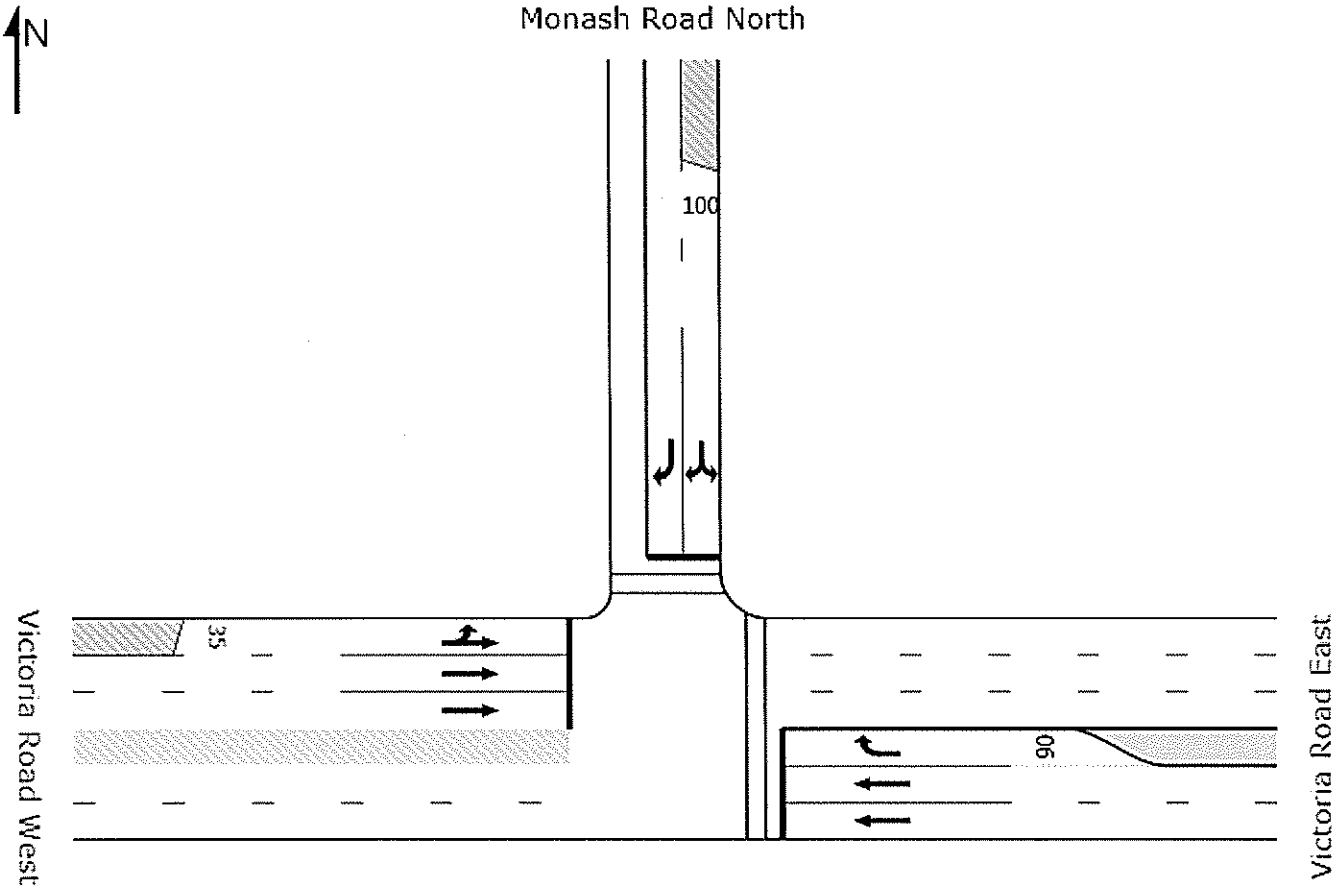
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Victoria Road East											
5	T	1820	1.3	0.646	9.2	LOS A	27.9	197.4	0.56	0.52	45.9
6	R	93	3.2	0.468	39.2	LOS C	5.1	36.9	0.92	0.84	27.9
Approach		1913	1.4	0.646	10.7	LOS A	27.9	197.4	0.58	0.54	44.6
North: Monash Road North											
7	L	90	1.1	0.600	57.6	LOS E	11.8	82.9	0.97	0.82	21.8
9	R	314	0.3	0.600	58.5	LOS E	11.8	82.9	0.97	0.82	21.6
Approach		404	0.5	0.600	58.3	LOS E	11.8	82.9	0.97	0.82	21.6
West: Victoria Road West											
10	L	444	0.2	0.640	20.9	LOS B	25.9	182.4	0.66	0.91	37.8
11	T	1880	1.1	0.640	15.2	LOS B	29.0	204.6	0.67	0.62	40.2
Approach		2324	0.9	0.640	16.2	LOS B	29.0	204.6	0.67	0.68	39.8
All Vehicles		4641	1.1	0.646	17.6	LOS B	29.0	204.6	0.66	0.63	38.7

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 used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across E approach	18	56.6	LOS E	0.1	0.1	0.95	0.95
P5	Across N approach	8	11.7	LOS B	0.0	0.0	0.43	0.43
All Pedestrians		26	42.8	LOS E			0.79	0.79

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.


N
Monash Road North
100
35
90
Victoria Road West
Victoria Road East

MOVEMENT SUMMARY

Site: Existing Sat

Victoria Road & Monash Road
Signals - Fixed Time Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Victoria Road East											
5	T	1390	1.0	0.501	7.9	LOS A	17.6	124.2	0.48	0.44	47.5
6	R	66	3.0	0.329	34.0	LOS C	2.9	21.0	0.79	0.79	30.0
Approach		1456	1.1	0.501	9.1	LOS A	17.6	124.2	0.49	0.45	46.3
North: Monash Road North											
7	L	111	0.9	0.600	54.9	LOS D	11.9	84.2	0.96	0.83	22.4
9	R	313	1.0	0.600	55.9	LOS D	11.9	84.2	0.97	0.82	22.1
Approach		424	0.9	0.600	55.6	LOS D	11.9	84.2	0.97	0.82	22.2
West: Victoria Road West											
10	L	287	0.7	0.654	12.3	LOS A	3.9	27.7	0.45	0.75	43.8
11	T	1590	0.8	0.654	15.5	LOS B	28.9	203.9	0.69	0.64	40.2
Approach		1877	0.7	0.654	15.0	LOS B	28.9	203.9	0.66	0.65	40.7
All Vehicles		3757	0.9	0.654	17.3	LOS B	28.9	203.9	0.63	0.59	38.8

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 used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across E approach	6	54.2	LOS E	0.0	0.0	0.95	0.95
P5	Across N approach	1	11.7	LOS B	0.0	0.0	0.44	0.44
All Pedestrians		7	48.1	LOS E			0.88	0.88

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

MOVEMENT SUMMARY

Site: Proposed PM

Victoria Road & Monash Road
Signals - Fixed Time Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Victoria Road East											
5	T	1820	1.3	0.657	9.6	LOS A	27.9	197.7	0.58	0.54	45.4
6	R	120	2.5	0.609	43.8	LOS D	7.1	50.8	1.00	0.88	26.3
Approach		1940	1.3	0.657	11.7	LOS A	27.9	197.7	0.61	0.56	43.6
North: Monash Road North											
7	L	114	0.9	0.641	55.4	LOS D	12.8	90.3	0.97	0.83	22.3
9	R	339	0.3	0.641	56.3	LOS D	12.8	90.3	0.98	0.83	22.0
Approach		453	0.4	0.641	56.1	LOS D	12.8	90.3	0.98	0.83	22.1
West: Victoria Road West											
10	L	472	0.2	0.654	20.5	LOS B	25.6	180.1	0.67	0.90	38.0
11	T	1880	1.1	0.654	15.2	LOS B	28.9	204.1	0.69	0.64	40.2
Approach		2352	0.9	0.654	16.3	LOS B	28.9	204.1	0.69	0.69	39.7
All Vehicles		4745	1.1	0.657	18.2	LOS B	28.9	204.1	0.68	0.65	38.2

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 used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across E approach	18	54.2	LOS E	0.1	0.1	0.95	0.95
P5	Across N approach	8	11.7	LOS B	0.0	0.0	0.44	0.44
All Pedestrians		26	41.1	LOS E			0.79	0.79

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

MOVEMENT SUMMARY

Site: Proposed Sat

Victoria Road & Monash Road
Signals - Fixed Time Cycle Time = 110 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Victoria Road East											
5	T	1390	1.0	0.519	8.7	LOS A	17.6	124.6	0.52	0.48	46.6
6	R	93	2.2	0.452	38.7	LOS C	4.4	31.7	0.91	0.83	28.1
Approach		1483	1.1	0.519	10.5	LOS A	17.6	124.6	0.55	0.50	44.8
North: Monash Road North											
7	L	139	0.7	0.617	49.0	LOS D	12.4	87.1	0.95	0.83	23.8
9	R	341	0.9	0.617	50.5	LOS D	12.4	87.1	0.96	0.83	23.4
Approach		480	0.8	0.617	50.0	LOS D	12.4	87.1	0.96	0.83	23.5
West: Victoria Road West											
10	L	315	0.6	0.692	12.9	LOS A	4.5	31.5	0.50	0.76	43.2
11	T	1590	0.8	0.692	16.9	LOS B	29.0	204.1	0.75	0.69	39.0
Approach		1905	0.7	0.692	16.2	LOS B	29.0	204.1	0.71	0.70	39.6
All Vehicles		3868	0.9	0.692	18.3	LOS B	29.0	204.1	0.68	0.64	38.1

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 used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across E approach	6	49.2	LOS E	0.0	0.0	0.95	0.95
P5	Across N approach	1	12.8	LOS B	0.0	0.0	0.48	0.48
All Pedestrians		7	44.0	LOS E			0.88	0.88

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

MOVEMENT SUMMARY

Site: Proposed PM

Victoria Road & Monash Road
Signals - Fixed Time Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Victoria Road East											
5	T	1820	1.3	0.657	9.6	LOS A	27.9	197.7	0.58	0.54	45.4
6	R	120	2.5	0.609	43.8	LOS D	7.1	50.8	1.00	0.88	26.3
Approach		1940	1.3	0.657	11.7	LOS A	27.9	197.7	0.61	0.56	43.6
North: Monash Road North											
7	L	114	0.9	0.641	55.4	LOS D	12.8	90.3	0.97	0.83	22.3
9	R	339	0.3	0.641	56.3	LOS D	12.8	90.3	0.98	0.83	22.0
Approach		453	0.4	0.641	56.1	LOS D	12.8	90.3	0.98	0.83	22.1
West: Victoria Road West											
10	L	472	0.2	0.654	20.5	LOS B	25.6	180.1	0.67	0.90	38.0
11	T	1880	1.1	0.654	15.2	LOS B	28.9	204.1	0.69	0.64	40.2
Approach		2352	0.9	0.654	16.3	LOS B	28.9	204.1	0.69	0.69	39.7
All Vehicles		4745	1.1	0.657	18.2	LOS B	28.9	204.1	0.68	0.65	38.2

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 used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across E approach	18	54.2	LOS E	0.1	0.1	0.95	0.95
P5	Across N approach	8	11.7	LOS B	0.0	0.0	0.44	0.44
All Pedestrians		26	41.1	LOS E			0.79	0.79

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

MOVEMENT SUMMARY

Site: Proposed Sat

Victoria Road & Monash Road
Signals - Fixed Time Cycle Time = 110 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

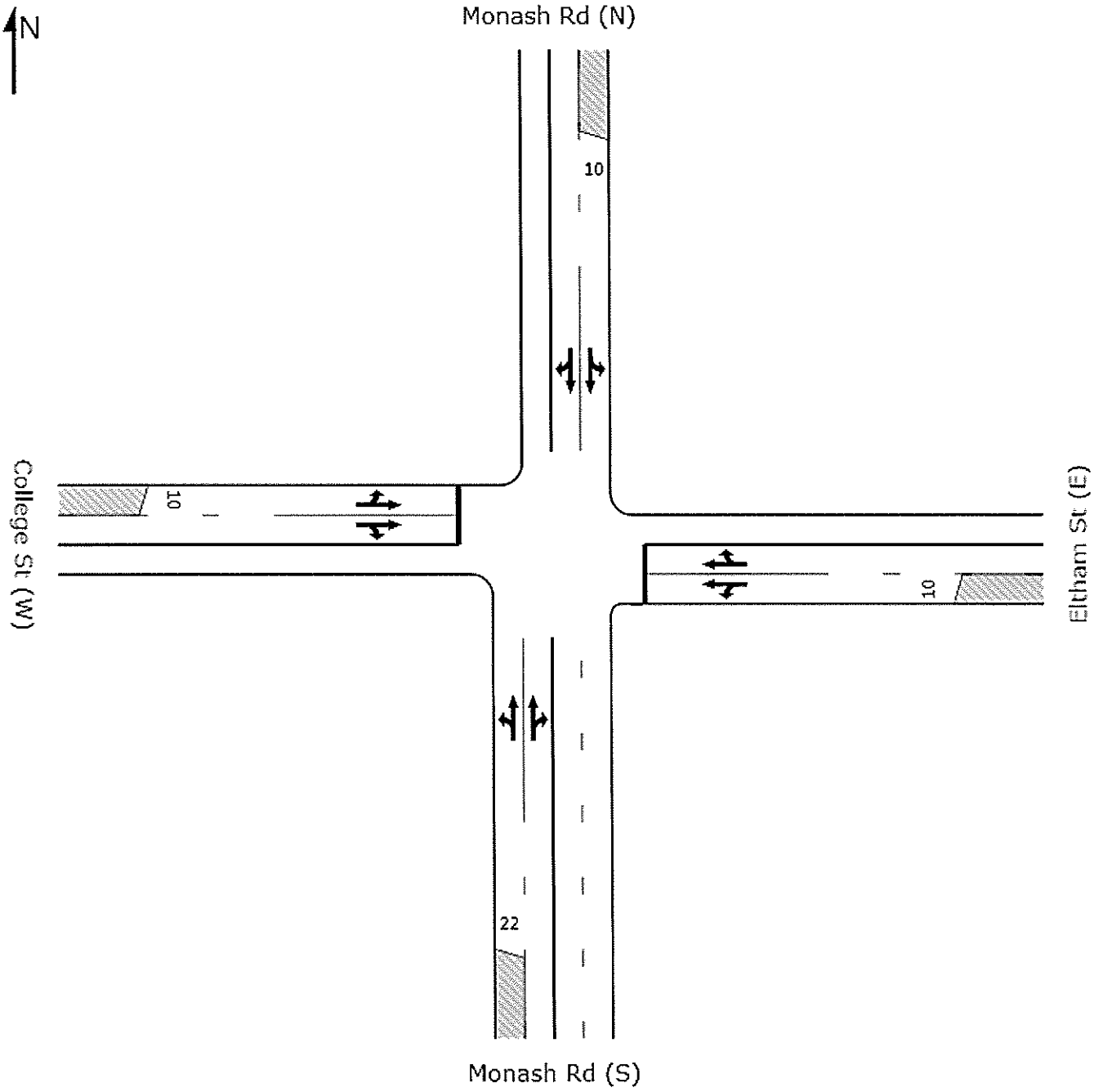
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Victoria Road East											
5	T	1390	1.0	0.519	8.7	LOS A	17.6	124.6	0.52	0.48	46.6
6	R	93	2.2	0.452	38.7	LOS C	4.4	31.7	0.91	0.83	28.1
Approach		1483	1.1	0.519	10.5	LOS A	17.6	124.6	0.55	0.50	44.8
North: Monash Road North											
7	L	139	0.7	0.617	49.0	LOS D	12.4	87.1	0.95	0.83	23.8
9	R	341	0.9	0.617	50.5	LOS D	12.4	87.1	0.96	0.83	23.4
Approach		480	0.8	0.617	50.0	LOS D	12.4	87.1	0.96	0.83	23.5
West: Victoria Road West											
10	L	315	0.6	0.692	12.9	LOS A	4.5	31.5	0.50	0.76	43.2
11	T	1590	0.8	0.692	16.9	LOS B	29.0	204.1	0.75	0.69	39.0
Approach		1905	0.7	0.692	16.2	LOS B	29.0	204.1	0.71	0.70	39.6
All Vehicles		3868	0.9	0.692	18.3	LOS B	29.0	204.1	0.68	0.64	38.1

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 used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across E approach	6	49.2	LOS E	0.0	0.0	0.95	0.95
P5	Across N approach	1	12.8	LOS B	0.0	0.0	0.48	0.48
All Pedestrians		7	44.0	LOS E			0.88	0.88

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.


N
Monash Rd (N)
10
College St (W)
10
Eltham St (E)
10
22
Monash Rd (S)

MOVEMENT SUMMARY

Site: Existing PM

Monash Rd & Eltham St & College St
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Monash Rd (S)											
1	L	34	0.0	0.047	6.4	LOS A	0.0	0.0	0.00	0.77	43.3
2	T	447	0.7	0.234	1.8	LOS A	1.7	12.2	0.38	0.00	45.5
3	R	33	0.0	0.234	8.5	LOS A	1.7	12.2	0.43	0.85	42.6
Approach		514	0.6	0.234	2.5	NA	1.7	12.2	0.35	0.11	45.1
East: Eltham St (E)											
4	L	54	0.0	0.107	11.1	LOS A	0.2	1.6	0.41	0.89	40.1
5	T	14	0.0	0.095	22.8	LOS B	0.3	2.3	0.76	1.00	33.0
6	R	10	0.0	0.095	22.6	LOS B	0.3	2.3	0.76	1.00	33.1
Approach		78	0.0	0.107	14.7	LOS B	0.3	2.3	0.51	0.93	37.6
North: Monash Rd (N)											
7	L	42	0.0	0.115	6.4	LOS A	0.0	0.0	0.00	0.84	43.3
8	T	320	0.6	0.115	0.9	LOS A	0.8	5.9	0.22	0.00	47.1
9	R	41	0.0	0.115	8.7	LOS A	0.8	5.9	0.50	0.82	42.4
Approach		403	0.5	0.115	2.3	NA	0.8	5.9	0.22	0.17	46.2
West: College St (W)											
10	L	74	0.0	0.157	11.6	LOS A	0.4	2.5	0.45	0.91	39.8
11	T	23	0.0	0.173	23.1	LOS B	0.6	4.3	0.77	1.00	32.9
12	R	21	0.0	0.173	22.9	LOS B	0.6	4.3	0.77	1.00	33.0
Approach		118	0.0	0.173	15.9	LOS B	0.6	4.3	0.57	0.94	36.9
All Vehicles		1113	0.4	0.234	4.7	NA	1.7	12.2	0.34	0.28	43.8

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 used.

MOVEMENT SUMMARY

Site: Existing SAT

Monash Rd & Eltham St & College St
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Monash Rd (S)											
1	L	18	0.0	0.030	6.4	LOS A	0.0	0.0	0.00	0.79	43.3
2	T	294	1.4	0.149	1.4	LOS A	1.0	6.9	0.33	0.00	46.0
3	R	18	0.0	0.149	8.0	LOS A	1.0	6.9	0.38	0.84	42.9
Approach		330	1.2	0.149	2.0	NA	1.0	6.9	0.31	0.09	45.7
East: Eltham St (E)											
4	L	79	0.0	0.155	11.0	LOS A	0.3	2.4	0.40	0.90	40.1
5	T	12	0.0	0.056	17.2	LOS B	0.2	1.4	0.63	0.95	36.1
6	R	9	0.0	0.056	17.1	LOS B	0.2	1.4	0.63	0.99	36.2
Approach		100	0.0	0.155	12.3	LOS A	0.3	2.4	0.45	0.91	39.2
North: Monash Rd (N)											
7	L	18	0.0	0.096	6.4	LOS A	0.0	0.0	0.00	0.88	43.3
8	T	310	1.3	0.096	0.6	LOS A	0.7	4.7	0.19	0.00	47.6
9	R	24	0.0	0.096	7.8	LOS A	0.7	4.7	0.40	0.79	42.9
Approach		352	1.1	0.096	1.4	NA	0.7	4.7	0.19	0.10	47.0
West: College St (W)											
10	L	18	0.0	0.035	10.6	LOS A	0.1	0.5	0.35	0.85	40.4
11	T	12	0.0	0.083	18.5	LOS B	0.3	2.1	0.66	0.97	35.4
12	R	16	0.0	0.083	18.3	LOS B	0.3	2.1	0.66	1.00	35.5
Approach		46	0.0	0.083	15.3	LOS B	0.3	2.1	0.54	0.94	37.2
All Vehicles		828	1.0	0.155	3.7	NA	1.0	6.9	0.29	0.24	44.8

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 used.

MOVEMENT SUMMARY

Site: Proposed PM

Monash Rd & Eltham St & College St
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Monash Rd (S)											
1	L	34	0.0	0.056	6.4	LOS A	0.0	0.0	0.00	0.79	43.3
2	T	447	0.7	0.281	2.0	LOS A	2.1	14.5	0.37	0.00	45.3
3	R	88	0.0	0.281	8.8	LOS A	2.1	14.5	0.45	0.84	42.2
Approach		569	0.5	0.281	3.3	NA	2.1	14.5	0.36	0.18	44.7
East: Eltham St (E)											
4	L	103	0.0	0.206	11.3	LOS A	0.5	3.3	0.43	0.91	40.0
5	T	14	0.0	0.191	26.9	LOS B	0.7	4.7	0.81	1.01	31.1
6	R	26	0.0	0.191	26.7	LOS B	0.7	4.7	0.81	1.01	31.1
Approach		143	0.0	0.206	15.6	LOS B	0.7	4.7	0.53	0.94	37.0
North: Monash Rd (N)											
7	L	61	0.0	0.120	6.4	LOS A	0.0	0.0	0.00	0.81	43.3
8	T	320	0.6	0.120	1.0	LOS A	0.9	6.2	0.24	0.00	46.9
9	R	41	0.0	0.120	8.7	LOS A	0.9	6.2	0.50	0.82	42.4
Approach		422	0.5	0.120	2.5	NA	0.9	6.2	0.23	0.20	45.9
West: College St (W)											
10	L	74	0.0	0.157	11.6	LOS A	0.4	2.5	0.45	0.91	39.8
11	T	23	0.0	0.202	26.4	LOS B	0.7	5.1	0.81	1.01	31.3
12	R	21	0.0	0.202	26.2	LOS B	0.7	5.1	0.81	1.01	31.4
Approach		118	0.0	0.202	17.1	LOS B	0.7	5.1	0.59	0.95	36.1
All Vehicles		1252	0.4	0.281	5.8	NA	2.1	14.5	0.36	0.34	43.1

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 used.

MOVEMENT SUMMARY

Site: Proposed SAT

Monash Rd & Eltham St & College St
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Monash Rd (S)											
1	L	18	0.0	0.039	6.4	LOS A	0.0	0.0	0.00	0.82	43.3
2	T	294	1.4	0.194	1.5	LOS A	1.2	8.4	0.31	0.00	46.0
3	R	73	0.0	0.194	8.3	LOS A	1.2	8.4	0.39	0.80	42.5
Approach		385	1.0	0.194	3.0	NA	1.2	8.4	0.31	0.19	45.2
East: Eltham St (E)											
4	L	135	0.0	0.265	11.2	LOS A	0.6	4.3	0.42	0.91	40.0
5	T	12	0.0	0.126	19.4	LOS B	0.5	3.2	0.69	0.99	34.9
6	R	28	0.0	0.126	19.2	LOS B	0.5	3.2	0.69	1.00	35.0
Approach		175	0.0	0.265	13.0	LOS A	0.6	4.3	0.48	0.93	38.7
North: Monash Rd (N)											
7	L	37	0.0	0.101	6.4	LOS A	0.0	0.0	0.00	0.84	43.3
8	T	310	1.3	0.101	0.6	LOS A	0.7	5.0	0.20	0.00	47.4
9	R	24	0.0	0.101	7.8	LOS A	0.7	5.0	0.41	0.80	42.9
Approach		371	1.1	0.101	1.7	NA	0.7	5.0	0.19	0.14	46.6
West: College St (W)											
10	L	18	0.0	0.035	10.6	LOS A	0.1	0.5	0.35	0.85	40.4
11	T	12	0.0	0.098	20.7	LOS B	0.3	2.4	0.72	1.00	34.1
12	R	16	0.0	0.098	20.6	LOS B	0.3	2.4	0.72	1.00	34.2
Approach		46	0.0	0.098	16.7	LOS B	0.3	2.4	0.57	0.94	36.4
All Vehicles		977	0.8	0.265	4.9	NA	1.2	8.4	0.31	0.34	43.9

Level of Service (LOS) Method: Delay (RTA NSW).
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1	L	34	0.0	0.056	6.4	LOS A	0.0	0.0	0.00	0.79	43.3
2	T	447	0.7	0.281	2.0	LOS A	2.1	14.5	0.37	0.00	45.3
3	R	88	0.0	0.281	8.8	LOS A	2.1	14.5	0.45	0.84	42.2
Approach		569	0.5	0.281	3.3	NA	2.1	14.5	0.36	0.18	44.7
East: Eltham St (E)											
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5	T	14	0.0	0.191	26.9	LOS B	0.7	4.7	0.81	1.01	31.1
6	R	26	0.0	0.191	26.7	LOS B	0.7	4.7	0.81	1.01	31.1
Approach		143	0.0	0.206	15.6	LOS B	0.7	4.7	0.53	0.94	37.0
North: Monash Rd (N)											
7	L	61	0.0	0.120	6.4	LOS A	0.0	0.0	0.00	0.81	43.3
8	T	320	0.6	0.120	1.0	LOS A	0.9	6.2	0.24	0.00	46.9
9	R	41	0.0	0.120	8.7	LOS A	0.9	6.2	0.50	0.82	42.4
Approach		422	0.5	0.120	2.5	NA	0.9	6.2	0.23	0.20	45.9
West: College St (W)											
10	L	74	0.0	0.157	11.6	LOS A	0.4	2.5	0.45	0.91	39.8
11	T	23	0.0	0.202	26.4	LOS B	0.7	5.1	0.81	1.01	31.3
12	R	21	0.0	0.202	26.2	LOS B	0.7	5.1	0.81	1.01	31.4
Approach		118	0.0	0.202	17.1	LOS B	0.7	5.1	0.59	0.95	36.1
All Vehicles		1252	0.4	0.281	5.8	NA	2.1	14.5	0.36	0.34	43.1

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2	T	294	1.4	0.194	1.5	LOS A	1.2	8.4	0.31	0.00	46.0
3	R	73	0.0	0.194	8.3	LOS A	1.2	8.4	0.39	0.80	42.5
Approach		385	1.0	0.194	3.0	NA	1.2	8.4	0.31	0.19	45.2
East: Eltham St (E)											
4	L	135	0.0	0.265	11.2	LOS A	0.6	4.3	0.42	0.91	40.0
5	T	12	0.0	0.126	19.4	LOS B	0.5	3.2	0.69	0.99	34.9
6	R	28	0.0	0.126	19.2	LOS B	0.5	3.2	0.69	1.00	35.0
Approach		175	0.0	0.265	13.0	LOS A	0.6	4.3	0.48	0.93	38.7
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7	L	37	0.0	0.101	6.4	LOS A	0.0	0.0	0.00	0.84	43.3
8	T	310	1.3	0.101	0.6	LOS A	0.7	5.0	0.20	0.00	47.4
9	R	24	0.0	0.101	7.8	LOS A	0.7	5.0	0.41	0.80	42.9
Approach		371	1.1	0.101	1.7	NA	0.7	5.0	0.19	0.14	46.6
West: College St (W)											
10	L	18	0.0	0.035	10.6	LOS A	0.1	0.5	0.35	0.85	40.4
11	T	12	0.0	0.098	20.7	LOS B	0.3	2.4	0.72	1.00	34.1
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All Vehicles		977	0.8	0.265	4.9	NA	1.2	8.4	0.31	0.34	43.9

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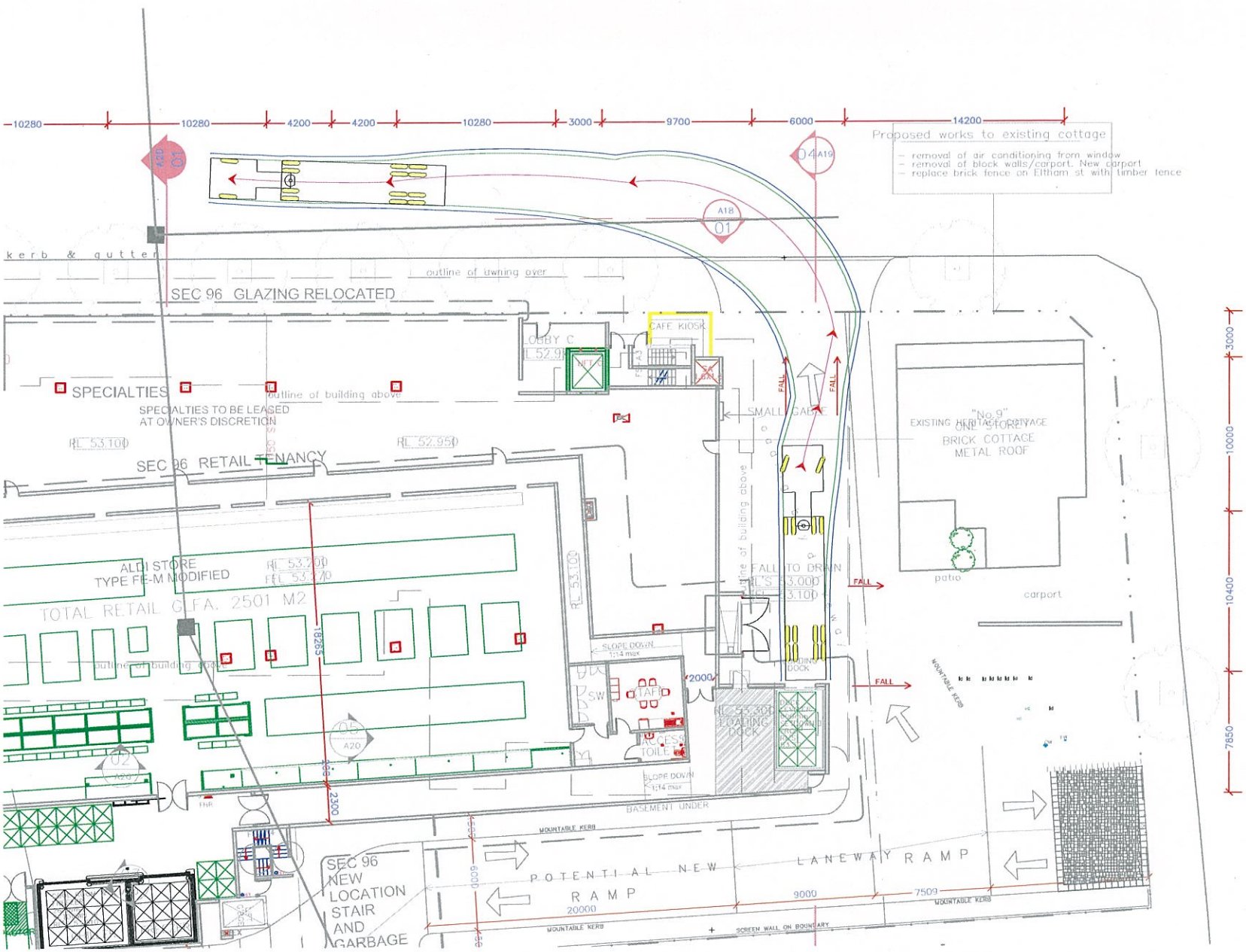
ATTACHMENT B

SWEPT PATH ANALYSIS

SCALE - 1:250

Date: 25/02/13	Drawing Name: 15.2m Truck Turn Path - ENTRY	BITZIOS consulting	
Project No: P1203	Project Name: 1 to 9 Monash Road Gladesville	Figure No: 1.0	Attachment



SCALE - 1:250

Date: 25/02/13	Drawing Name: 15.2m Truck Turn Path - EXIT	BITZIOS consulting	
Project No: P1203	Project Name: 1 to 9 Monash Road Gladesville	Figure No: 2.0	Attachment