



Traffic Engineers and Transport Planners

Our Reference: 16211let003_revised

27 March 2015

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Attention: Mr Jonathan Bradhurst

Dear Jonathan,

THE GLEN REDEVELOPMENT, 227-235 SPRINGVALE ROAD, GLEN WAVERLEY ADDITIONAL INFORMATION (VICROADS ITEMS)

Further to our recent discussions regarding The Glen Shopping Centre expansion application and our preliminary meeting with VicRoads (12th March 2015), please find following our response to VicRoads queries within Council's correspondence of 5th March 2015.

This response should be read in conjunction with the traffic report (Ref 16211R9692 dated 21 January 2015) submitted as part of the application.

VicRoads requirement - Peer reviewed micro simulation modelling of the shopping centre surrounds.

The application proposes to extend and refurbish the existing shopping centre.

Whilst the amendments to the shopping centre will result in an overall floor area of 76,009 square metres, the expansion only proposes a net increase of 17,079 square metres of retail floor area. The construction of residential towers, containing 515 dwellings, is also proposed.

Surveys conducted of the existing centre indicate that the peak centre traffic generation occurs on a Friday afternoon at which time the existing centre currently generates some 3,270 vehicle movements to the external road network. It is noted that the surveys were undertaken in December 2013 (two weeks before Christmas) and are likely to represent a particularly busy time for the centre. To this end, the adopted traffic generation is considered conservatively high.

Based on the assessment provided within the traffic report, it is expected that the centre expansion would conservatively have a peak hour traffic generation of 569 movements, coupled with 206 residential movements, realising a development peak hour traffic generation of 775 movements.

The Glen is provided with nine (9) access points spread amongst Springvale Road, High Street Road and Snedden Drive. This provides a high degree of choice for customers and allows the traffic load to be spread across a number of roads.

The traffic report outlines existing traffic counts and the projected distribution of development traffic. In relation to the two primary intersections and Springvale Road south of The Glen, the following existing peak hour traffic volumes and projected additional traffic is noted.

- Springvale Road / High Street Road intersection – 6,650 existing movements + 283 development movements (4% increase);
- High Street Road / Snedden Drive intersection – 2,753 existing movements + 218 development movements (8% increase);
- Springvale Road (south of The Glen) – 4,305 existing two-way movements per hour + 282 development movements (6.6% increase).

In our view, this modest increase to traffic volumes does not warrant the preparation of a micro-simulation model, and SIDRA modelling is sufficient for the scale of the project.

To supplement the SIDRA analysis provided within the traffic report, we provide the following further information to support the proposed split intersection to Springvale Road.

At the frontage of The Glen, Springvale Road rises in the order of ten (10) metres from north to south. Existing accesses along Springvale Road utilise the rising grade to service different levels of parking, with the signalised access servicing the at-grade parking at the southern end of the centre.

The concept of the development is to allow the shopping centre to be built to Springvale Road across the existing at-grade parking. This provides the opportunity for the development of a 'racetrack' mall on level 2 (at-grade to Springvale Road at the southern end) that is more modern and customer friendly, as it allows customers to circulate around the centre without having to pass the same shops on their navigation.

The existing signalised Springvale Road access to The Glen is critical as it provides a primary access to the Centre. However, the current location is effectively at-grade, and retention of the access in this location would destroy the integrity of the concept of the 'racetrack' mall as the access would bisect the pedestrian mall. To retain integrity of the 'racetrack' mall arrangement, The Glen signalised access would ideally be translated to the north, however this arrangement would require shortening of the existing right turn lanes on Springvale Road to both High Street Road and The Glen.

Accordingly, to minimise impacts to these right turn lanes, the application proposes the concept of a split signalised access, providing for an entry access and an exit access, separated by approximately 75 metres. The entry access would remain at the current signalised access and can ramp relatively steeply to the basement parking as it is only servicing entry manoeuvres, therefore retaining the integrity of the 'racetrack' mall.

The exit manoeuvres are proposed at the existing left-in / left-out access to the 'Blue' level parking, some 75 metres to the north.

The entry / exit accesses would effectively operate as a single set of signals, and we are of the view that the signals, through design, will have no material impact in comparison to the existing Springvale Road signalised access to The Glen.

The design of the new signals will adopt the same cycle time and similar phasing to the existing signal operation, and a sequence that will manage movements along Springvale Road.

The existing signalised access to The Glen is linked to the intersection of High Street Road and Springvale Road, with cycle times and phasing governed by the primary intersection of High Street Road and Springvale Road.

Observation surveys of the intersections of High Street Road/Springvale Road and The Glen/Springvale Road were undertaken to support the SIDRA analysis and confirm signal linking assumptions. Recording start times of each of the phases at the intersection, it was observed that there is currently an offset of around 15 seconds between the existing The Glen signals and the Springvale Road/High Street Road signals for southbound movements in the PM peak hour.

This offset correlates to the time taken to travel the existing travel distance of some 300 metres southbound on Springvale Road to The Glen signals and as shown in Attachment B allows for full inking of the southbound movements from the northern signals. In the northbound direction, the alignment of the phasing at the two intersections shows that northbound vehicles are currently able to 'catch' approximately 46 seconds of the total 57 seconds afforded northbound through movements at the Springvale Road/High Street Road signals.

We understand that this slightly reduced coordination is a result of the preferential linking for southbound movements which is the peak direction during the PM period.

Traffix has prepared a diagram, Attachment A, to illustrate a comparison between the existing phasing and sequencing of the intersections of High Street Road and The Glen access with Springvale Road, to the proposed phasing and sequencing for the proposed access arrangements.

Traffix has also prepared a progression diagram, included at Attachment B, to illustrate a comparison of existing and proposed northbound and southbound movements travelling along Springvale Road.

When comparing both the existing and the proposed operations, there will effectively be no loss of linking time along this section of Springvale Road with the addition of the new signals. An offset of 12 seconds to the new exit signals for The Glen has been assumed based on the reduced travel distance from High Street Road. In reality, The Glen access signals would be served by a single signal controller and the three second offset between The Glen exit and entry signals could be programmed as late starts and early cutoffs in the ultimate phasing.

The diagrams and analysis illustrate that there will be no material difference to the operation of through movements along Springvale Road, with the signal linking ensuring motorists are able to progress along Springvale Road in a similar manner to existing.

The SIDRA analysis contained within the traffic report establishes that the impacts of the proposed development will be manageable at individual intersections across the network.

Accordingly, it is not considered that micro-simulation modelling of the network is necessary nor warranted for the proposed development.

VicRoads requirement - Periods to be modelled for both base (existing conditions) and post development scenarios shall be: AM weekday peak; PM weekday peak; Saturday peak.

Traffix Group sourced SCRAM data from VicRoads for the intersections of:

- Springvale Road and The Glen Shopping Centre access.
- High Street Road and Snedden Drive.
- Springvale Road and High Street Road.

The SCRAM data was collected for a full week, and the data compared between the Friday morning and afternoon and Saturday peak periods. It was found that the peak period of both traffic generation for The Glen and also the operation of the road network occurred on the Friday afternoon.

The Glen experienced the highest level of shopping centre traffic at 2.30pm-3.30pm, whilst the commuter peak on the adjacent road network was established to be 5pm-6pm.

On the Saturday, whilst a similar level of centre traffic (albeit slightly lower than the Friday afternoon) was observed, traffic volumes on the road network were notably less.

Comparatively, the morning peak traffic generation for shopping centres is significantly less than the afternoon as a number of shops do not open until after 9am.

Accordingly, we formed the view that the critical period for analysis was the Friday afternoon, and it is not necessary to model the morning period or a Saturday.

VicRoads Requirement - SIDRA Analysis for the Springvale Road / Kingsway intersection for the same time period and scenarios.

The Springvale Road / Kingsway intersection is in excess of 500 metres south of the extents of The Glen.

The development is projected to generate in the order of 280 movements, in the Friday afternoon peak hour, to the south of The Glen along Springvale Road. Springvale Road currently experiences a two-way peak hour volume of some 4,300 movements, and we expect the addition of the modest development traffic will make no material difference to the operation of this intersection.

Notwithstanding the above, and our view that a nexus for improvements to this intersection could not be drawn from the scale of the proposed development, a preliminary assessment reveals that there is limited opportunity to provide road improvements as the intersection is constrained by existing property boundaries.

To this end, a SIDRA analysis of this intersection is not considered necessary.

A traffic impact assessment report that:

- *Provides logical details of the trip generation and distribution rates for each of the proposed uses.*

Section 6 of the Traffix report provides a detailed analysis of the expected traffic generation and distribution. The assessment accounts for the existing road network conditions, the proposed modifications to site access arrangements, and potential redistribution of existing traffic due to the modification to access as well as relocation of primary attractors within the centre.

It is considered that the adopted traffic generation for the centre (5.05 movements per 100 square metres) is conservative as it is predicated on existing traffic generation of the centre in a particularly busy period (two weeks before Christmas), and the RTA benchmark for a centre of this size is 4 movements per 100 square metres.

Additionally, there has been no allowance for 'passing traffic'. That is, all expansion trips have been assumed to be new to the network. The NSW Road and Maritime Services (formerly RTA) Guide to Traffic Generating developments suggests that multi-purpose trips (which include passing trade) can vary depending on the size of a centre, however suggest a discount of some 15% of total traffic generation is generally applicable to centres of this size.

The fact that higher than expected traffic generation rates have been adopted and there is no allowance for passing trade further supports the conclusions drawn from the SIDRA analysis that the impacts to the existing road network will be manageable.

- *Reports findings of the micro-simulation and SIDRA modelling and the Network Fit Assessment*

As already noted previously, we are of the view that micro-simulation is not warranted for a project of this scale, particularly considering that traffic is spread amongst a number of existing roads.

SIDRA Analysis of the adjacent road network has been undertaken for the critical peak period, the Friday afternoon, and the details and results of this analysis are provided within the Traffix report.

- *Proposed road network improvement works necessary to address any impacts identified.*

In our view, the variety of access opportunities from Springvale Road, High Street Road and Snedden Drive, and the proposed improvements to internal connectivity between parking levels will offer customers a convenient and navigable car park.

The proposal includes modifications to the shopping centre signals at Springvale Road to provide separate entry signals at the south (at the existing location of the site's signals) and exit signals to the north (north of Fairhills Parade).

The SIDRA Analysis has been undertaken to model the new signalised intersections operating in the shadow of the signals at Springvale Road / High Street Road to link signal phasings for through movements on Springvale Road. This is highlighted in the attached cycle and phasing comparisons, and the progression diagrams.

This analysis demonstrates that, with the proposed access modifications, the access arrangements can suitably accommodate the projected levels of traffic, and there is no requirement for remedial works on the surrounding network.

With regard to O'Sullivan Road and the discussions at the meeting with Council and VicRoads, we have investigated options for improving both pedestrian and vehicle access along O'Sullivan Road and have provided these to Council in a separate response.

- *Addresses VicRoads' concerns with the potential 'see-through' effects of closely spaced signalised intersections.*

The proposed signals are approximately 75 metres apart.

The arrangement is akin to many half diamond freeway interchanges, where two sets of signals are spaced relatively closely, with one set of signals servicing entry manoeuvres and the other departure manoeuvres.

Examples include the Eastern Freeway Interchanges at Elgar Road, Station Street and Blackburn Road, which have paired intersections with comparable separations.

We are not aware of any specific measures that are employed at these intersections to address 'see-through' effects, and therefore do not believe any specific measures are necessary for the proposed arrangements.

- *The need for and ability to include a pedestrian crossing facility at the proposed signals.*

It is proposed to maintain the existing pedestrian crossing facility which is provided at the existing The Glen signals.

We do not believe a second crossing is required at the departure signals as there is no pedestrian desire line at this point, given the frontage of The Glen is a basement car park.

Nonetheless, if VicRoads deemed a pedestrian crossing necessary it could be accommodated within the proposed phasing arrangements. Specifically, the crossing would be included on the north leg and operate in the departure phase for The Glen. The SIDRA analysis indicates there is spare capacity in this movement to accommodate the inclusion of a pedestrian phase.

We trust this information is of assistance. Should you require anything further, please don't hesitate to contact us.

Yours faithfully,

TRAFFIX GROUP PTY LTD



JASON WALSH

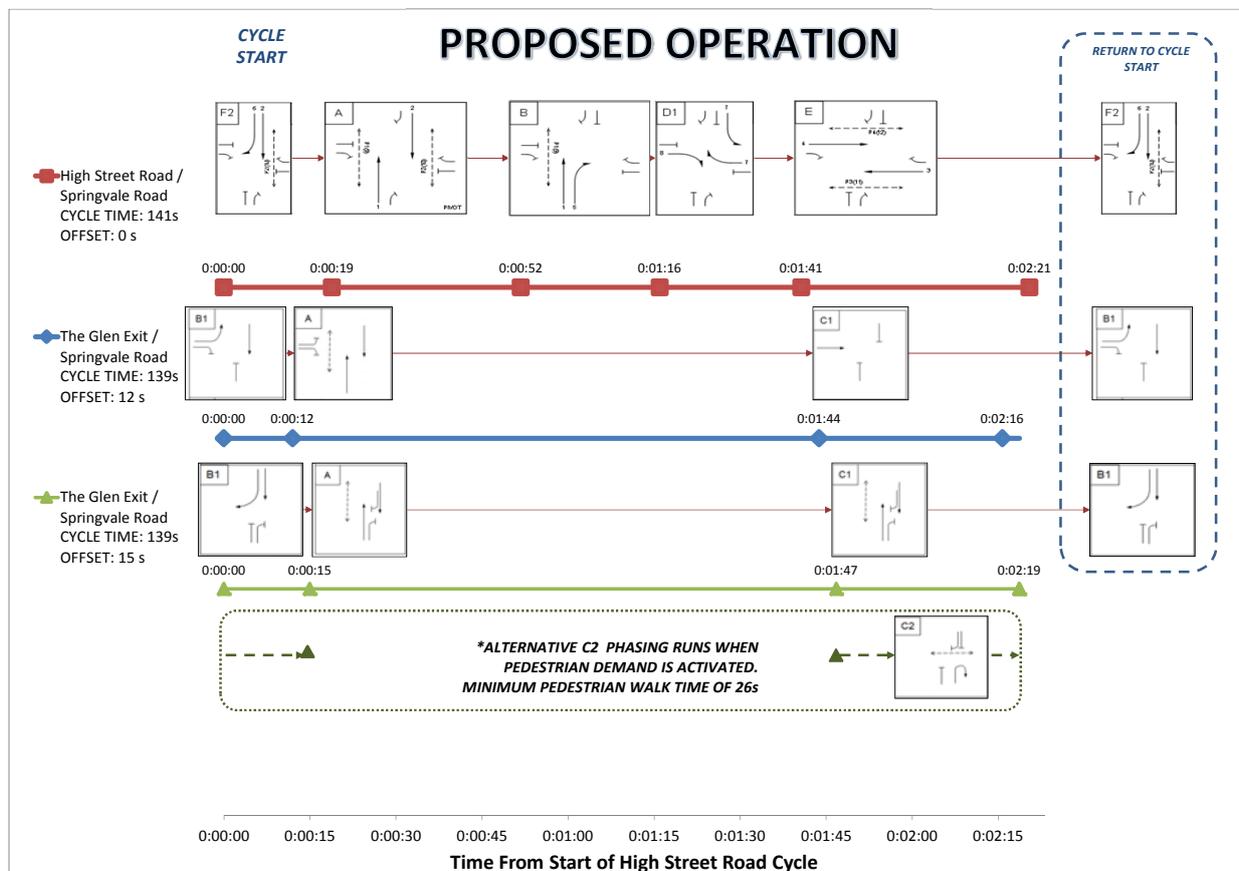
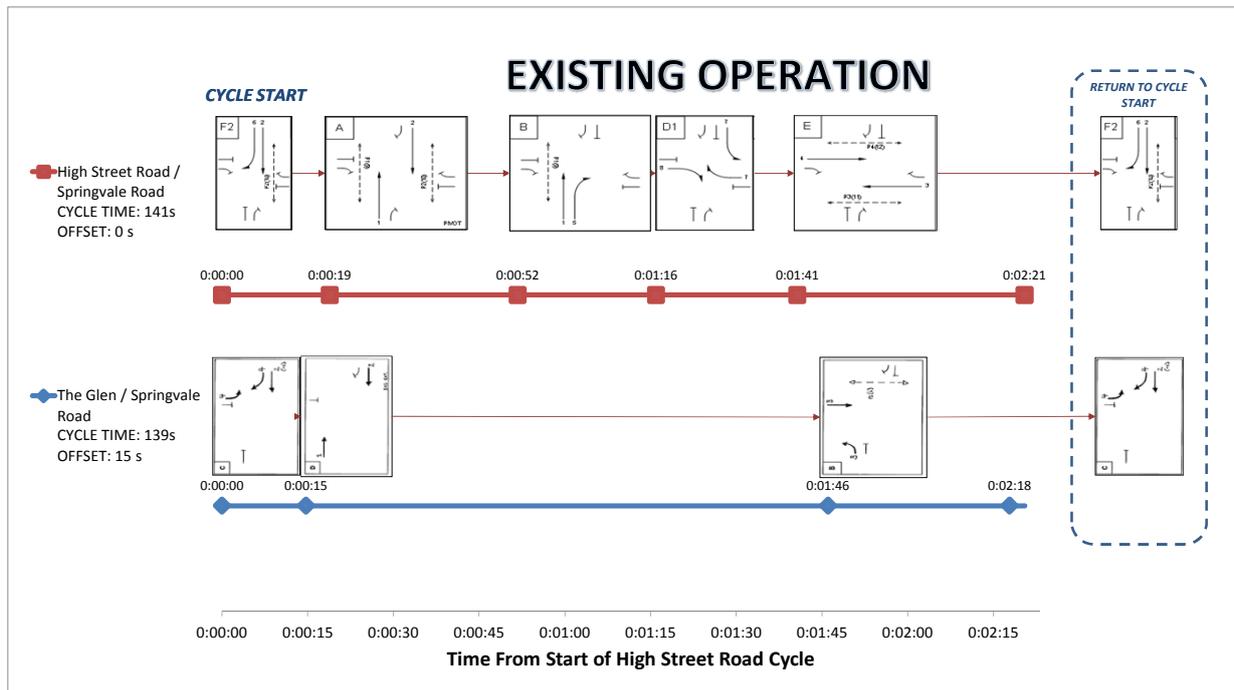
Director

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*Enc: Attachment A – Cycle and Phasing Sequencing
Attachment B – Signal Linking/Progression Diagrams*

Attachment A

Cycle and Phasing Sequencing



Attachment B

Signal Linking/Progression Diagrams

SIGNAL LINKING DIAGRAMS

SPRINGVALE ROAD SOUTHBOUND EXISTING



SPRINGVALE ROAD SOUTHBOUND EXISTING						
Speed Limit 70 km/h						
HIGH STREET ROAD		THE GLEN EXIT/ENTRY		0		
19 s	G	92 s	G	s		0
33 s	G	32 s	R	s		0
24 s	R	15 s	G	s		0
25 s	R	0 s		s		0
40 s	R	0 s		s		0
141 s		139 s		s 0		

SPRINGVALE ROAD NORTHBOUND EXISTING



SPRINGVALE ROAD NORTHBOUND EXISTING							
Speed Limit 70 km/h							
HIGH STREET ROAD		THE GLEN EXIT		THE GLEN ENTRY			
19 s	G	92 s	G	92 s	G	92 s	G
33 s	G	32 s	R	32 s	R	32 s	G
24 s	R	15 s	G	15 s	G	15 s	R
25 s	R	0 s		s		s	
40 s	R	0 s		s		s	
141 s		0		139 s		139 s	

SPRINGVALE ROAD SOUTHBOUND PROPOSED



SPRINGVALE ROAD SOUTHBOUND PROPOSED						
Speed Limit 70 km/h						
HIGH STREET ROAD		THE GLEN EXIT/ENTRY		0		
19 s	R	92 s	G	s		0
33 s	G	32 s	R	s		0
24 s	G	15 s	R	s		0
25 s	R	0 s		s		0
40 s	R	0 s		s		0
141 s		139 s		s		

SPRINGVALE ROAD NORTHBOUND PROPOSED



SPRINGVALE ROAD NORTHBOUND PROPOSED							
Speed Limit 70 km/h							
HIGH STREET ROAD		THE GLEN EXIT		THE GLEN ENTRY			
19 s	R	92 s	G	92 s	G	92 s	G
33 s	G	32 s	R	32 s	R	32 s	R
24 s	G	15 s	R	15 s	R	15 s	R
25 s	R	0 s		s		s	
40 s	R	0 s		s		s	
141 s		139 s		139 s			