Springwood Woolworths – DA Traffic Report Review

Prepared for
Springwood Residents Group

7 February 2025

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Appendices

1 Introduction

1.1 Background

Transport Modellers Alliance (TMA) were commissioned by the Springwood Residents Group and owners of Lloyd's IGA to review, and provide comment on, the recently submitted development application for a new Woolworths supermarket at 110-120 Macquarie Road & 8-12 Raymond Road, Springwood (X/1578/2024).

TMA has undertaken a review of the supporting traffic assessment information (Traffic Report prepared by Colston Budd Rogers & Kafes Pty Ltd dated Nov 2024 on behalf of Fabcot Pty Ltd) and undertaken our own site visit to help establish independent models of traffic in the vicinity that represent prevailing traffic conditions and consequently we believe provide a better indication of likely traffic impacts within Springwood as a result of this proposed development.

1.2 Purpose of this report

This technical note articulates Matters of Concern that relate to the traffic operation and provides background information and commentary to support these. In establishing these Matters of Concern, several traffic aspects of the proposed development are investigated in this note, including:

- Review of the transport planning assumptions, including trip generation and trip distribution/ assignment and likely future road network assumptions in Springwood.
- Traffic Engineering review, including swept path, access and internal car parking
- Literature research to outline any discrepancies assumed in the Traffic Report with other publicly available information.
- Review of the documented traffic modelling results and legitimacy of the model and its assumptions.
- Vissim microsimulation traffic model development using limited publicly available data to demonstrate the deficiencies of the way in which traffic performance is reported in the DA Traffic Report.

1.3 Structure of this report

The remainder of this report is structured as follows:

- Section 2: Describes the review of the submitted DA Traffic Report and includes commentary on the traffic engineering, transport planning and traffic modelling assessments presented in that document.
- Section 3: Gives an alternate view of traffic conditions within Springwood based on microsimulation modelling and differing traffic assumptions
- Section 4: Provides a summary of key findings of this report

2 Review of DA Traffic Report

Our review of the Traffic Report prepared by Colston Budd Rogers & Kafes Pty Ltd dated November 2024 on behalf of Fabcot Pty Ltd in support of Woolworths supermarket at 110-120 Macquarie Road & 8-12 Raymond Road, Springwood, raised the following traffic engineering and traffic modelling concerns.

2.1 Traffic Engineering

A number of design issues are evident from the submitted architectural plans and swept paths contained within the traffic report. As the drawings provided in the DA submission do not enable direct measurement to be made from within the pdf document there is some doubt about accuracy of dimensions discussed here. An example of this is that on the *Roof Plan* sheet with smaller car spaces indicated than would be required under Australian Standards (AS2890.1) (i.e. 2.4m W x 5.4m L).

2.1.1 Potential Blocking of David Road Roundabouts

Applying the NSW road design guidelines, roundabout proximity should consider the following:

- Allow drivers adequate time to process and react between intersections
- Prevent traffic queuing from one roundabout affecting the operation of another
- Provide sufficient space for proper signage and advance warnings

Given the short distance between the two roundabouts, it's likely that this design fails on all 3 counts. As the introduction of another roundabout on David Road (to facilitate access to the development) will likely lead to blocking, given the proposed separation distance is under 25m between the proposed access roundabout and the existing David Road/Raymond Road/Springwood Ave roundabout. The closely spaced roundabouts on David Road will begin to lock up with just 2 cars following a delivery vehicle as shown in **Figure 1.** Conversely when this configuration of vehicles travels in the opposite direction the blocking of the Eastern roundabout would also occur.

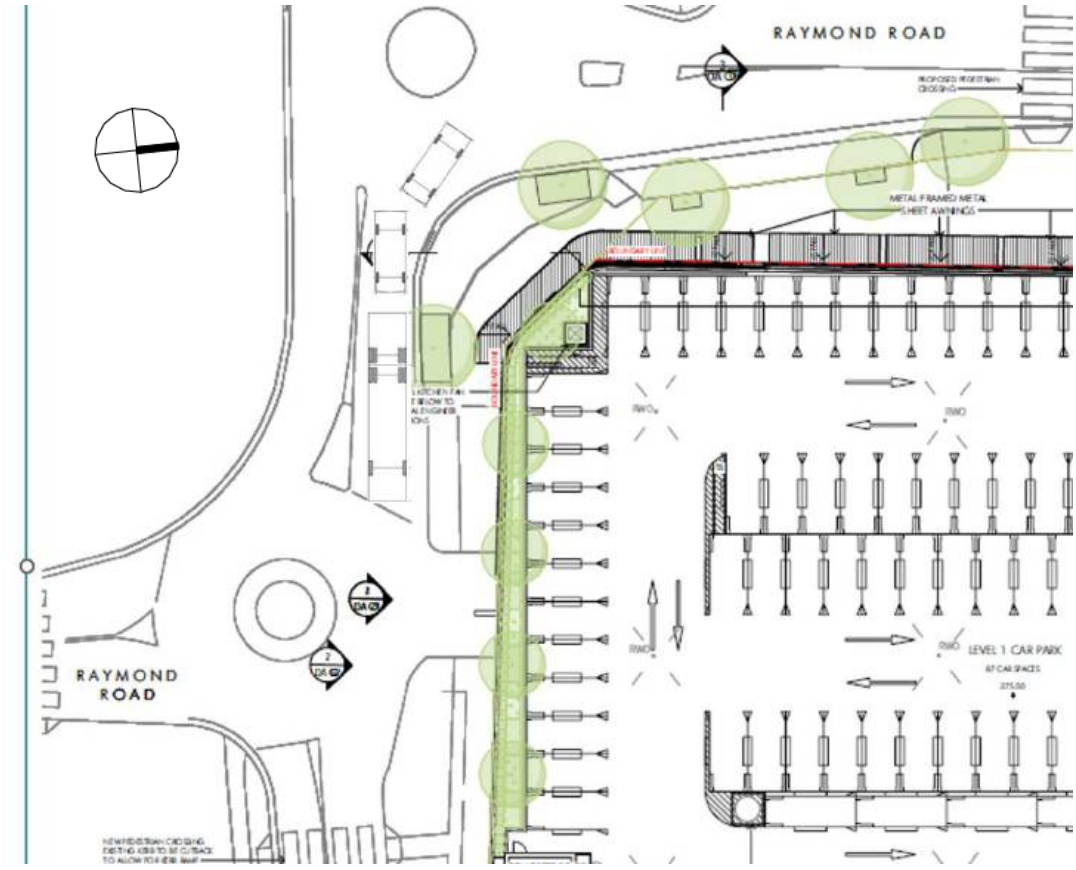


Figure 1 Roof Plan (1149 DA015 A) ***modified with vehicle outlines added***

In addition, with the zebra crossing channelling pedestrians from Raymond Road (S) to the northern side of David Road between the two proposed driveways there will be increased safety risks as pedestrians are forced to traverse the crossover of the Lower Ground Floor car park access.

2.1.2 Internal car park circulation and exit visibility

The Lower Ground Floor plan (11149 DA011 A) is shown in **Figure 2** with markups in red showing visibility splay and 4m radii turns required for standard car design vehicle.

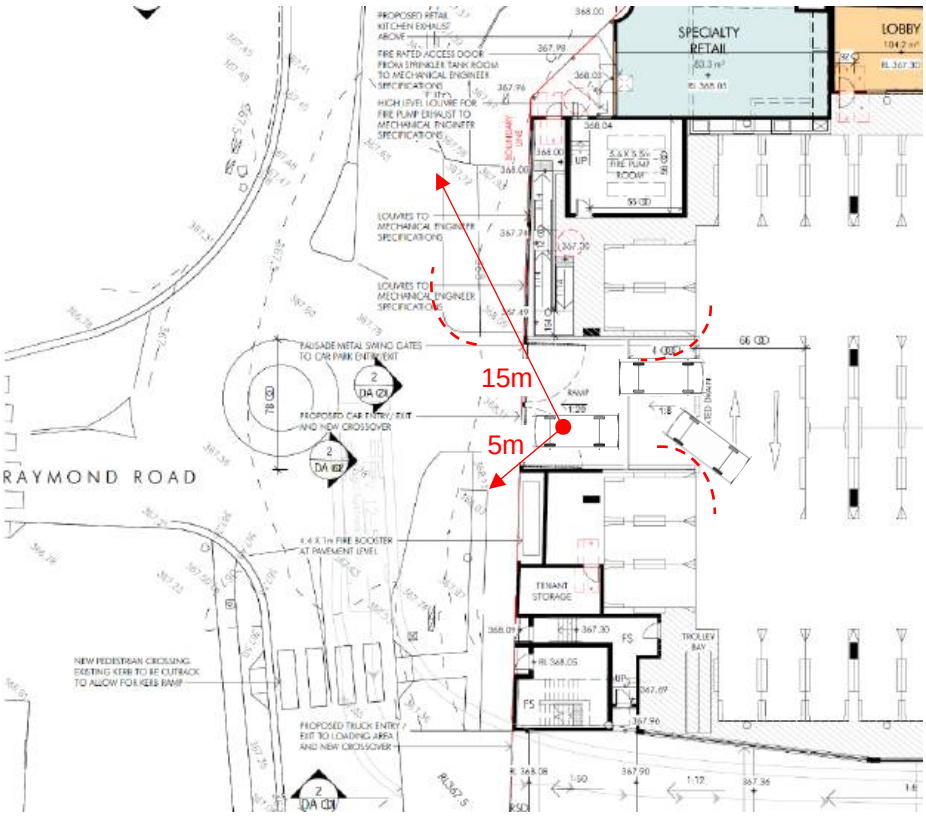


Figure 2 Lower Ground Floor Plan (11149 DA011 A) *modified with visibility and turn radius added*

Given the limited visibility and as Blue Mountains Council requires that:

> *On large developments or where there is restricted sight distance for exiting vehicles, exits from car parking areas are to be controlled with Stop signs, line marking and a speed hump.*

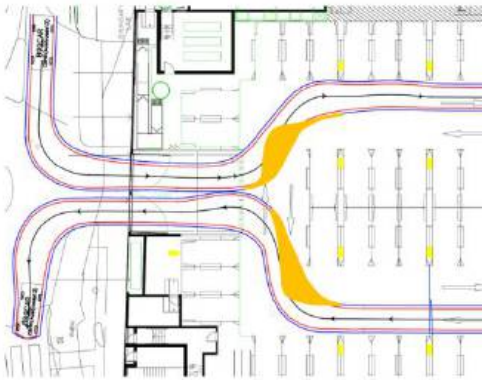
Source: E 2.2.3 Parking location and design Control C6 (Blue Mountains DCP 2015)

Additionally,

> *Circulation routes are to be logical, intuitive and generally in a clockwise direction*

Source: E 2.2.3 Parking location and design Control C6 (Blue Mountains DCP 2015)

As can be seen from **Figure 2**, internal aisles are marked as 2-way and this will cause additional friction on entry to the car park (that will further impact roundabout operation on David Road), notwithstanding the safety issues associated with swept paths showing significant incursion into the opposing lane at the ends of the parking aisle as illustrated in **Figure 3**.



Conflict zone at car park entry due to 2 way internal operation

Figure 3 Lower Ground Floor Plan (11149 DA011 A) *modified with visibility and turn radius added*

The mixing of service vehicles with customer car parking at the rooftop car park is also of concern as can be seen from the swept assessment presented, large sections of opposing lane is incurred upon that will require out of hours servicing to avoid internal car park congestion at each servicing event.

Additionally, as the pedestrian access to the car park from Macquarie Road shares the same access as the service vehicles for the Oriental Hotel, Blue Mountains Council require that:

> *Service vehicle parking and manoeuvring areas are to be separated from car parking and pedestrian access routes.*

Source: E 2.2.5 Service and Delivery Vehicles Control C4 (Blue Mountains DCP 2015)

Figure 4 Rooftop Parking with Hotel Servicing Garbage Truck Swept Path

2.1.3 Shopper Behaviour and Car Park Split

From the architecture plans provided it appears that the sole means of access for shoppers using the rooftop (Level 1) car park to the supermarket floor is via lifts or stairs and for this reason it is likely there will be a preference by shoppers to use the lower ground car park as it is linked to the supermarket floor via travelators. This arrangement is shown in **Figure 5**.

Evidence[1] from a review of shoppers' preferences in Australia shows that they will find the travelators more convenient than waiting for the lift which will make the lower ground floor more attractive than the rooftop car park.

[1] Universal design and forward thinking in retail centres, Shopping Centre News article 30-08-2021

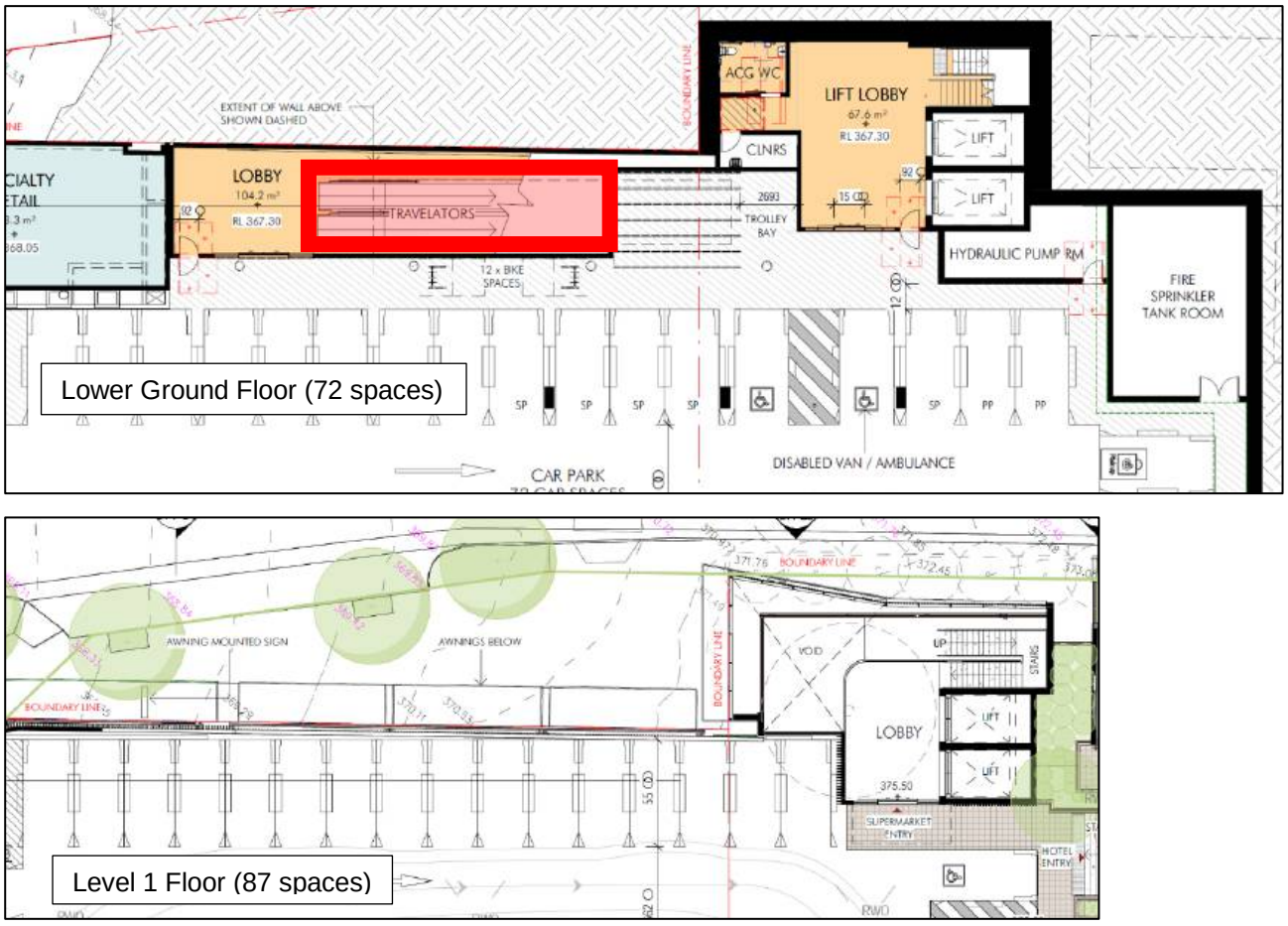


Figure 5 Lower Ground Floor Only Travelator Access

As the split in the provision of car spaces for the supermarket site does not cater to this tendency (for shoppers to preference for taking the travelator rather than the lift) there is a real risk that the lower ground floor car park would be in greater demand than the space provision split suggests and as this car park may become over-subscribed, there is the risk of the lower ground floor car park spilling cars back into the David Street roundabout causing localised congestion to extend back to Raymond Road and beyond.

It is noted that the signage provision shown in Signage Detail – Sheet 1 does not include any parking management system or variable message signs that would enable car park occupancy to be displayed prior to entry to each car park that would enable drivers to make the most efficient parking choice and this would help minimise the risk of one of the car parks exceeding their capacity and causing localised congestion as cars spill back out of the car park while waiting for a vacant space.

As a result of this development those current patrons of the Oriental Hotel who use motorised wheelchairs will be forced to access the hotel via the Woolworths car park rather than access via Macquarie Road as they currently do. This will involve the need to use the vehicular access ramp alongside hotel service vehicles and the Woolworth's car park 2-way traffic.

This issue is shown in **Figure 6** with the proposed design assuming that all wheelchair users will be arrive at the hotel by car which is not currently the case and will not be in the future.

Figure 6 Existing Wheelchair access from Macquarie Road to Oriental Hotel Will be Removed

2.2 Traffic Volume and Car Park Assumptions

It is noted that traffic surveys were undertaken in one of the lowest traffic volume months in the Blue Mountains (June) rather than at a more neutral or higher volume month as seasonality is a recognised attribute of traffic in the region. This will lead to an undercount of typical and design flow volumes. No surveys of the existing 22 space Oriental Hotel car park were included so its difficult to determine likely volumes using the Level 1 car park as only the supermarket trips are documented (and assessed).

2.2.1 Existing Traffic Volumes

As the Blue Mountains is a suburban area that is also tourist-oriented area, it is likely that seasonality effects in Springwood would show similar tendencies to data collected further up the Great Western Highway, at TfNSW's permanent count site at Faulconbridge that shows reasonably strong seasonality effects. As June is a consistently low month (by up to 5% over the peak month of April). Additionally, the volumes presented in the DA traffic report does not account for the significantly higher volumes of traffic that occur at holiday weekends, when locals will most likely experience significantly worse traffic congestion and delays than the report indicates.

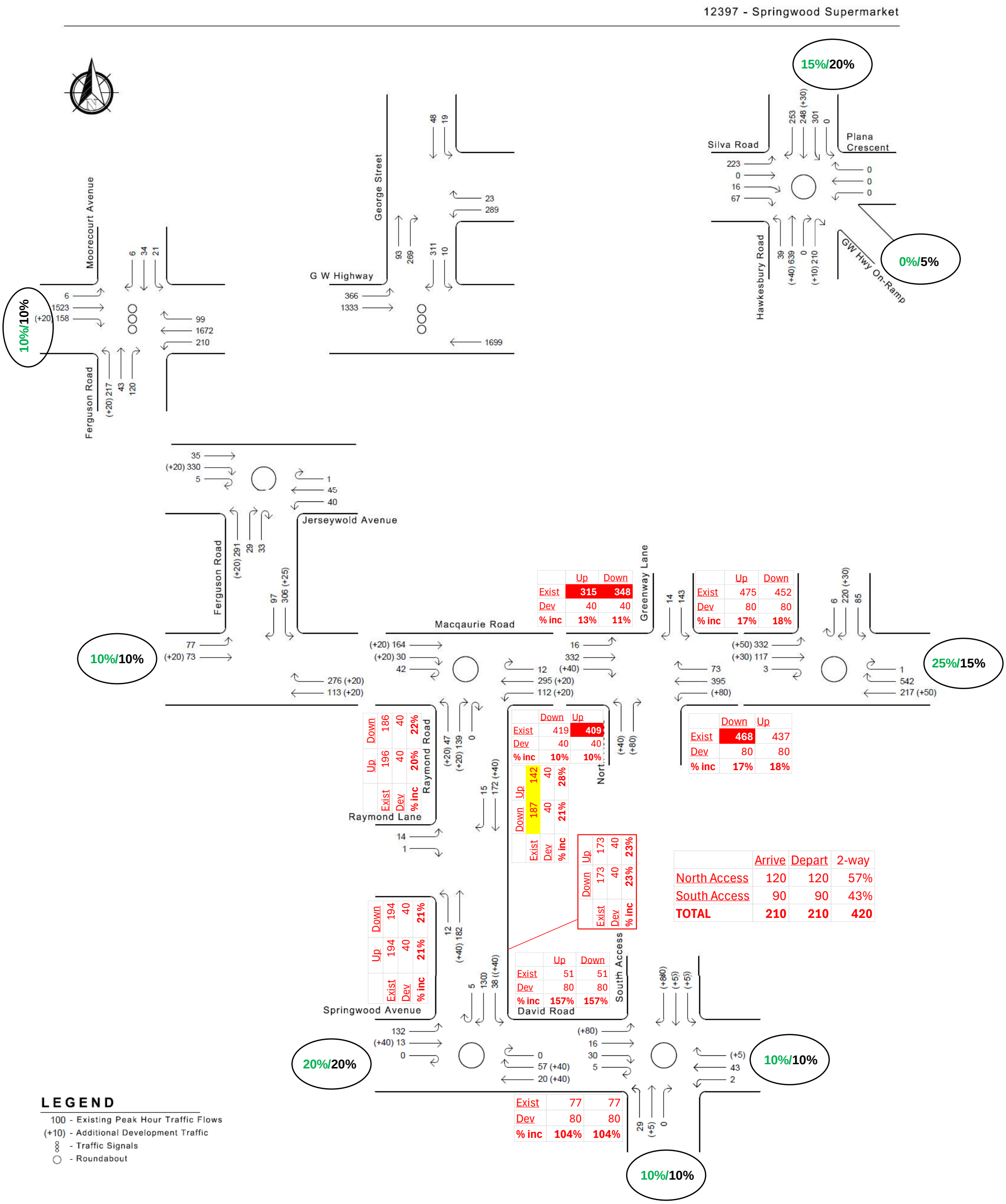
Figure 7 provides a check of the upstream and downstream traffic volumes presented in the DA Traffic Report for Friday PM peak and shows:

- 45 vehicle discrepancy on Raymond Rd southbound between Macquarie Road and Raymond Lane (highlighted in yellow)
- An assumed (468-409) 59 vehicle arrivals on the left turn from Macquarie Road into the Oriental Hotel car park and (348-315) 33 vehicle departures on the right turn to Macquarie Road. These volumes would be the minimum number of vehicles accessing the Oriental Hotel car park and any available on street spaces between the Macquarie Road/Greenway Lane intersection and the Macquarie Road/ Raymond Road roundabout.
- Up to 157% increase in traffic volumes eastbound on David Road
- 18% increase on Macquarie Road traffic volumes at Hawkesbury roundabout

Figure 8 highlights the following for the Saturday midday traffic volumes:

- An assumed (579-504) 75 vehicle arrivals on the left turn from Macquarie Road into the Oriental Hotel car park and no departures on the right turn to Macquarie Road. These volumes would be the minimum number of vehicles accessing the Oriental Hotel car park and any available on street spaces between the Macquarie Road/Greenway Lane intersection and the Macquarie Road/ Raymond Road roundabout.
- Up to 195% increase in traffic volumes eastbound on David Road
- 18% increase on Macquarie Road traffic volumes at Hawkesbury roundabout

Figure 7 DA Traffic Report – Friday afternoon peak hour (modified with distribution and upstream/downstream flows added)



	Up	Down
Exist	315	348
Dev	40	40
% inc	13%	11%

	Up	Down
Exist	475	452
Dev	80	80
% inc	17%	18%

	Down	Up
Exist	419	409
Dev	40	40
% inc	10%	10%

	Down	Up
Exist	468	437
Dev	80	80
% inc	17%	18%

	Down	Up	
Exist	186	196	
Dev	40	40	
% inc	22%	20%	

	Up	Down
Exist	142	187
Dev	40	40
% inc	28%	21%

	Up	Down
Exist	173	173
Dev	40	40
% inc	23%	23%

	Up	Down
Exist	194	194
Dev	40	40
% inc	21%	21%

	Up	Down
Exist	51	51
Dev	80	80
% inc	157%	157%

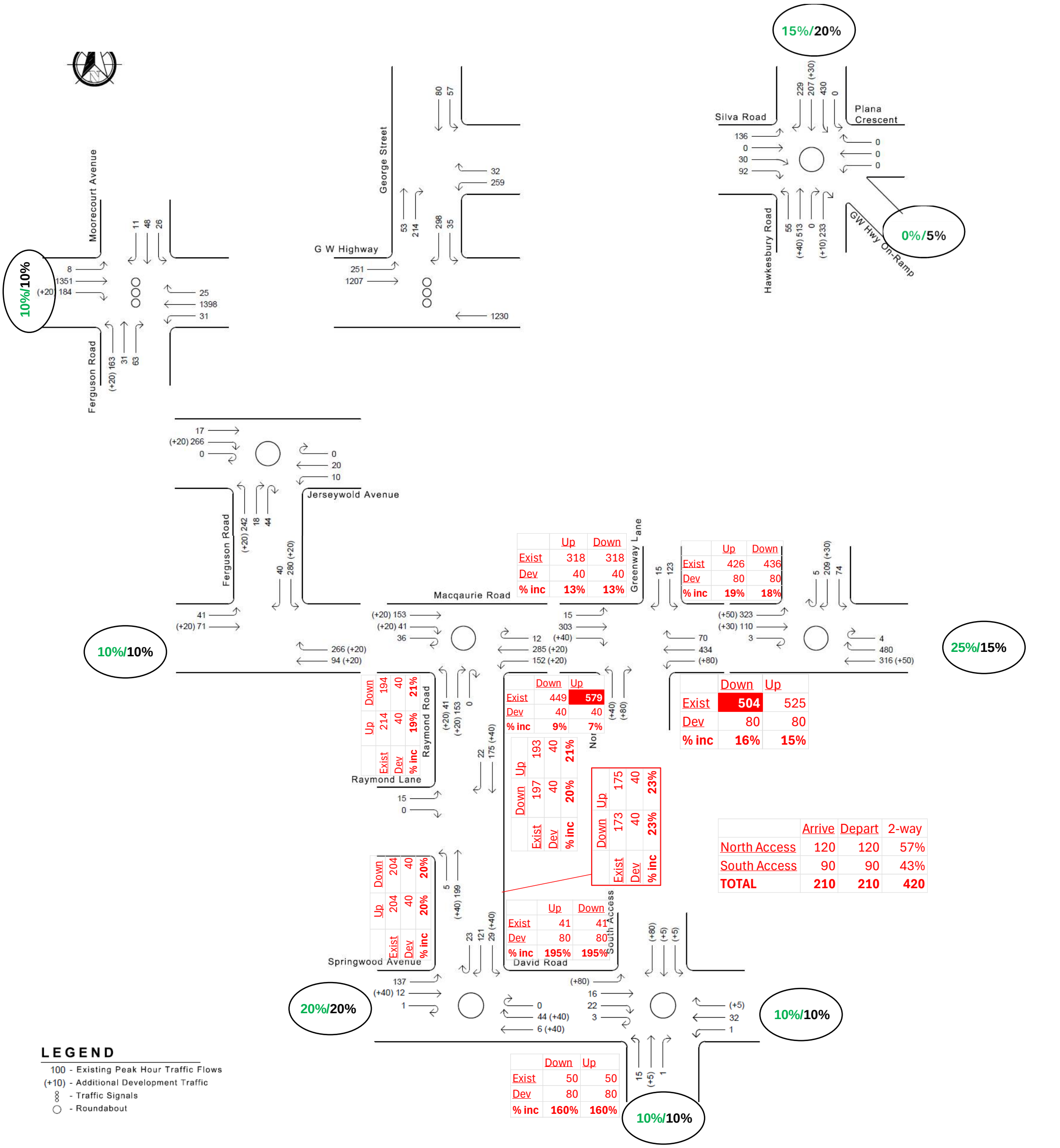
	Exist	Dev	% inc
Down	77	80	104%
Up	77	80	104%

	Arrive	Depart	2-way
North Access	120	120	57%
South Access	90	90	43%
TOTAL	**210**	**210**	**420**

Existing Friday afternoon peak hour traffic flows plus development traffic

Colston Budd Rogers & Kafes Pty Ltd

Figure 8 DA Traffic Report – Saturday peak hour (modified with distribution and upstream/downstream flows added)



	Arrive	Depart	2-way
North Access	120	120	57%
South Access	90	90	43%
TOTAL	**210**	**210**	**420**

Existing Saturday midday peak hour traffic flows plus development traffic

Colston Budd Rogers & Kafes Pty Ltd

2.2.2 Traffic Generation Assumptions

As the calculation of trip generation is based on the development floor areas, the Area Plans – GFA (11149_DA091) contained within the Architectural Plans within the DA provides the proposed floor areas shown in **Table 1**.

Table 1 Floor Area Schedule

Name	M2
Speciality Retail	**83**
Lobby	62
Lift Lobby	93
Supermarket	**3388**
Supermarket BOH	**80**
Lift Lobby	35
TOTAL GFA	3741
TOTAL GLFA	**3551**
Hotel GFA	1257

2.2.3 Discrepancies in GFA and Architectural Plans

As paragraph 3.7 of the DA traffic report uses a retail floor area of 3573 m^2 this does not readily compare to the schedule shown in Table 1. From paragraph 3.2 of the DA traffic report this quoted retail floor area is made up of (3490m^2 supermarket+83m^2 specialty retail) suggesting that there may have been some design changes between the architectural plans and the DA traffic report. It is also noted that the lobbies and lift lobby areas have been omitted from the GFA quoted in the DA traffic report and this should be included unless Gross Leasable Floor Area (GLFA) is being quoted.

2.2.4 Adopted Trip Rate excludes Oriental Hotel

Notwithstanding these discrepancies in the development GFA the assumed trip rate of 12 trips/ 100 sqm appears appropriate (but as no detail of the surveys of similar sites has been provided it cannot be confirmed) as it is broadly in line with the Guide to Transport Impact Assessments, TfNSW 2024. The rate applied, however, does not account for the Oriental Hotel which has been excluded from the development trips (refer to section 2.2.1 of this report) despite its traffic generation being served by the proposed car park.

Both the Friday afternoon and Saturday midday development volumes assume the following traffic generation from the site:

- Total maximum hourly car trips – 420, 2-way (210 Arrivals/210 Departures per hour)
- Car park split Level 1/Lower Ground = 120/90

When these generations are compared to the Gross Floor Area (GFA) and for supermarkets Gross Leasable Floor Area (GLFA)

2.2.5 Traffic Distribution

As it is likely that traffic distributions would be different due to shifts in origin and destination patterns based on routine shopping versus leisure shopping as weekday trips are more localised, while weekend trips tend to cover a wider geographical area with a higher likelihood of longer or combined visits.Both **Figure 7** and **Figure 8** show that the assumed distribution of supermarket trips to the development is the same on the

Friday afternoon as it is on the Saturday midday which may be the case but no justification is given. The distribution shown in **Table 2** has been assumed for both periods suggesting 80-90% of shoppers will be arriving from local areas (rather than from further afield via the Gt Western Highway).

Table 2 Development Trip Distribution

	Arrivals	Departures
Hawkesbury Rd (North)	15%	20%
Gt Western Hwy (E)	25%	5%
Macquarie Rd (E) / Tusculum Rd		15%
David Rd (E)	10%	10%
Raymond Rd (S)	10%	10%
Springwood Ave	20%	20%
Macquarie Rd (W)	10%	10%
Gt Western Hwy (W)	10%	10%
Total	100%	100%

2.2.6 Car Park Estimates

The Blue Mountains DCP requires that the following space provision is required:

- Shops: 1 space per 25m^2 GFA
- Restaurants or cafés 15 spaces per 100m^2 GFA
- Pubs 1 space per 5m^2 of public/licensed area, plus the applicable parking provision for any additional use incorporated into the development

For the supermarket and specialty retail (from Table 1) this equates to 3741/25 = 150 spaces

The requirements of the Oriental Hotel are difficult to determine from the limited data provided but are likely to be more than current provision, given the above DCP requirements. Noting that 22 spaces have been removed to accommodate this development and while it might be reasonable to assume that this number remains in the future (assuming that there is not a current issue experienced on site and the current level of provision is adequate particularly at times of peak parking demand on the wider network) then under DCP a total of: 172 spaces would be required.

The discussion on Direct to Boot (DTB) turnover reducing the need for full parking provision (described in paragraph 3.7 of the DA traffic Report) may be warranted but insufficient evidence is provided to support this at face value.

Even if the DTB reduction of 10 spaces is accepted, then the 159-space provision does not meet the DCP requirement for 172-10=162 car spaces being required.

The level of accessibility car parking provision (4 no) and cycle parking (11 no) appears appropriate for the development scale.

2.3 Broader Car Parking Regime

As this development will provide a 25% increase in existing publicly available off-street parking at the eastern end of Springwood (refer to Figure 9), it will inevitably change the current parking regime in the town centre but his has not been discussed in the DA Traffic Report.

Figure 9 Public Parking in Springwood (East)

Given the likelihood of shoppers' preference to use the Lower Ground Floor car park rather than the Level 1 car park together with the direct access from the Level 1 car park to Macquarie Road it is likely that some form of parking management is required to reduce the risk of localised congestion caused by car parks being overwhelmed by demand (as discussed in section 2.1.3).

2.4 Traffic Modelling

2.4.1 Inadequate and misrepresentative traffic modelling

It is noted that no indication of how the Sidra modelling were calibrated and validated to existing conditions or how representative the existing model results are to the experience of drivers in Springwood has been provided. Without a review of the models and their assumptions the traffic performance levels of service cannot be verified and are likely to misrepresent existing conditions (in favour of the developer) for the following reasons:

1. Quoted traffic performance from Sidra modelling has likely not been calibrated and validated to on-site conditions making the results meaningless.
2. As there has been no mention of pedestrian crossing volumes on zebra crossings and the direct influence this has on traffic delay it has likely not been included in the Sidra model results reported in the DA Traffic Report leading to an under reporting of traffic delay.
3. The delays associated with numerous parallel parking manoeuvres on Macquarie Street and Raymond Road in particular have not been included.
4. Existing blocking-back effects between roundabouts has not been captured given on site observation shows delays due to these effects in excess of levels of service being reported in the DA traffic report.

For these reasons, any reliance on the traffic performance levels provided in the DA traffic report should be avoided with a likely substantial increase in delays associated with roundabout operation particularly on Macquarie Street.

3 VISSIM Microsimulation Modelling

3.1 Background

Given the inadequacy of the supporting modelling described in the DA Traffic Report, TMA developed an (uncalibrated) network based on publicly available information relating to traffic volumes within Springwood. As these models are uncalibrated, they are still subject to some risks as performance levels may not be accurately reflected. They will however show a reasonable estimate of delays that might be experienced on the network as they take account of items 2-4 above to provide a better picture of traffic conditions within Springwood.

As the DA Traffic Report utilised existing counts from the lowest month in the season (June), TMA growthed them up to a more neutral month by dividing all existing Saturday midday volumes by 0.95 (refer to section 2.2.1). In addition, we obtained pedestrian counts from 2015 that were applied directly to the models to represent pedestrian delays due to zebra crossing operation and we included a turnover of on street spaces in line with the car parking regime shown in **Figure 9**.

The following Saturday midday model scenarios were run and results produced to provide a better representation of traffic delays than was presented in the DA Traffic Report.

Table 3 VISSIM Model Scenarios

Scenario	Description
Without Development	Neutral month = existing volumes / 0.95
With Development	As above with DA Traffic Report development trips added
With Development - car park split sensitivity	As above and 70% lower ground/ 30% Level 1 car park split

3.2 Network Development

The key elements of the study network were coded including traffic volumes (both existing and development traffic) together with service vehicles, pedestrians and on-street parking activity as illustrated in **Figure 10**.

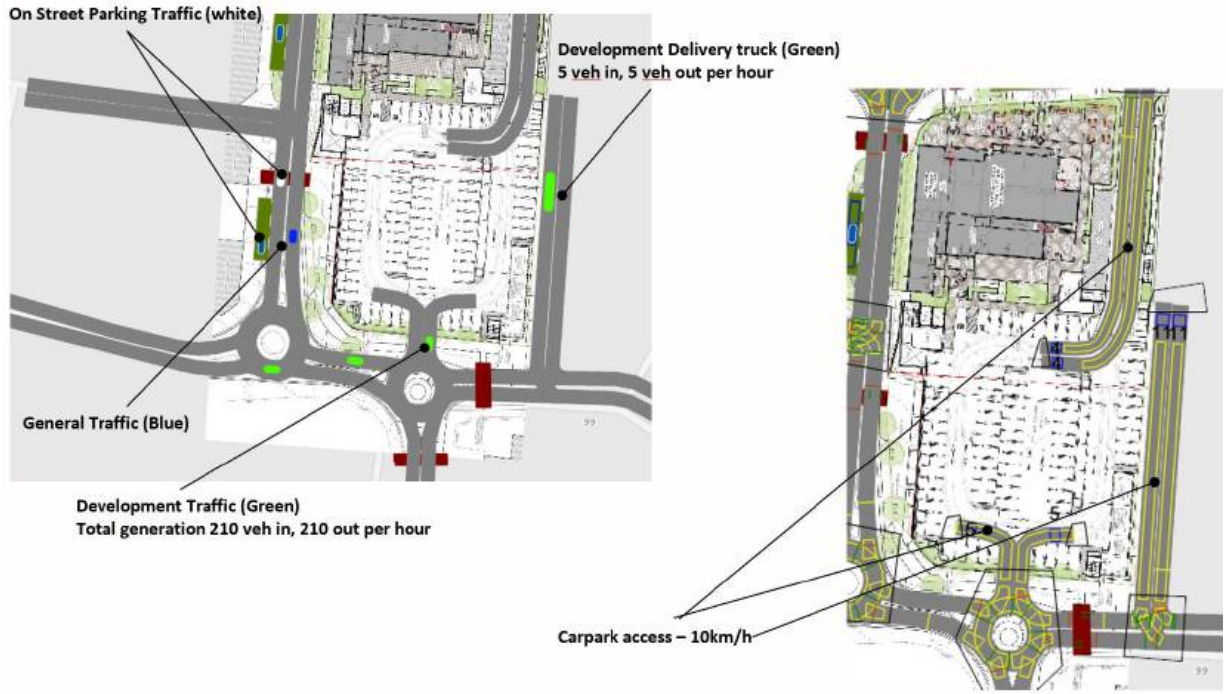


Figure 10 VISSIM Network Coding

By coding the network in a microsimulation model, it is relatively straightforward to demonstrate the effects of queue pill back and other frictional effects on the network rather than rely on a single level of service to articulate traffic performance.

3.3 Model Results

3.3.1 Intersection Performance

It is clear from Table 4 that the roundabout of Macquarie Road/Hawkesbury Road will fail (LoS F) with the introduction of this development and queues extending back towards the development site from the western approach to this roundabout. Queue lengths of up to 250 meters are recorded in the model with average delays for every vehicle on that approach of over 2 minutes.

Table 4 Macquarie Road/ Hawkesbury Rd Roundabout Performance

			Existing				With Development				With Development - Sensitivity			
Intersection	Approach	Mvmt	Vol.	Delay (s)	LoS	Max Queue (m)	Vol.	Delay (s)	LoS	Max Queue (m)	Vol.	Delay (s)	LoS	Max Queue (m)
Hawkesbury Rd / Macquarie Rd	Hawkesbury Rd - N	L	96	7	A	46	96	9	A	56	96	9	A	58
		R	238	8	A	46	280	9	A	56	273	9	A	58
	Macquarie Rd - E	T	330	18	B	149	371	42	C	151	365	39	C	151
		R	503	18	B	149	477	41	C	151	490	38	C	151
	Macquarie Rd - W	L	320	45	D	175	348	119	F	250	342	96	F	249
		T	135	48	D	175	167	123	F	250	162	100	F	249
	Total		**1622**	**48**	**D**	**175**	**1739**	**123**	**F**	**250**	**1728**	**100**	**F**	**249**

It is also likely (if the Friday PM peak model was also developed) that Macquarie Road (E) approach would also experience LoS F operation and result in persistent queues back towards the highway.

The above intersection performance can be seen graphically below in **Figure 11** along with the additional anticipated number of vehicles in the queue from Macquarie Road (E).

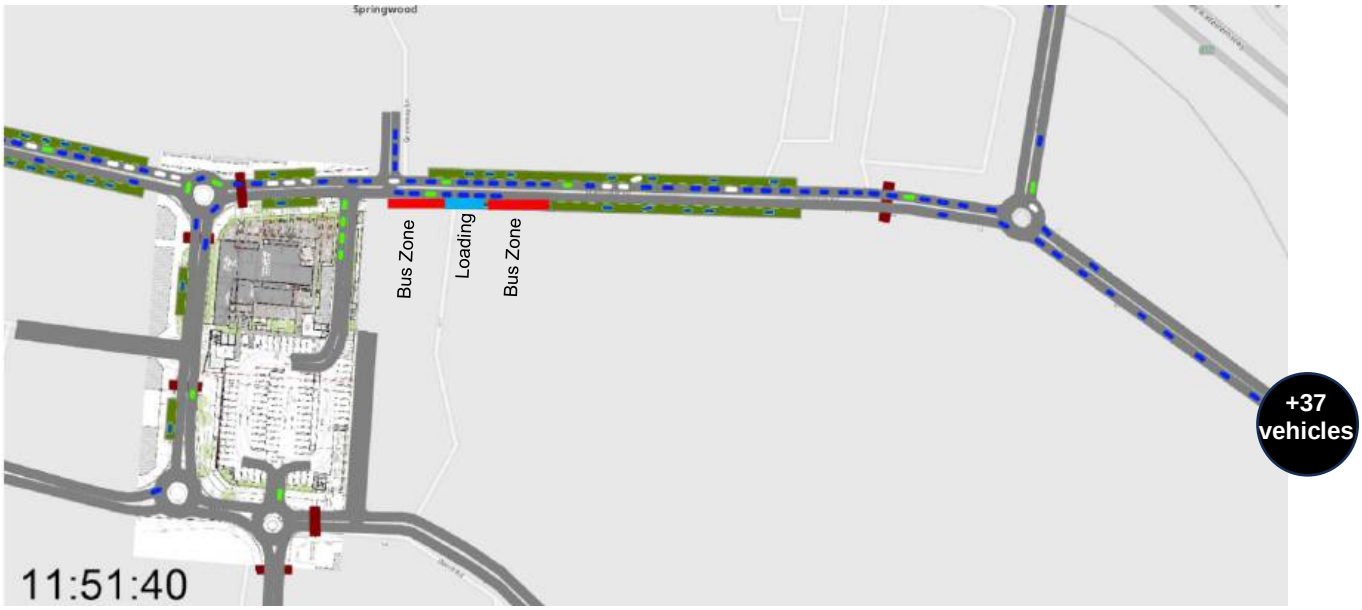


Figure 11 With Development Traffic Congestion on Macquarie Street – Saturday peak

3.4 Travel Times

Furter evidence of impacts to Macquarie Street traffic in the Saturday peak can be demonstrated through a review of travel times along Macquarie Road and this is shown in **Figure 12**.

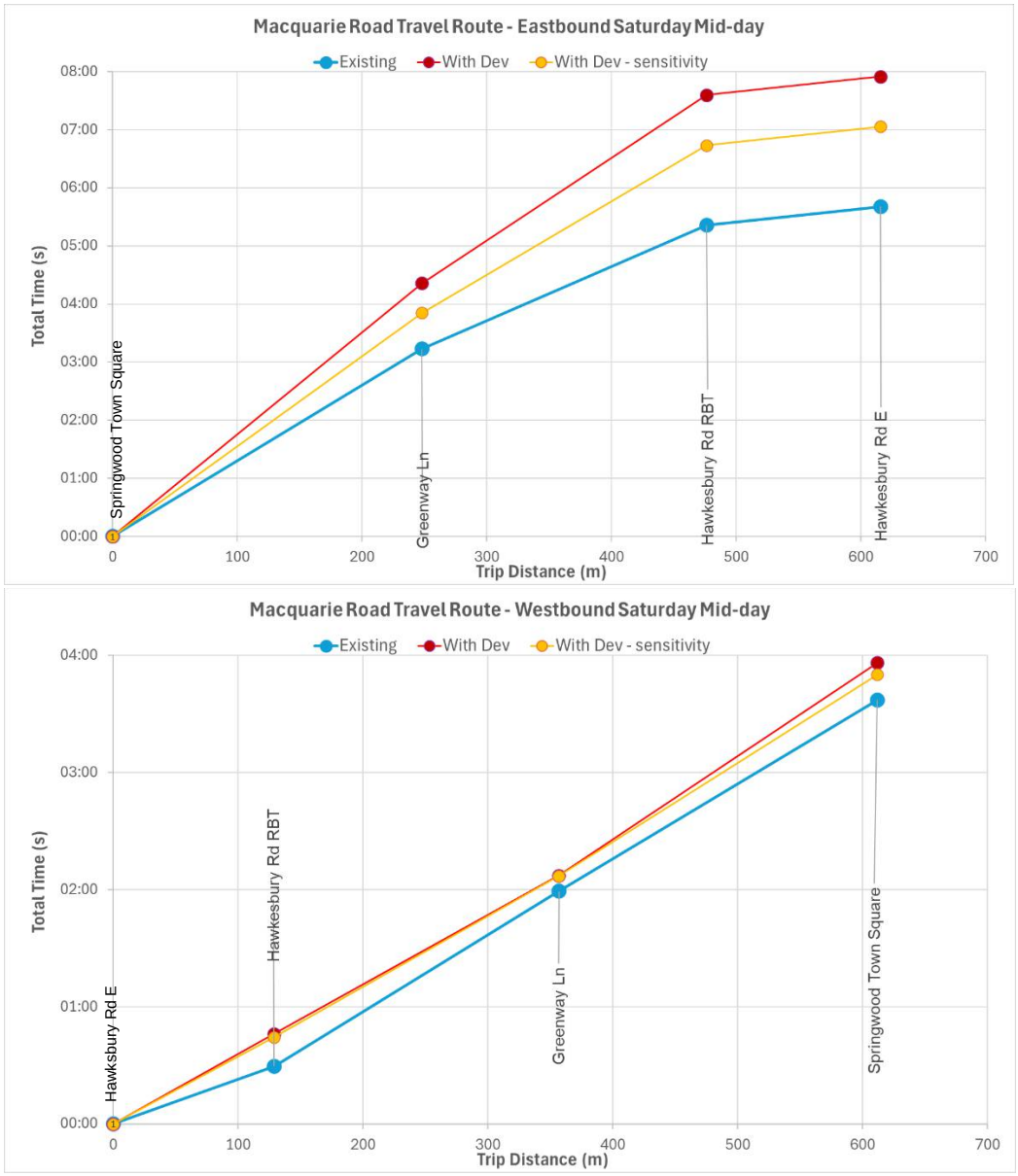


Figure 12 Cumulative Travel Time Estimates on Macquarie Road

Figure 12 shows that with Development traffic, the eastbound travel time is to increase by 2 minutes 14 seconds (almost 40%) above existing levels with extensive queues back toward the development site and the Raymond Road roundabout.

4 Summary

Our review has highlighted the following inconsistencies and inadequacies in the DA Traffic Report:

- Architectural plans, traffic generation and car parking calculation all show minor differences that would result in an additional 3 car spaces being required.
- While 22 spaces of the new car park may be allocated to the Oriental Hotel, no surveys of existing use have been provided and there is a risk that more spaces may be required than have been allocated. There is also no discussion on how these spaces will be managed within the broader Woolworth's car park.
- Without any traffic management or variable message signs associated with smart parking system there is a risk that the Lower Ground Floor car park will exceed capacity and that queue spill back from internal operations will quickly lock up the double roundabout arrangement on David Road.
- On street parking and bus zones in the vicinity of the proposed Level 1 car park access will cause increased congestion westbound as right turning traffic to Greenway Lane holds up through movements (as currently occurs). Also as right turns from the proposed Level 1 car park are permitted, these will most likely lead to extended queues back into the car park (or alternatively depending on local driver behaviour) may result in a breakdown of road rules as right turning traffic will have to negotiate its way out into rolling queues of traffic (eastbound) on Macquarie Road.
- Existing congestion effects that are apparent on Macquarie Road now will be worse when demands are increased, and this will lead to travel time increase of over 2 minutes eastbound in the Saturday midday peak as well as the risk of queues backing up to the highway during the Friday PM peak.
- The placement of the zebra crossing on David Road immediately between 2 access driveways will increase safety risks as pedestrians will be channelled towards the busiest access associated with the Lower Ground Floor car park.
- The detail provided for the supporting modelling assessment does not adequately capture the likely impacts of the development as it does not appear to address friction due to pedestrians, blocking back from adjacent intersections or parallel parking.
- The scope of traffic impact area being assessed does not include the Springwood Avenue alternate route to the west which is currently under some pressure due to the presence of on street parking and its relatively narrow width.

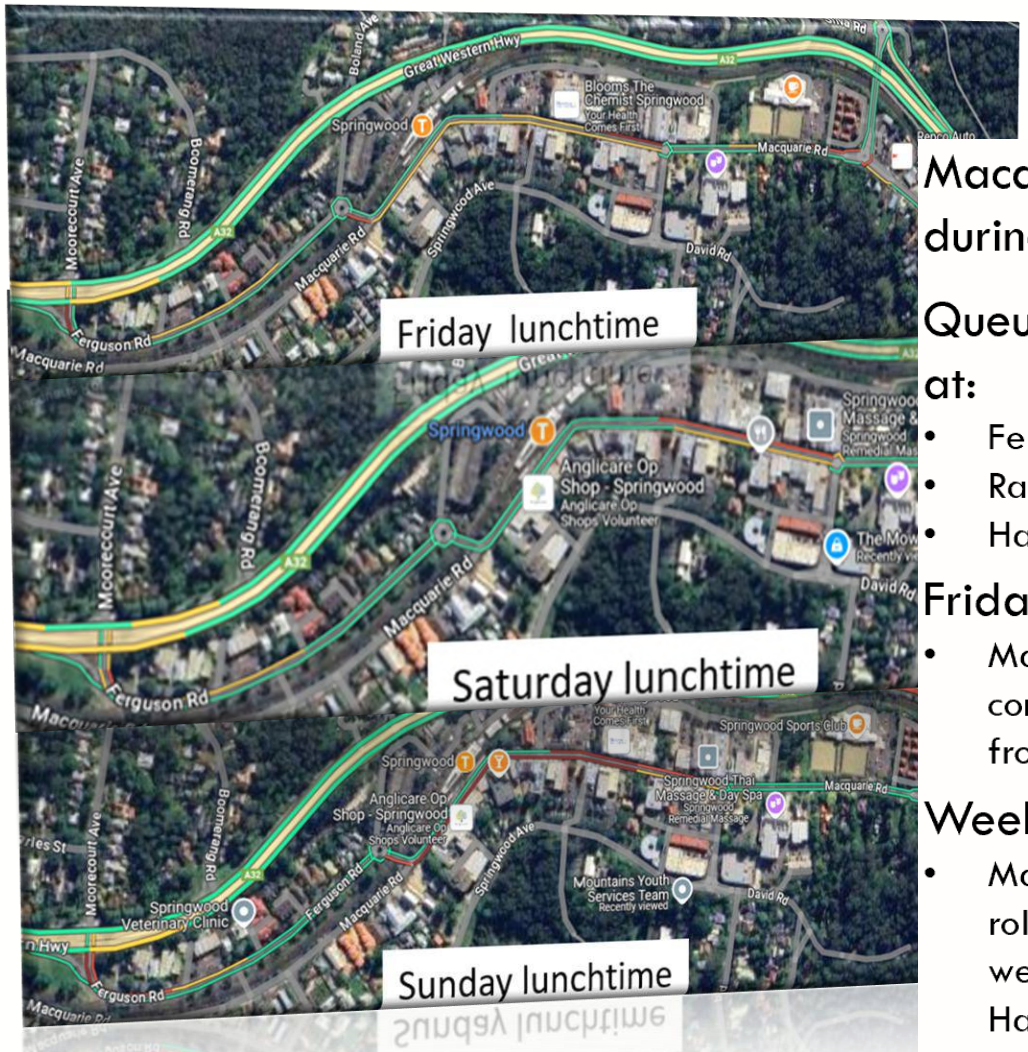
Appendix A. Residents Group Presentation

Springwood Woolworth DA Review

Traffic and Pedestrian Impacts

TRANSPORT MODELLERS ALLIANCE

Traffic in Springwood



Macquarie Road most congested during lunchtime with friction due to:

Queues developing between roundabouts at:

- Ferguson Rd/Jerseywold Ave
- Raymond Road
- Hawkesbury Rd

Friday afternoon

- Macquarie Rd/Hawkesbury Rd roundabout can come under some pressure due to westbound traffic from highway travelling to Hawkesbury Rd

Weekday morning

- Macquarie Rd/Hawkesbury Rd roundabout causing rolling queues back towards the highway as westbound traffic being held up by Southbound Hawkesbury Rd movement.

Public Parking Spaces in Springwood

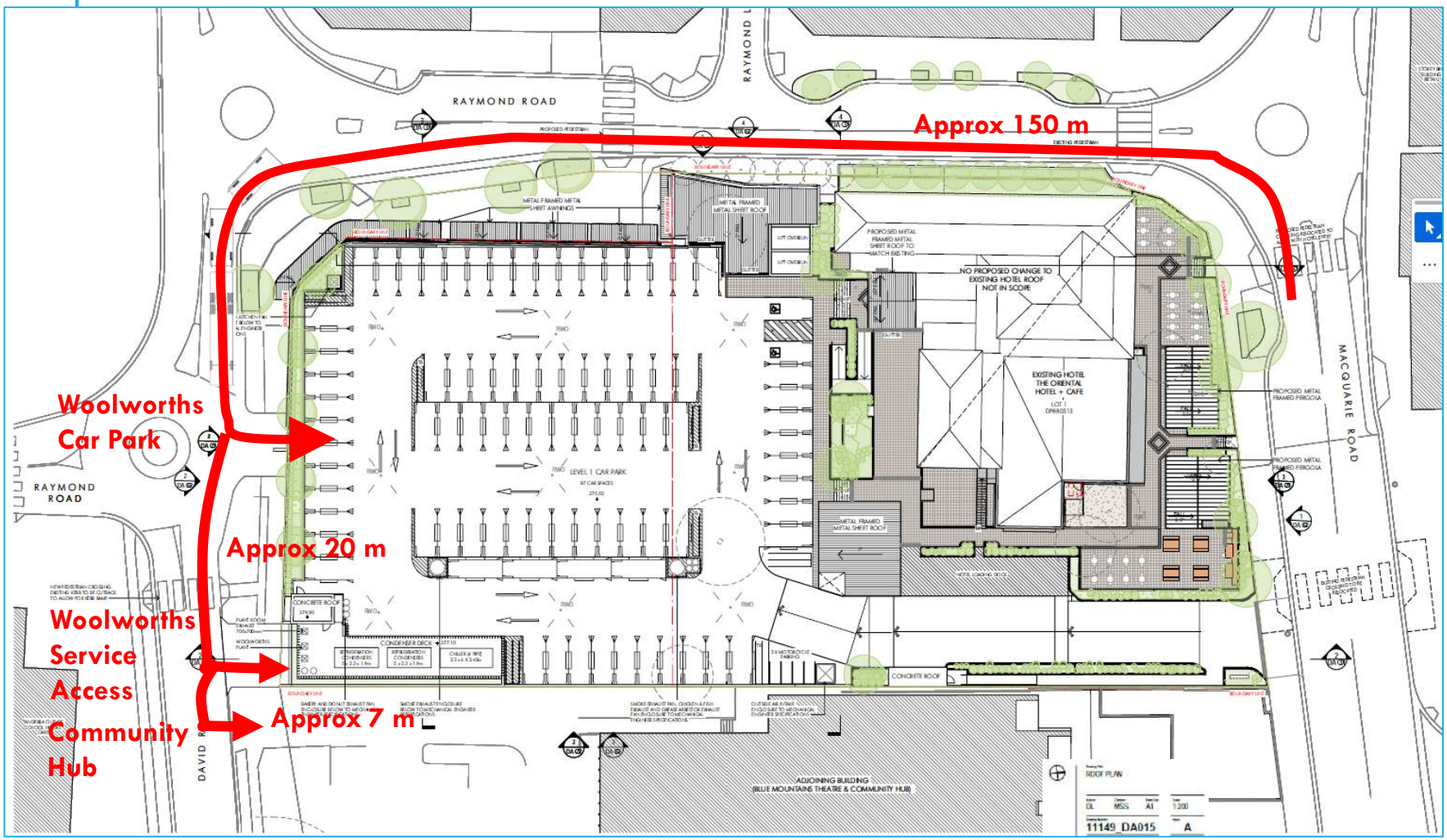
Woolworths DA – Traffic Report

- Supermarket GFA – 3490m2 approx
- Car Parking Spaces – 159 spaces (22 for hotel)
- Anticipated peak operation – Saturday 11am-12 pm
- **410 car trips** in/out per hour
- Plus **5** home delivery trips/hr
- Plus **5** trips/hr for speciality retail

} 12 Trips/ 100 sqm

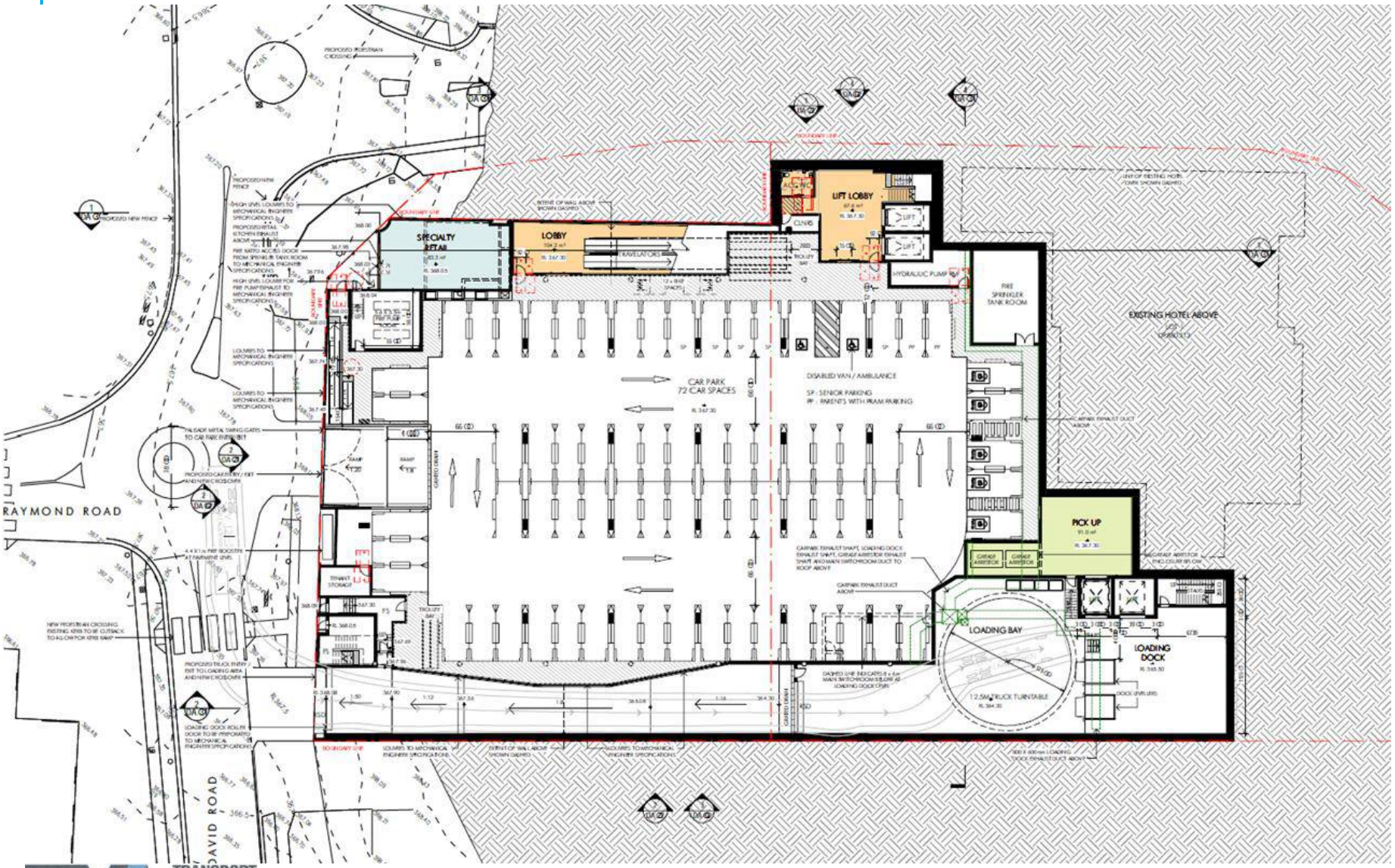
- Split car park –basement car park 72 spaces (87 spaces on level 1) will be more attractive than assumed in DA (as travelators do not go to roof parking and Macquarie Street)
- Traffic performance to LoS C on year of opening
- Traffic Volumes assumed June (not peak month - April) traffic volumes – previous studies show volumes should be **increased by up to 20%** to better represent the peak month.
- **Queue spill back effects not represented adequately with LOS C not necessarily representing traffic conditions on Macquarie Street**

Woolworths DA – Roof Level



TRANSPORT MODELLERS ALLIANCE

Woolworths DA – Basement Level (showing service access)



TRANSPORT MODELLERS ALLIANCE

David Rd – Peak Parking Demand

Proposed Basement Access Location – Peak Parking Demand

Key Issues

- DA traffic assessments using volumes form a low month (June)
- Queue spill back effects not represented adequately
- **410 car trips** in/out per hour will see increases of over 20% on Macquarie Street
- Site is somewhat distant from Town Centre and will encourage 2 car trips in town (rather than 1 currently) – not in line with TfNSW movement & place principles
- Traffic performance to LoS C on year of opening not representative of traffic conditions due to other friction effects
- No form of parking management and how to avoid basement car park being over capacity (and blocking double roundabout)
- With congestion on Macquarie Street set to increase no assessment of the relief route via Springwood Avenue has been included in DA

Model Results (SAT 11am - 12pm)
With development

Approaching to the end of the simulation (12pm) the Eastbound traffic queue extends from Hawkesbury Road towards Bent Street, approximately **500 metres.**

The traffic queueing on Macquarie Road also results in blockage at Woolworths northern access.

Overall, it results in a total of **70 unreleased vehicles** in the network, comprising of the Macquarie Road westbound traffic (i.e queues extend back towards highway)