Piedimonte Supermarket

27- 45 Best Street, North Fitzroy &
102-114 Scotchmer Street, North Fitzroy

Transport Impact Assessment

Prepared for
Piedimonte Supermarket

MGA19011
18 December 2018

Project Information:

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102-114 Scotchmer Street, North Fitzroy

Transport Impact Assessment

Document Information:

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Appendices

1. Introduction

1.1 Background

MGA Traffic Pty Ltd was commissioned by Piedimonte Development Pty Ltd to prepare a traffic and transport impact assessment to accompany a planning permit application currently being sought for a proposed mixed-use development located at 27-45 Best Street, North Fitzroy and 102-114 Scotchmer Street, North Fitzroy.

The proposal incorporates the following uses:

- 66 x dwellings
  (6 x one-bedroom, 36 x two-bedroom, 16 x three-bedroom, 8 x three-bedroom townhouses)
- 4,099sqm Supermarket, including Office and Back of House (BOH) area
- 614sqm Liquor
- 351sqm Cafe

It is noted that the proposal is provided on land currently used as a supermarket (3,070sqm), retail tenancies (1,008sqm in total) and 3 x residential dwellings.

The proposal is supported by 126 car spaces and 138 bicycle spaces.

1.2 Scope of Works

The following assessment has been undertaken on plans prepared by JCB Architects and responds to the following traffic and transport elements:

- Review of existing traffic, parking and transport conditions surrounding the site
- Site parking layout and access arrangements
- Parking demands and the adequacy of car and bicycle parking provision
- Preliminary parking plan
- Traffic generation and associated road network impacts

1.3 References

In preparing this report, the following references have been made:

- Inspection of the site and surrounds
- Traffic and parking surveys as referenced in this report
- Yarra Planning Scheme
- Australian Standard for Off-Street Parking Facilities AS2890.1:2004
- Other documents as nominated

2. Site and Surrounds

2.1 Subject Site

The subject site is located at 27-45 Best Street and 102-114 Scotchmer Street in North Fitzroy. The site is currently occupied by several retail/commercial tenancies, 3 x dwellings and Piedimonte Supermarket. The site sits within the North Fitzroy Activity Area and tram corridor (Route 11) along St Georges Road.

The site has frontages to Best Street, Scotchmer Street, Egremont Street and a rear ROW. All abutting streets are local (under the control of Council) noting that St Georges Road in the direct vicinity of Best Street is an arterial road (Road Zone 1) under VicRoads control.

The surrounding properties include a mix of retail, commercial, educational and residential land uses. The location of the subject site and the surrounding environs is shown in Figure 2.1, and the land zoning is shown in Figure 2.2

Figure 2.1: Subject Site and its Environs

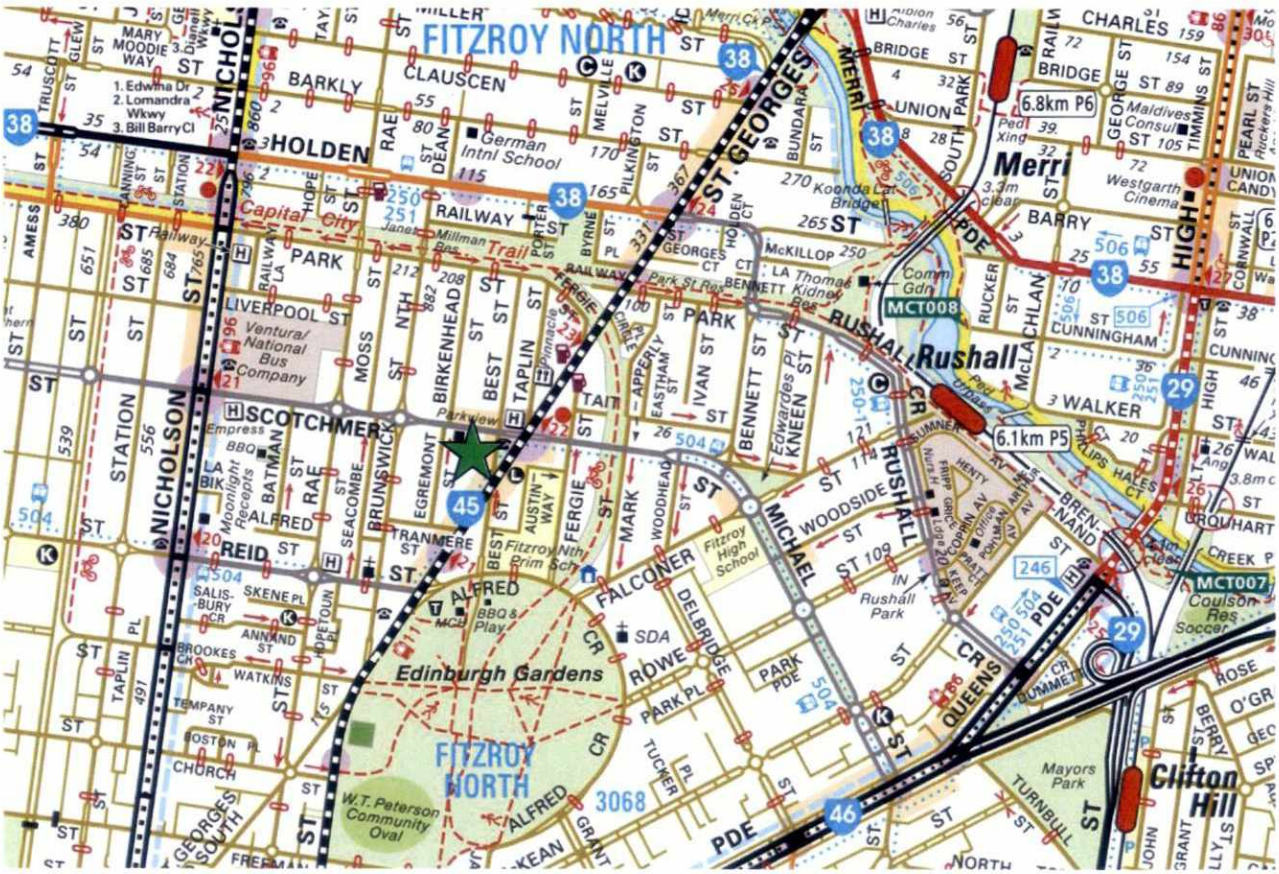

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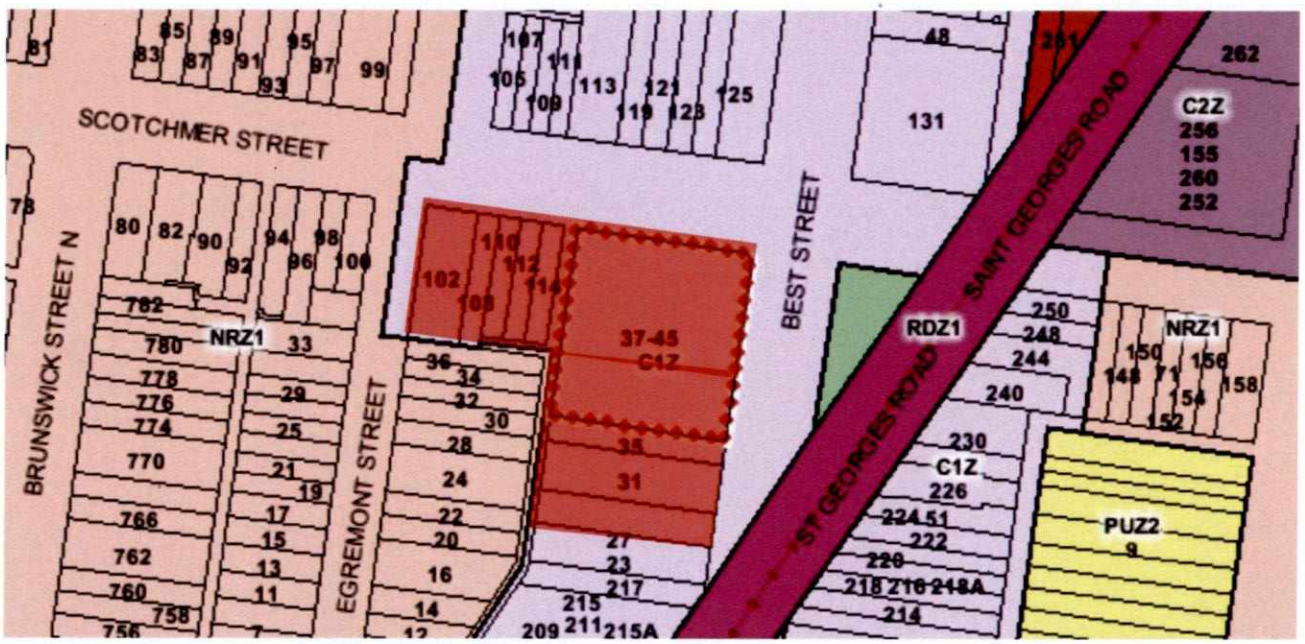
Figure 2.2: Land Zoning Map



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2.2 Road Network

Best Street functions a as local access street that is aligned in a north-south direction and abuts the site between St Georges Road and Scotchmer Street. In this section, the road accommodates northbound traffic movements only (enter via St Georges Road and exit to Scotchmer Street). The road continues to the north of Scotchmer Street and to the south of St Georges Road and intersects these roads as unsignalised intersections. Adjacent to the site, angled parking is permitted on both sides of Best Street and subject to time restrictions.

Best Street carries approximately 900 vehicles per day, immediately south of Scotchmer Street.

Scotchmer Street functions as a higher order local connector street and provides a link from Carlton (west) to Clifton Hill (east) via Michael Street (continuation of Scotchmer Street to the southeast of Falconer Street). Adjacent to the site, the roadway is configured as a two lane, two-way road with parallel kerbside parking on both sides of the road. The carriageway of approximately 12m is set within a 20m road reserve.

Scotchmer Street carries approximately 6,000 vehicles per day, immediately wets of St Georges Road.

Ergemont Street functions as a local street that provide access to residential properties between Scotchmer Street and Tranmere Street. The one-way road (northbound) accommodates short-term and permit zone parking on both sides of the road and intersects Scotchmer Street as an unsignalised intersection (exit movements only).

A **ROW** is located to the west of the existing Supermarket boundary and provides rear access to a number of properties between Scotchmer Street and Tranmere Street. It is noted that the narrow width of the lane (approximately 3m) and the narrow site frontage to most properties restricts vehicles access to/from the available parking areas. This is supported by the low peak hour traffic volumes observed (2-4 vehicles in any peak hour at either end).

St Georges Road functions as an arterial road and provides a link from Alexander Avenue (Fitzroy) to Bell Street (Preston). The roadway is configured as a two-way, four lane road with central tram facilities. The kerbside parking restricts the carriageway to one lane in each direction outside of clearway restrictions.

St Georges Road intersects Scotchmer Street as a signalised intersection. A signalised pedestrian crossing is also located to the south of Tranmere Street.

St Georges Road carries approximately 12,000 vehicles per day, immediately south of Scotchmer Street.

2.3 Traffic Volumes

AM and PM peak hour traffic surveys were undertaken at the following intersections during the AM and PM peak periods:

- Scotchmer Street / St Georges Road
- Scotchmer Street / ROW
- Tranmere Street / ROW
- Best Street / St Georges Road
- Best Street / Scotchmer Street

The results of these surveys are presented in Appendix A.

2.4 Sustainable Transport

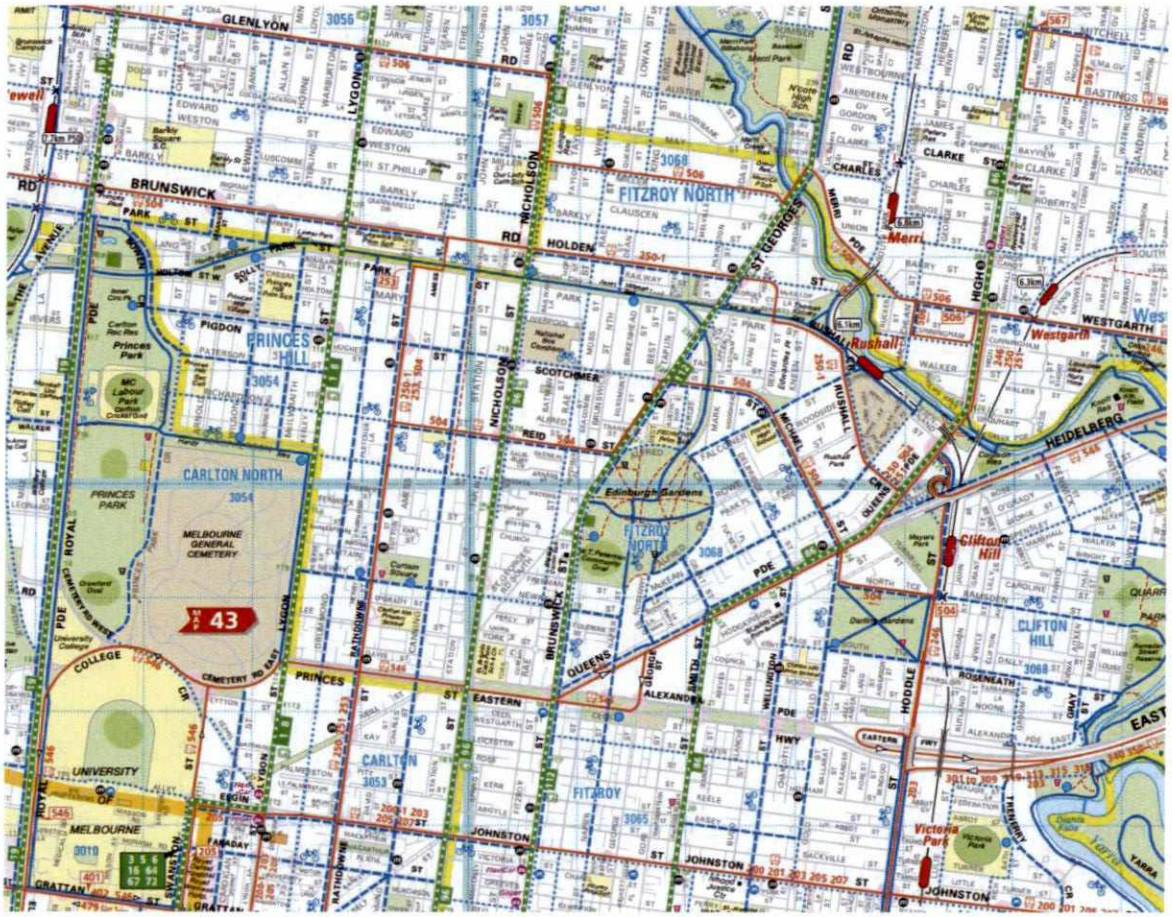
The site is located within excellent proximity to public transport and bicycle facilities to support the use of sustainable modes irrespective of car ownership. Tram route 11 operates along St Georges Road which link West Preston to the CBD via North Fitzroy. A tram stop is located less than 50m walking distance from the site.

Pedestrian paths are provided on both sides of all key roads surrounding the site with controlled pedestrian crossings available at Scotchmer Street / St Georges Road and along St Georges Road to the south of Tranmere Street. A pedestrian zebra crossing is provided across Best Street to the subject site entrance.

Scotchmer Street and St Georges Road accommodate on-road bicycle lanes and provide links to the broader bicycle networks which connect the site to the CBD and off road trails.

Figure 2.3 shows the subject site in relation to existing public transport and cycle routes within its vicinity.

Figure 2.3: Transport Map (TravelSmart)



2.5 Car Share Schemes

There are also a high number of car sharing services available within the proximity to the subject site which are nominated below (with the walking distance provided in brackets).

- Goget:
  - near the corner of north, St Georges Road and Best Street (<50m)
  - Edinburgh Gardens (<200m)
  - Falconer Street (<500m)
- Flexicar:
  - Best Street, opposite Piedimonte's Supermarket (<20m)
  - Best Street to the north of Scotchmer Street (<50m)
  - Alfred Crescent (<200m)
- Green Share Car:
  - Park Street, west of Nicholson Street (750m)

3. The Proposal

3.1 Land Uses

The following analysis has been provided on the development plans prepared by JCB Architects dated December 2018, as follows:

- 66 x dwellings
  (6 x one-bedroom, 36 x two-bedroom, 16 x three-bedroom, 8 x three-bedroom townhouses)
- 4,090sqm Supermarket including BOH and Office area
- 614sqm Liquor
- 351 Cafe

It is noted that the development is provided on land currently used as a supermarket (3,070sqm), retail/commercial tenancies (1,008sqm) and 3 x dwellings. The statutory parking assessment provided in Section 4 of this report is assessed on the full supermarket and liquor floor area noted above.

3.2 Vehicle Access

Vehicle access to the site is proposed via a new crossover to Scotchmer Street. This access point is proposed to service the on-site basement car parking and loading. A crossover to the immediate north of the main site access is proposed for ground level loading by larger vehicles.

3.3 Car Parking

Car parking is provided within three levels totalling 126 car spaces, as follows:

- Basement Level 1: 32 spaces (including 2 disabled)
- Basement Level 2: 71 spaces
- Basement Level 3: 23 spaces

One car share space is proposed on-site. The allocation of parking is further discussed in Section 5 of this report.

3.4 Bicycle & Motorcycle Parking

138 bicycle spaces are proposed within the car parking areas for residents, residential visitors and staff (126 spaces on basement 1 and 12 spaces on basement 2). Best Street currently accommodates 30 bicycle spaces (15 hoops) directly opposite the supermarket which services the activity area and existing supermarket.

Two electric charging points are proposed within the secured bicycle parking area on basement level 1.

3.5 Loading and Waste Collection

Waste is proposed to be collected from within the basement. Waste collection will be undertaken in accordance with the waste management plan accompanying the application.

4. Parking Assessment

4.1 Statutory Requirements

Statutory requirements for the provision of car parking are set out in Clause 52.06 of the Yarra Planning Scheme, with parking rates specified in Table 1 to Clause 52.06-5. Clause 56.02 (Car Parking) nominates that Rates within Column B of Table 1 are applicable if any of the land is identified as being within the Principal Public Transport Network (PPTN) Area. The site is situated within PPTN, as such, an assessment of the statutory parking requirements (utilising Column B rates) of the proposal is set out in Table 4.1.

Table 4.1: Statutory Parking Requirements

Description	Use	Size	Statutory Parking Rate	Statutory Parking Requirement
Supermarket	Supermarket	4,099sqm NLFA	5 spaces per 100sqm	204 spaces
Café	Food and Drink	351sqm NLFA	3.5 spaces per 100sqm	12 spaces
Liquor	Shop	614sqm NLFA	3.5 spaces per 100sqm	20 spaces
Dwellings	Resident	6 x one-bedroom 36 x two-bedroom 24 x three-bedroom	One space per one and two-bedroom dwelling; and Two spaces per three-bedroom dwelling	90 spaces
	Visitor	66 dwellings	NA	0 spaces
Total				326 spaces

The above assessment anticipates the development proposal has statutory requirement of 326 car spaces.

In this instance, the proposed on-site parking provision of 126 car spaces does not meet the statutory requirement and a permit is being sought to reduce this requirement.

4.2 Guidelines for Reducing Parking Requirements

With regard to reducing the statutory parking requirement on-site, the Yarra Planning Scheme indicates that the application must be accompanied by a Car Parking Demand Assessment which assess the car parking demand likely to be generated by the proposal.

This assessment applies to the following scenarios:

- new use
- increase in the floor areas or site area of the existing use; or
- increase to the existing use by the measure specified in Column C of Table 1 in Clause 52.06-5 for that use.

The Planning Scheme stipulates that a Car Parking Demand Assessment must address the following matters, to the satisfaction of the responsible authority:

- "The likelihood of multi-purpose trips within the locality.
- The variation of car parking demand likely to be generated by the proposed use over time.
- The short-stay and long-stay car parking demand likely to be generated by the proposed use.
- The availability of public transport in the locality of the land.
- The convenience of pedestrian and cyclist access to the land.

- The provision of bicycle parking and end of trip facilities for cyclists in the locality of the land.
- The anticipated car ownership rates of likely or proposed visitors to or occupants.
- Any empirical assessment or case study."

The combination of these factors often results in car parking demand being generated at rates different to the statutory rates. An assessment of the likely car parking demand for each of the proposed land uses is presented below.

4.3 Car Parking Demand Assessment

Residential

The Australian Bureau of Statistics (ABS) suggests average car ownership levels for North Fitzroy for flats, units, apartments and townhouses is lower than the statutory requirement, as follows:

- One-bedroom dwelling: 0.48 vehicles per dwelling
- Two-bedroom dwelling: 0.63 vehicles per dwelling
- Three-bedroom dwelling: 1.02 vehicles per dwelling
- Four-bedroom dwelling: 1.36 vehicles per dwelling

Table 4.2 applies these rates to the proposed development.

Table 4.2: Anticipated Resident Car Parking Demand (ABS Assessment)

Dwelling Size	Quantity	ABS Average Car Ownership	Anticipated Resident Car Parking Demand
1 bedroom	6 dwellings	0.48	3 spaces
2 bedrooms	36 dwellings	0.63	23 spaces
3 bedrooms	24 dwellings	1.02	24 spaces
	Total		50 spaces

Application of existing car ownership rates for apartment type dwellings in North Fitzroy suggests a parking demand of 50 resident spaces for the proposed development.

However, it is acknowledged that high end apartments (large and luxury) are proposed which are often connected with higher car ownership, irrespective of its use. In this instance the statutory car parking requirements have been accepted as the demand for residents, as follows:

- 42 x one or two bedroom dwellings at 1 space per dwelling = 42 spaces
- 24 x three-bedroom dwellings at two spaces per dwelling = 48 spaces
- Total Resident Demand = 90 spaces

Given the nature of the development, the location of the site and excellent level of transport options to access the site besides the private motor vehicle, the residential visitor demands are expected to be negligible and consistent with the statutory requirement.

Supermarket

Based on empirical data collected, supermarkets in similar locations could be expected to generate a peak car parking rate of 3.7 spaces per 100sqm.

Application of this rate to the supermarket floor area (4,099sqm) indicates that a peak parking demand of 151 car spaces can be expected, noting that approximately 10% of this demand (15 car spaces) is typically

associated with staff car parking (long term parking) with the remaining 90% (143 car spaces) typically associated with customer car parking (short term parking).

Cafe

The café is expected to operate as an ancillary use to the supermarket, liquor and residents on the site. In addition, the café is expected to attract patronage from staff or customers to the precinct. As such, the site is not anticipated to generate any new customer parking demands as a result of its trade. In terms of staff, the café could generate in the order of 3 spaces which is consistent with empirical data for café staff parking demands of 1 space per 100sqm.

Liquor

Based on empirical data collected, similar sized liquor components attached to supermarkets or within retail precincts in similar locations could be expected to generate a peak car parking rate of 2.0 spaces per 100sqm.

Application of this rate to the liquor floor area (614sqm) indicates that a peak parking demand of 12 car spaces can be expected, noting that approximately 10% of this demand (1 car space) is typically associated with staff car parking (long term parking) with the remaining 90% (11 car spaces) typically associated with customer car parking (short term parking).

4.4 Car Parking Demand Summary

Table 4.3 presents a summary of the car parking demand likely to be generated by all land uses within the proposal.

Table 4.3: Anticipated Overall Car Parking Demand

Use	Size	Car Parking Demand	Car Parking Provision
Dwellings	6 x One Bedroom	3 spaces	6 spaces
	36 x Two Bedroom	23 spaces	37 spaces
	24 x Three+ Bedroom	24 spaces	48 spaces
Resident Sub-Total		**50 spaces**	**90 spaces**
Supermarket	4,099sqm	151 spaces	47 spaces
Liquor	614sqm	12 spaces	
Café	351sqm	3 spaces	
Supermarket and Liquor Sub-Total		**166 spaces**	**47 spaces**
Total		**216 spaces**	**138 spaces**

Table 4.3 indicates that the development is expected to generate a parking demand in the order of 216 car spaces. Notwithstanding, the full statutory parking provision is proposed to accommodate the resident demands (given the nature of the dwellings being large and luxury) with 166 car spaces for the supermarket, cafe and liquor.

The above assessment does not consider the application of car parking credits for the removal of the existing retail floor area associated with the existing supermarket and retail tenancies which indicates a credit of 133 car spaces.

This is further discussed in the section 4.5.3 of the report and indicates a parking demand of 47 spaces for the additional supermarket floor area.

As such, the proposed on-site parking provision of 138 car spaces is anticipated to meet the car parking demand associated with the resident parking, liquor tenancy and the additional floor area of the supermarket.

4.5 Adequacy of Parking Provision

Clause 52.06-6 outlines several matters which the responsible authority must consider before granting a permit to provide fewer parking spaces on site than the likely demand assessed by the Car Parking Demand Assessment. The key matters are further discussed below with a parking plan (allocation) set out in Section 7 of this report.

Relevant Local Planning Policy or Incorporated Plan

Clause 18 – State Planning Policy Framework (Yarra Planning Scheme)

The State Planning Policy Framework contained within the Yarra Planning Scheme sets out a range of objectives and implementation strategies to guide development within the entire State of Victoria. The Framework includes a range of policies with the overall objective to increase the facilitation and integration of sustainable transport.

Encouraging the use of public transport and walking and cycling as modes of transport is central to achieving the framework objectives.

The proposed development is a prime opportunity to promote the vision of this objective by encouraging the use of public transport, cycling, and walking and not encouraging an abundance of car parking within this area, and in turn an over use of motor vehicles.

City of Yarra – Parking Visions, Goals and Principles

In September 2010, Yarra Council endorsed a 'parking vision' with goals and principles for managing parking in Yarra. The vision, goals and principles have been used to form a strategy for managing parking in Yarra.

Two of the stated goals of the Yarra City Council Parking Strategy are to:

- *Encourage walking cycling and public transport usage for mobility and movement across the city.*
- *Ensure that new developments are self-sufficient in meeting their parking needs- with the exception of encouraging reduced parking or no car parking developments for sites very close to public transport.*
- *Enable a reduction in the road pavement space used for parking where a community benefit can be achieved, particularly where pedestrians, cyclists, public transport & people waiting for public transport.*
- *Plan and manage transport and urban development to minimise the need for people to have to drive cars so that the demand for parking is contained and managed effectively."*

It is considered that the proposed car parking provision which is below the statutory requirement, presents a good opportunity to promote the lower use of private travel vehicles and to promote a reduction in car parking demands.

Access to or Provision of Alternative Transport Modes to and from the Land

As discussed earlier within this report (Section 2.3), the site is well serviced with public transport, bicycle and pedestrian facilities. Furthermore, 87 bicycle spaces are proposed for the development. The site provides prime opportunities to support mode travel other than private vehicle, irrespective of car ownership.

Car Parking Credits

The site could be attributed a car parking credit for the existing retail and supermarket floor area to be converted into new supermarket floor area. Any parking demands associated with the site would be utilising the on-street parking within the precinct.

Indeed, the statutory parking rate for 4 spaces per 100 sqm for retail area (1,008sqm) equates to 40 car spaces based on 1,008sqm of retail area to be removed. In addition, the statutory parking rate of 5 spaces per 100sqm for the supermarket area (3,070sqm) equates to 153 car spaces. The site currently contains a small area associated with a liquor store and café which is included in the supermarket area. This equates to a total of 193 car spaces based on statutory parking rates.

Given the application of empirical data to assess the car parking demand of the proposal, the same rates should apply to the existing uses. The relevant empirical rates are 2 spaces per 100sqm for retail area and 3.7 spaces per 100sqm for supermarket area. As such, this would equate to a car parking credit of 20 spaces for the retail component and 113 spaces for the supermarket component, totalling 133 spaces for available credit.

4.6 Summary of Parking Assessment

Based on the above, the provision of 126 on-site car parking spaces associated with the proposed development is considered appropriate in this instance for the following reasons:

- The subject site is located within an excellent level of public transport service.
- There are sufficient pedestrian and bicycle facilities linking the site to the surrounding network.
- The site provides 138 bicycle spaces which exceeds the statutory requirement with an additional 30 spaces available on Best Street for supermarket customers.
- State and local polices exist which seek to avoid an over-provision of car parking specifically in locations like the site which is situated within strong transport infrastructure.
- The statutory parking requirement for the development is 326 spaces.
- The residential component is anticipated to generate a demand for approximately 50 spaces based on local car ownership data, noting that 90 spaces (in line with the statutory requirements) is provided on site given that the apartments are high end (large and luxury).
- The supermarket is likely to generate a peak parking demand of 151 spaces with the liquor generating 12 spaces and the café generating 3 spaces, totalling 166 spaces.
- Consideration of car parking credits for the removal of supermarket and retail floor area indicates a potential reduction of 113 and 20 car spaces, respectively, totalling 133 spaces.
- After the consideration of car parking credits, the additional floor area of the supermarket is likely to generate an additional peak parking demand of 38 vehicles and 3 staff spaces for the café with the floor area of the liquor component likely to generate a peak parking demand of -8 vehicles.
- This results in an anticipated car parking demand for 33 car spaces for the proposed supermarket (additional floor area), liquor and café for which a minimum of 33 spaces are provided on-site.

Table 4.3 presents a summary of the car parking assessment of the site, including the application of credits a car parking provision. The proposed parking allocation and parking plan is provided in Section 5 of this report.

It is noted that after consideration of parking credits, the proposed allocation of 35 spaces for the liquor and supermarket (inclusive of 2 disabled spaces) also satisfies the statutory parking requirement of 35 spaces.

Table 4.3: Anticipated Overall Car Parking Demand

Use	Size	Statutory Parking Requirements	Anticipated Car Parking Demand	Proposed Car Parking Provision
Dwellings	6 x One Bedroom	6 spaces	3 spaces	6 spaces
	36 x Two Bedroom	36 spaces	23 spaces	37 spaces
	24 x Three+ Bedroom	48 spaces	24 spaces	48 spaces
Resident Sub-Total		**90 spaces**	**50 spaces**	**90 spaces**
Supermarket	4,090sqm	204 spaces	151 spaces	**33 spaces**
Liquor	614sqm	12 spaces	12 spaces	
Café	351sqm	12 spaces	3 spaces	
Car Parking Credits	*1,008sqm of Retail* *3,070sqm of Supermarket*	*-40 spaces for Retail* *-153 spaces for Supermarket*	*-20 spaces for Retail* *-113 spaces for Supermarket*	
Supermarket and Liquor Sub-Total		**35 spaces**	**33 spaces**	
Other		-	-	2 disabled spaces and 1 car share space
Total		125 spaces	83 spaces	126 spaces

5. Parking Plan

5.1 Car Parking Provision

Car parking is provided within three levels totalling 126 car spaces, as follows:

- Basement Level 1: 32 spaces (including 2 disabled and one car share)
- Basement Level 2: 71 spaces
- Basement Level 3: 23 spaces

5.2 Parking Allocation

The parking allocation below takes in to account the following items:

- All one and two bedroom dwellings to be allocated one car space
- All three bedroom dwellings to be allocated two car spaces
- A minimum of 33 spaces associated with the supermarket / liquor and café (staff) components
- Two disabled spaces to be available for use by supermarket, liquor of cafe.
- One car share space (resident use only)

The car parking is proposed to be allocated as follows:

- 6 x one-bedroom dwellings: 6 spaces
- 36 x two-bedroom dwellings: 36 spaces
- 24 x three and four bedroom dwellings: 48 spaces
- Supermarket / Liquor / Café: 33 spaces
- Disabled Parking: 2 spaces
- Car Share: 1 space
- Total: 126 spaces

5.3 Security / Access Control

The car park entrance is unsecured for supermarket / liquor parking. Security gates are proposed on basement level 2 towards the resident parking areas.

Access is proposed via a security gate with remote control access for residents. Given that the gate is located at the end of the car park, stationary vehicles (entering) behind the gate are not expected to impact on the operation of the car park. Indeed, service rates for security gates are typically around 180 vehicles per hour which comfortable exceeds the residential traffic generated by the residential component of the development. This also equates to an average delay at the gate for entering vehicles of around 20 seconds.

A car parking management plan can detail further information on the operation of the car park, including signage, linemarking, parking allocation, and security / access control.

6. Bicycle Parking

6.1 Statutory Bicycle Parking Assessment

Statutory requirements for the provision of bicycle parking are set out in Clause 52.34 of the Yarra Planning Scheme. Based on this, the statutory requirements for the provision of bicycle facilities for the development proposal are set out in Table 6.1 below.

Table 6.1: Statutory Bicycle Parking Requirements

Description	Component	Size (Total Area)	Statutory Parking Rate	Statutory Bicycle Parking Requirement
Supermarket, Liquor and Cafe	Staff	5,064sqm	1 space per 600 sqm (if more than 1000sqm)	8 spaces
	Customer		1 space per 500 sqm (if more than 1000sqm)	10 spaces
Dwellings	Resident	66 dwellings	1 space per 5 dwellings	13 spaces
	Visitor		1 space for every 10 dwellings	7 spaces
		Total		38 spaces

Table 6.1 indicates that the proposal has a statutory bicycle parking requirement of 38 bicycle spaces.

In this instance, the proposed on-site bicycle parking provision of 138 bicycle spaces exceeds the statutory requirement for residents, visitors and staff. 30 bicycle parking spaces (15 hoops) are proposed within the public realm along Best Street which can be used by Supermarket customers.

6.2 Associated Facilities

In addition to the requirement for bicycle parking, Clause 52.34-3 of the Yarra Planning Scheme requires 1 shower for the first 5 employee bicycle parking spaces and 1 shower for each subsequent 10 employee bicycle parking spaces (if 5 or more employee bicycle parking spaces are required).

Application of the above rates to the statutory employee bicycle parking requirement of 8 bicycle spaces indicates that the proposal also generates a statutory requirement of at least one change room/shower. The plans show an end of trip facilities area (to be detailed) with suitable space provided for lockers, showers and change room which would satisfy the statutory requirement.

7. Site Layout Design

The site provides 3 basement levels of car parking with direct access via Scotchmer as shown in plans prepared by JCB Architects.

7.1 Design Standards

The proposed parking layout is designed in accordance to dimensional requirements set out within the Yarra Planning Scheme and AS/NZ 2890.1:2004 (Australian and New Zealand Standard for Off-Street Car Parking), noting the following specifics:

- Car spaces are typically deigned as 2.6m wide x 4.9m long, accessed from a 6.4m aisle or consistent with the space width to aisle ratios required by the standards.
- Car spaces adjacent to walls or obstructions have been widened by a minimum of 300mm.
- Dead end aisle extensions are provided where required to assist with car space accessibility.
- Columns are located within the required design envelope to allow for satisfactory access and door openings.
- The first section of the entrance ramp to the on-site car park is relatively flat (max grade of 1:10) with all subsequent gradients and transitions on all ramps within the car park complying to the requirements.
- A pedestrian sight triangle is provided on the departure side of the site access across the access to the adjacent loading dock. A splay cannot be provided on the heritage wall for the loading vehicle exit (west side only), however the additional width and splay on the east side is a vast improvement over existing conditions.
- A minimum height of 2.2m is provided within the car park and 2.5m within the entrance ramp, loading areas and above the disabled space and adjacent shared area.
- The bicycle spaces are to be designed in accordance with the Bicycle Handbook of Victoria.
- A signage and line marking plan is expected to be undertaken during the design detail phase to assist with delineation of the car park and display the variation of parking.

In summary, the car park is expected to operate in a safe and efficient manner with all vehicles able to enter and exit the site in a forward direction. The car park access connection to Scotchmer Street is proposed to be located in-between St Georges Road and Egremont Street to provide adequate separation. Yarra City Council Engineers have offered in-principle to support to the location of the crossover, noting that the adjacent electricity pole is proposed to be relocated to the east.

7.2 Other Considerations

Staff Parking

The existing site does not provide any on-site car parking, but rather parking for customers and staff is provided on-street along Best Street and within surrounding streets. The proposal provides staff car parking on-site. It is considered that a portion of existing staff parking currently utilising on-street spaces will be relocated to the new basement which will create additional spaces in the precinct for customers to the site and surrounds.

Disabled Parking

Two (2) disabled parking spaces are proposed to be provided within the on-site car parking areas designed in accordance with the relevant Australian Standard.

Bicycle Parking

As outlined in Section 6 of the report, the development proposes to provide 87 bicycle parking spaces of which are provided securely for residential use and staff.

New Right Of Way Alignment

The existing Right Of Way (ROW) that runs parallel to Best Street and Egremont Street is proposed to be re-aligned at its northern end to connect to Egremont Street. The existing ROW which measures approximately 3m in width is proposed to intersect a new east-west alignment measuring 6m in width.

The redirected ROW provides benefits to existing residential users as it will be designed to provide a passing opportunity (in its east-west alignment), minimise conflict and improve sight lines for exiting vehicles to Egremont Street. The 90 bend in the ROW will be designed to accommodate satisfactory vehicle access with a convex mirror proposed to improve the line of sight from the change of direction.

The ROW is to be narrowed in sections with landscaping, noting the additional width to the south creates pedestrian visibility to Egremont Street which is an improvement over existing condition. In addition, the existing potential for conflict between ROW vehicles (entering and exiting at the same time) is removed at Scotchmer Street which contains higher traffic and pedestrian volumes than Egremont Street.

The traffic volumes within the existing ROW are very low (in the order of 1-4 movements within any peak hour based on Council Tube Count Data obtained in December 2017 and February 2018 attached to Appendix A) given the nature of the lane and restricted access to a number of narrow properties. These volumes may include some loading activity associated with the site, however in volume can be easily absorbed within Egremont Street.

Swept path analysis is provided in Appendix B which indicates satisfactory access for a B99 vehicle to negotiate the realigned ROW with the ability for the passing of vehicles.

8. Loading Facilities

8.1 Preamble

The majority of existing site loading activity by semi-trailers, rigid vehicles and vans are undertaken in the existing ROW to the immediate west of the site and adjacent to the existing loading dock (north-west corner of the site) off Scotchmer Street.

Vehicles typically reverse into the ROW from Scotchmer Street. The Council approved vehicle delivery route to the site for larger vehicles is via Birkenhead Street from Park Street, Brunswick Street (N) and Holden Street. All loading movements are strictly supervised by the site management.

Loading Zones (on-street) have recently been implemented by Council on the south side of Scotchmer Street to support loading requirements of business in the area.

8.2 Site Loading Numbers

The site currently generates loading activity predominantly on weekdays from Monday to Friday with some deliveries on Saturday. Based on log information provided, the site generates on average 54 deliveries per day with 60% of these deliveries being from light commercial vehicles (vans). Deliveries typically occur in the early morning periods to the afternoon.

The frequency of deliveries is expected to be similar to existing conditions. It is noted that although the supermarket area is proposed to increase, additional stock will be obtained from the same delivery.

The largest vehicle to access the site is currently a 17m long articulated vehicle. This is proposed to be changed to a varying articulated fleet with sizes ranging from 14m – 16m.

In light of decreasing the vehicle sizes to the site, it is understood that Piedimonte is currently reviewing the types of vehicles to service with the contractors. As such, it is expected to increase the small deliveries (ie vans) to the site up to 70%. These vehicles will utilise the on-site loading area within basement 1 which leaves a maximum 30% of vehicles to access the loading off Scotchmer Street.

8.3 Statutory Requirements

Clause 65 of the Planning Scheme outlines a number of decision guidelines the responsible authority must consider whether the proposal will produce acceptable outcomes relating to (amongst others), "*...the adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.*"

8.4 Loading Bay Layout

The site proposes two loading areas, including a ground floor loading bay via new ownership of the existing ROW and the creation of a loading area within the basement 1 level. This is the desired location to allow for sufficient access and separation between the loading area and the Best Street / Scotchmer Street intersection.

The proposed loading area is at least 4.0m wide x 16.4m long with 4.5m height clearance to accommodate the semi-trailer on-site without impacting on the pedestrian movements across the loading bay on Scotchmer Street. Additional length is proposed at the rear of the truck for staff pedestrian access to/from the goods lift.

A swept path assessment is provided in Appendix B showing accessibility into the loading dock to/from Scotchmer Street. The delivery of the articulated vehicle is to reverse into the loading dock from Scotchmer

Street (via Birkenhead Street) as per existing conditions and supervised by site managers. The vehicle then leaves to the east via Scotchmer Street to St Georges Road (north).

The basement 1 loading area is for the delivery via vans or vehicles with lower height clearance requirements (less than 2.5m height). The loading bays are marked as a minimum of 3.6m wide and 7m long. The swept path assessment in Appendix B shows that satisfactory access can be achieved for the design in and out of the loading areas for vans.

8.5 General Loading Practices

The development proposes an on-site loading bay which is expected to remove 70% of the existing loading from Scotchmer Street / ROW. This is a vast improvement over existing conditions where trucks and vans temporarily restrict access to the ROW and utilise Scotchmer Street loading bays. In addition, this is also an improvement to the previous scheme as it removes most of the loading from the ground level (off Scotchmer Street) to the basement level (ie. reduce conflict and noise).

Loading arrangements of the supermarket are expected to be managed appropriately for efficient use and to minimise overlap times within the basement or ground level loading areas. This is consistent with the existing loading arrangements for the site.

The proposed loading arrangements are considered acceptable.

Notwithstanding, it is recommended that a loading management plan be prepared for the site to detail the following (but not limited to):

- Signage and line-marking at the site access and loading areas
- Traffic management at the basement level
- Vehicle types and sizes
- Frequency of deliveries
- Times and days of delivery, including any restrictions
- Supervision by staff
- Pedestrian safety

8.6 Waste Collection

Waste is proposed to be collected from within the basement. Waste collection will be undertaken in accordance with the waste management plan accompanying the application. Small trucks (6.4m) are expected to access the loading area within a height clearance less than 2.5m in height. The swept path movement of the waste collection vehicle is shown in Appendix B.

9. Traffic Assessment

9.1 Generation

Residential

The traffic generation characteristics are influenced by the site location, local conveniences, public transport availability, parking provision and scale of development. Guidance on the traffic generating characteristics for the proposed residential dwellings has been sought from several sources including the RTANSW, surveys of a similar site, and neighbouring development applications. The RTA 'Guide to Traffic Generating Developments' estimates for high-density residential developments ranging from 0.24 to 0.29 movements per dwelling for sites located in metropolitan regional to sub-regional centres.

Adopting the upper limit (rounded to 0.3 movements per dwelling), this equates to a peak hour traffic generation for the dwellings in the order of 20 vehicles per hour with up to 200 vehicles over an entire day.

Supermarket and Liquor

During peak periods, the site is expected to generate linked trips between the supermarket and liquor land uses, as such the traffic generated by the liquor has been discounted from the PM peak period. This is consistent with larger mixed-use commercial developments. In addition, the traffic activity associated with supermarkets during the AM peak period (8-9am) is relatively low with liquor typically opening after the morning peak period.

Traffic generation estimates for the proposed supermarket component have been sourced from our survey database of similar uses in similar locations. On this basis, a rate of 10 vehicle movements per 100 sqm LFA is applicable to the critical PM peak hour period.

This rate equates to 103 vehicles movements in the PM peak hour based on the additional supermarket floor area proposed of (1,029sqm). On a turnover rate per car space (liquor and supermarket spaces), this equates to 3 movements per space in any peak period which is considered typical of similar retail car space turnover.

Notwithstanding, given the site's location to 'at your doorstep' public transport services, residential walk up catchment area and abundance of bicycle parking the traffic generated is expected to be lower. For conservative purposes, the above volume has been adopted for analysis.

9.2 Distribution

The directional distribution and assignment of traffic generated by the proposed development will be influenced by several factors including the road network layout and access to key arterial roads. Based on the existing distribution of traffic observed during the peak hours out of Best Street, the following distribution has been assumed:

- Scotchmer Street (east) 50%
- Scotchmer Street (west) 50%

9.3 External Traffic Impacts

Traffic generation is made up of several trip characteristics including 'Primary Trips', 'Link-diverted Trips' and 'Non-link-diverted Trips'. Primary trips and link-diverted trips involve a vehicle either making a special trip or a modification of the route to an existing trip. Non-link-diverted trips, correspond to those trips which do not involve a diversion from the route that would otherwise have been taken, or in other words are trips generated by

passing traffic. As such, it is only primary trips and link-diverted trips which impact upon the external road network with non-link-diverted trips already present on the road network.

Given the above, a portion of the anticipated peak hour volumes generated by the supermarket portion of the development are already contained within the road network. Indeed, this volume could be as high as 50% during the peak periods.

Considering the above, against the existing traffic volumes surrounding the site, the additional traffic generated by the proposal (including the traffic generated by the residential component of the development) development could not be expected to compromise the safety or function of the surrounding road network.

Moreover, the use of Scotchmer Street by vehicles accessing mixed land uses which abut them is entirely appropriate and consistent with their functional role in the road network. Indeed, Scotchmer Street is expected to continue to function as a Connector Street Level 2 with volumes in the order of 7,000 vehicles per day. Indeed, such streets near activity areas, car park access points and arterial roads can function satisfactory with traffic volumes above the typical thresholds.

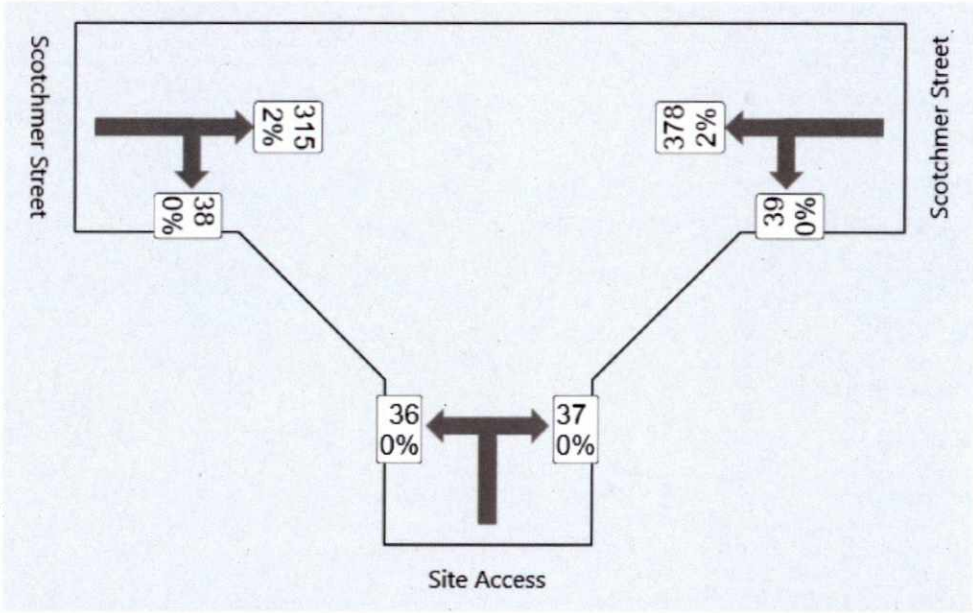
The traffic volumes within the existing ROW are very low (and range from 1-4 movements in any peak hour) with any redirect volumes able to be easily absorbed within Egremont Street and remain to be within the function and role of a local access street.

9.4 Site Access

The operation of the proposed site access with Scotchmer Street been assessed using SIDRA, a computer based modelling package which calculates intersection performance. The commonly used measure of intersection performance is referred to as the Degree of Saturation (DOS). The DOS represents the flow-to-capacity ratio for the most critical movement on each leg of the intersection. For un-signalised intersections, a DOS of around 0.9 has been typically considered the 'ideal' limit, beyond which queues and delays increase disproportionately.

Figure 9.1 presents the critical PM peak hour turning movement volumes at the proposed site access with Scotchmer Street utilised in the intersection assessment. The peak hour traffic volumes at the adjoining intersections are shown in Appendix C. The site traffic volumes in the AM peak period are significantly less (only 30% of the trips made in the PM peak period, 40 trips) and those associated with the residential component of the development (ie 20 vehicles trips), totalling 60 movements in the AM peak period.

Figure 9.1: PM Peak Hour Traffic Volumes



* % represent heavy vehicle portion of movement volume

Table 9.1 presents a summary of the existing operation of the intersection of Scotchmer Street and the site access, with full results presented in Appendix D of this report.

Table 9.1: Scotchmer Street / Site Access Intersection – Proposed Operating Conditions (PM Peak)

Approach	Key Performance		
	DOS	Average Delay	95th %ile Queue
Site Access	0.11	12.2 sec	3m
Scotchmer Street (East)	0.22	0.8 sec	-
Scotchmer Street (West)	0.22	3.4 sec	12m

DOS – Degree of Saturation, # - Intersection DOS

Table 9.1 indicates that the intersection of Scotchmer Street and the site access will operate well with an excellent level of service and minimal queues and delays on all approaches. Specifically, the queue on the Site Access approach indicates that the proposed access ramp has been designed with adequate queuing area to accommodate the anticipated 1 vehicle queue.

9.5 Scotchmer Street / St Georges Road

The traffic volumes at the intersection of Scotchmer Street / St Georges Road are shown in Appendix C. Table 9.2 presents a summary of the existing and future operation of the intersection of Scotchmer Street and St Georges Road, with full results presented in Appendix D of this report.

The Table indicates that the intersection of Scotchmer Street and St Georges Road will continue to operate well with a satisfactory level of service and minimal queues and delays on all approaches. Specifically, the queue on the west approach is expected to increase by 3m and not impact on the location of the site access and the ability for vehicles to turn right out of the site. As such, the queue length may extend 1-2 vehicles past the Best Street intersection as per existing conditions.

Table 9.2: Scotchmer Street / St Georges Rd Intersection – Operating Conditions (PM Peak)

Approach	Key Performance		
	DOS	Average Delay	95th %ile Queue
Existing Conditions (based on a cycle time of 60 sec)			
St Georges Road (South)	0.43	12 sec	54m
Scotchmer Street (East)	0.67	24 sec	61m
St Georges Road (North)	0.65	14 sec	83m
Scotchmer Street (West)	0.52	21 sec	47m
Proposed Conditions (based on a cycle time of 60 sec)			
St Georges Road (South)	0.44	13 sec	56m
Scotchmer Street (East)	0.68	24 sec	62m
St Georges Road (North)	0.74	16 sec	94m
Scotchmer Street (West)	0.56	22 sec	50m

DOS – Degree of Saturation, # - Intersection DOS

10. Review of Proposed Options

Table 10.1 summarises the key issues in the previous scheme considering the current proposal.

Table 10.1: Summary of Key Issues

Issue	Comment
Loading Arrangements	A loading bay is proposed within basement level 1. This loading area is to accommodate approximately 70% of the site's loading activity. The acquisition of the ROW (noting the existing lane will be realigned) will accommodate a new loading area for larger vehicles (ie articulated 14m – 16m long trucks) given the greater height clearance and turning circle area required. This is a vast improvement over existing conditions where trucks and vans temporarily restrict access to the ROW and utilise Scotchmer Street loading bays. In addition, this is also an improvement to the previous scheme as it removes most of the loading from the ground level (off Scotchmer Street) to the basement level (ie. reduce conflict and noise). The loading dock location provides good separation between the surrounding streets (Egremont Street and Best Street) and the signalised intersection of Scotchmer Street / St Georges Road to limit impact and conflict with vehicles.
Site Access Location	The site access is located in between Egremont Street and Best Street to create separation between intersections for improved safety. The post development traffic analysis confirms that adequate capacity exists at the site access and signalised intersection of Scotchmer Street / St Georges Road. The vehicle queue length along Scotchmer Street is not expected to queue past the site access which will enable vehicles to clear the site to the east when required.
Redirected ROW	The existing ROW is proposed to be realigned to Egremont Street. The redirected ROW provides benefits to existing residential users as it will be designed to provide a passing opportunity (in its east-west alignment), minimise conflict and improve sight lines for exiting vehicles to Egremont Street. The 90 bend in the ROW will be designed to accommodate satisfactory vehicle access with the provision of convex mirrors for improved sight lines. The ROW currently services limited local traffic volumes. Egremont Street can absorb the traffic generated by the realigned ROW. Entering vehicles to the ROW will need to do so from the intersection of Egremont Street / Tranmere Street as Egremont Street accommodates exit movements only to Scotchmer Street. This arrangement is considered satisfactory.
Car Parking Provision	The proposed accommodates the full statutory requirements for residents and parking for the supermarket and liquor consistent with empirical rates. It is noted that the site will have a surplus of parking which is expected to free up some street car parking.

Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

i The proposed development generates a statutory parking requirement of 324 spaces.

ii The proposed parking provision of 126 spaces is expected to satisfactorily accommodate the 90 spaces allocated to residents and the demand likely to be generated by the additional supermarket / liquor area of 33 spaces, with 2 disabled spaces and one car share space totalling 126 spaces.

iii The proposed parking layout is consistent with the dimensional requirements as set out in the Yarra Planning Scheme and/or Australian/New Zealand Standards for Off Street Car Parking (AS/NZS2890.1:2004).

iv It is proposed to provide 138 bicycle parking spaces on-site. The provision for bicycle facilities exceeds the requirements of Clause 52.34 of the Yarra Planning Scheme.

v The provision of a formal loading by at basement level is expected to accommodate up to 70% of the site loading requirements. The ground floor loading bay is to accommodate larger vehicles with greater height clearance turning circle requirements. This a vast improvement over existing conditions where all loading activity is undertaken in a public lane.

vi Larger vehicles are expected to reverse into the site from Scotchmer Street as per the existing arrangements. It is noted that the vehicle sizes are to decrease to 14m-16m as per advice from the fleet operators which offer improved conditions to the road network.

vii The existing ROW is proposed to be realigned to Egremont Street. The redirected ROW provides benefits to existing residential users as it will be designed to provide a passing opportunity (in its east-west alignment), minimise conflict and improve sight lines for exiting vehicles to Egremont Street. The 90 bend in the ROW will be designed to accommodate satisfactory vehicle access with the provision of convex mirrors for improved sight lines.

viii The site access is expected to generate up to 123 vehicle movements (in and out combined) in the critical PM peak period.

ix There is adequate capacity in the surrounding road network to cater for the traffic generated by the proposal, noting that a number of trips within the peak hour periods are considered to be already present on the road network (linked trips).

x The intersections of the site access / Scotchmer Street and St Georges Road / Scotchmer Street are expected to operate under satisfactory conditions.

Appendix A

Surveys of Existing Traffic Volumes