

## **Appendix F**

Traffic Engineering Assessment (*Traffix Group*)



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# PROPOSED RESIDENTIAL DEVELOPMENT

**ALVINA STREET, OAKLEIGH SOUTH**

## *Traffic Engineering Assessment*

Prepared for

**POINT POLARIS**

**MAY, 2016**

**OUR REFERENCE: 17657R9767C**

# PROPOSED RESIDENTIAL DEVELOPMENT

ALVINA STREET, OAKLEIGH SOUTH

*Traffic Engineering Assessment*

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<b>Released By:</b>	 <i>SIGNED</i>	19 <sup>th</sup> May 2016 <i>DATE</i>
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## 1 INTRODUCTION

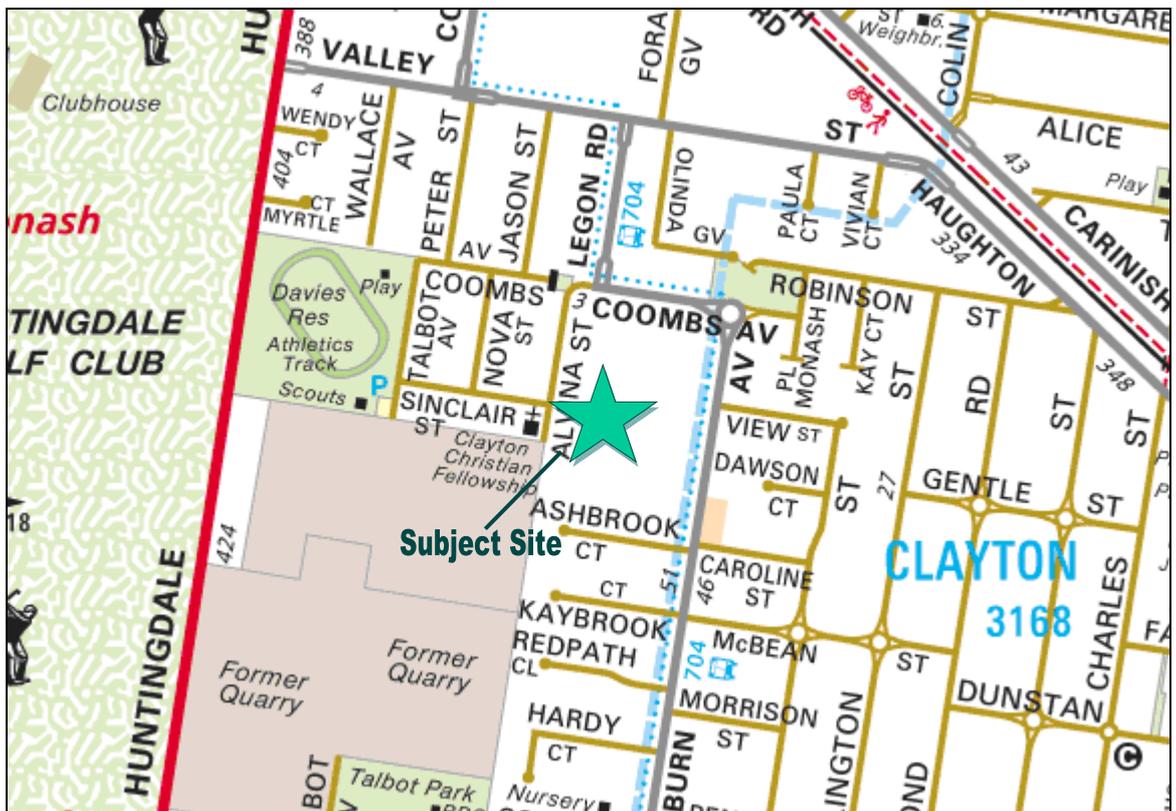
Traffix Group has been engaged by Point Polaris to undertake traffic engineering assessments and to prepare a report for the proposed residential development located at 10 Alvina Street in Oakleigh South.

This report provides a traffic engineering assessment of the proposal, with particular attention to car parking and traffic generation and impacts.

## 2 EXISTING CONDITIONS

### 2.1 Subject Site Locality

The subject site is located on the east side of Alvina Street in Oakleigh South as shown in Figure 1 below.



Reproduced with permission from Melway Publishing Pty Ltd.

Figure 1: Locality Plan

The subject site has a site area of 2.039 hectares and has frontages to Alvina Street and Scotsburn Avenue of approximately 86 metres and 3.4 metres respectively.

The site is currently vacant and was formerly occupied by Clayton West Primary School. Access to the site is currently provided via a crossover to Alvina Street, located at the northwest corner of the site. Pedestrian access only is provided via the Scotsburn Avenue frontage.

An aerial view of the site is shown in Figure 2.



*Figure 2: Aerial View*



*Figure 3: Subject Site (Alvina Street Frontage)*



*Figure 4: Scotsburn Avenue Frontage*

## 2.2 Land Use

The subject site is zoned General Residential Zone – Schedule 1 (GRZ1) as indicated in Figure 5 below.

Surrounding land uses are predominantly residential. Notable exceptions include:

- a Special Use Zone (SUZ2) located to the southwest of the site, which was a former quarry,
- Davies Reserve (athletics track) to the west of the site,
- Huntingdale Golf Course located further to the west (on the west side of Huntingdale Road), and
- a small pocket of Mixed Use Zone (MUZ) land located to the southeast of the site on Scotsburn Avenue, comprising seven commercial tenancies with 90-degree parking on the Scotsburn Avenue frontage.

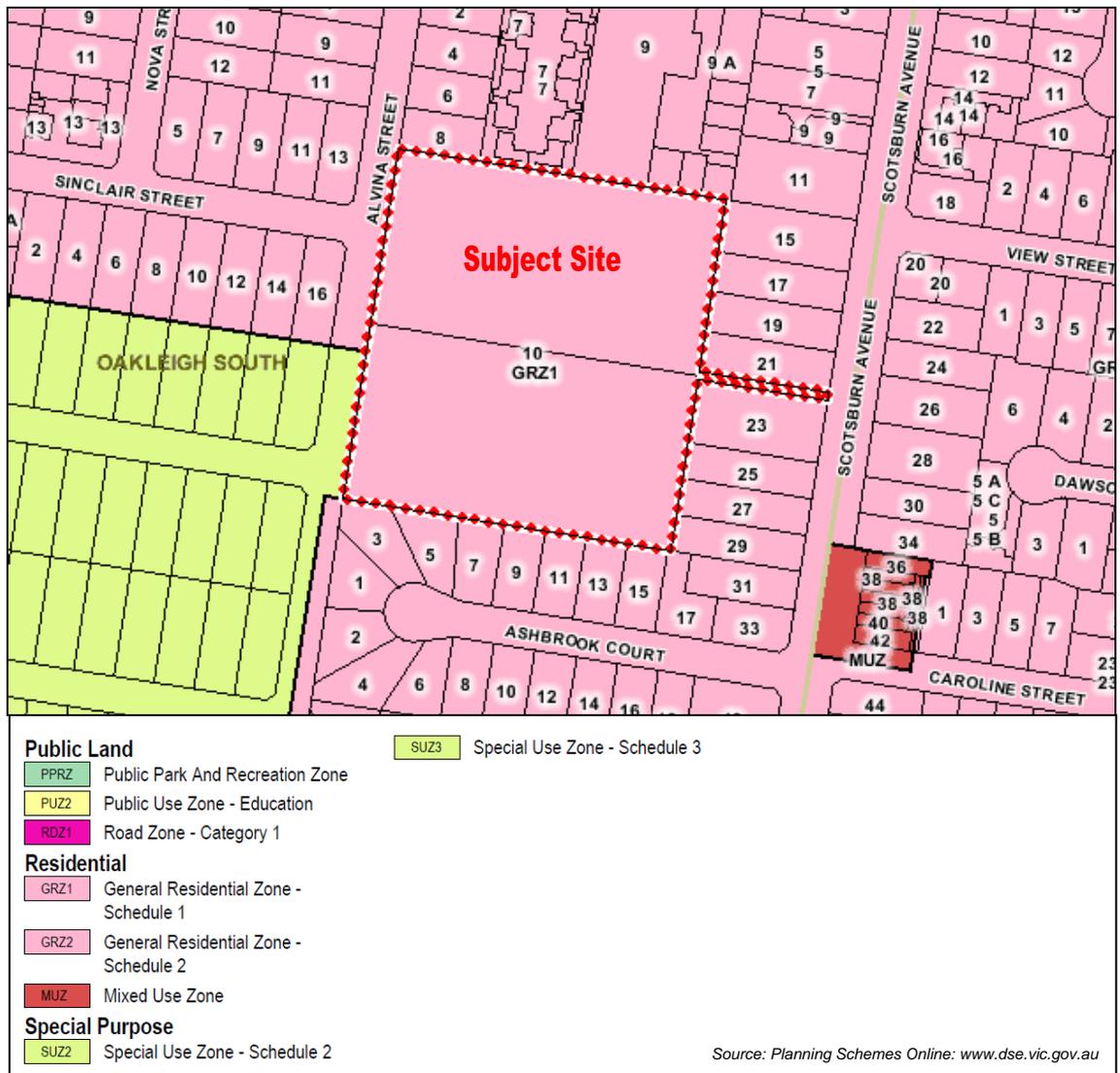


Figure 5: Land Use Zoning

The site is subject to the Development Plan Overlay - Schedule 5 of the Monash Planning Scheme. The scheme has the following traffic related information:

“A traffic management report and car parking plan which includes:

- Identification of roads, pedestrians, cyclists and vehicle access locations, including parking areas, both internal and external of the site.
- Traffic management measures, where required.
- Location and linkages to public transport.
- Car parking rates for all users, including visitor parking.
- Provision for bicycle facilities.”

These issues have been addressed in this report.

## 2.3 Road Network

### Alvina Street

Alvina Street is a local dead-end access street which extends approximately 200m south from Coombs Avenue and terminates at the northern boundary of the former quarry.

The northern section of Alvina Street is constructed with a 6.5m (approx.) carriageway with barrier kerb and footpaths on both sides, within a 15 metre road reservation.

The dead-end section south of Sinclair Street does not have kerb or channel, has not been maintained and is mostly gravel.

The default built-up area speed limit of 50 km/h applies to Alvina Street.



Figure 6: Alvina Street Looking North



Figure 7: Alvina Street Looking South

### Coombs Avenue

Coombs Avenue is a local council road extending approximately 250 metres in an east-west direction between Monash Place and Legon Road.

In the vicinity of the subject site, Coombs Avenue is constructed with a 7.6 metre (approx.) carriageway carrying one traffic lane and a parallel parking lane in each direction with footpaths on both sides, within a 15 metre road reservation.

The default built-up area speed limit of 50 km/h applies to Coombs Avenue.



*Figure 8: Coombs Avenue Looking East*



*Figure 9: Coombs Avenue Looking West*

## 2.4 Public Transport

The following public transport services operate nearby to the site:

- Bus route 704 operates along Scotsburn Avenue past the site and provides a connection between East Clayton and Oakleigh.
- Bus route 703 operates along Centre Road approximately 600 metres south of the site and provides a connection between Middle Brighton Railway Station and Blackburn Railway Station via Bentleigh, Clayton and Monash University.
- Bus route 733 operates along Centre Road approximately 600 metres south of the site and provides a connection between Oakleigh Railway Station and Box Hill Railway Station via Clayton, Monash University and Mt Waverley.
- Bus Route 631 operates along Centre Road east of Springs Road, approximately 830 metres walking distance to the southeast of the site and provides a connection between Southland Shopping Centre and Waverley Gardens Shopping Centre via Clayton and Monash University.
- Clayton Railway Station is approximately 1.3km walking distance to the east of the site, on the Cranbourne and Pakenham railway lines.

Figure 8 below shows the public transport services in proximity to the subject site.

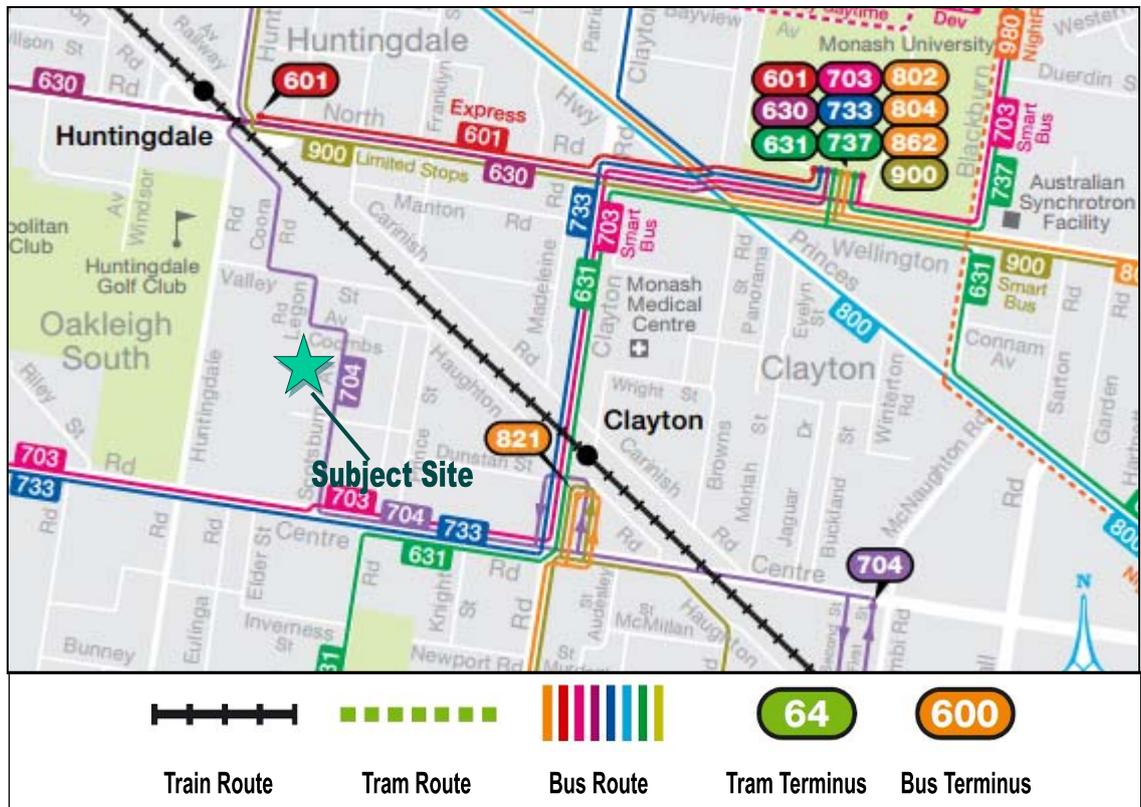


Figure 10: Public Transport Map

## 2.5 Existing Traffic Conditions

Traffix Group undertook AM and PM peak hour turning movement counts at the intersection of Alvina Street/Legon Road/Coombs Avenue as follows:

- Thursday 18<sup>th</sup> September 2014 between 7:30am and 9:30am, and
- Tuesday 16<sup>th</sup> September 2014 between 4:30pm and 6:30pm.

Figure 9 below shows the surveyed AM peak hour (7:45am – 8:45am) and PM peak hour (4:15pm – 5:15pm) intersection volumes.

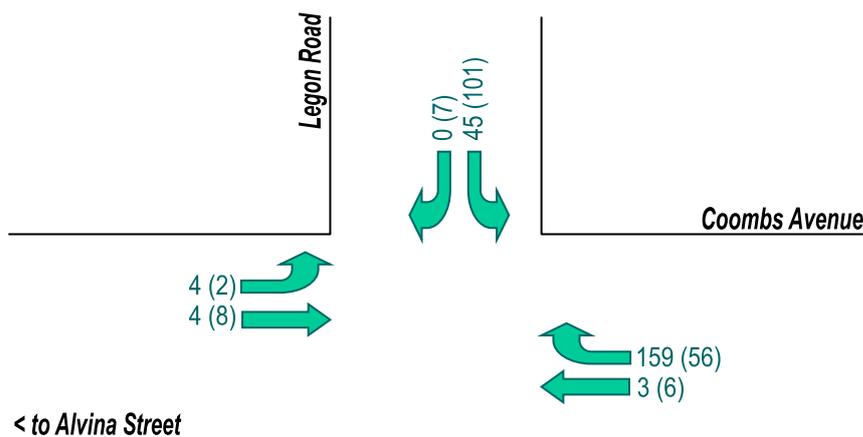


Figure 11: AM (PM) Peak Hour Turning Movement Counts – Coombs Avenue/Legon Road Intersection

Traffix Survey undertook 7-day tube counts on Alvina Street, Legon Road and Coombs Avenue in June 2009. The results are summarised in Table 1 below.

Table 1: Traffic Count Data – June 2009

	Alvina Street	Legon Road	Coombs Avenue
24-hour Weekday Average	136 vpd	1,818 vpd	1,851 vpd
AM Peak	20 vph	219 vph	215 vph
PM Peak	20 vph	185 vph	183 vph
% Commercial Vehicles	2.3%	2.5%	2.4%

We note that during the September 2014 traffic counts, the two-way traffic volume on Coombs Avenue was 211 vph and 171 vph during the AM and PM peak hours, which are generally consistent with the 2009 data. This indicates negligible traffic growth in the area over this five year period.

Similarly, Legon Road experienced a slight reduction in traffic for the 2014 count compared to the 2009 count, with 208 vph during the AM peak and 166 vph during the PM peak.

We note that the 2009 counts identified the peak hours for Alvina Street in the middle of the day (11am-12noon and 12noon-1pm for the AM and PM peak hours respectively).

### 3 THE PROPOSAL

#### 3.1 Development Proposal

The proposal is for a residential development comprising of 88 townhouses, in accordance with the following schedule of uses:

**Table 2: Schedule of Uses**

Townhouse Type	No. of Bedrooms	No. of Car Spaces	No. of Dwellings
A	2 bedrooms	1 car space	1 unit
B	4 bedrooms	2 car spaces	1 unit
C	3 bedrooms	2 car spaces	17 units
D	4 bedrooms	2 car spaces	5 units
E	3 bed + study	2 car spaces	16 units
F	4 bedrooms	2 car spaces	1 unit
G	4 bedrooms	2 car spaces	1 unit
H	4 bedrooms	2 car spaces	14 units
K	3 bedrooms	2 car space	1 unit
M	4 bedrooms	2 car spaces	5 units
N	3 bedrooms	2 car spaces	3 units
P	3 bedrooms	2 car spaces	12 units
R	4 bedrooms	2 car spaces	5 units
S	4 bedrooms	2 car spaces	2 units
T	3 bedrooms	2 car spaces	3 units
V	2 bedrooms	1 car spaces	1 unit
<i>Visitor Parking</i>	-	<i>15 car spaces</i>	-
<b>TOTAL</b>		<b>189 car spaces</b>	<b>88 units</b>

Access is proposed via Alvina Street, with a 6m wide crossover. On the western boundary of the site, five townhouses take access via Alvina Street and all other townhouses take access via internal roads.

A total of 15 visitor parking spaces are provided throughout the site. An additional 7 vehicles can be accommodated on-street along the site's Alvina Street frontage.

A pedestrian path is proposed to be retained on the eastern side of the site, to provide access to Scotsburn Avenue.

A copy of the proposed development site plan is attached at Appendix A.

## 4 CAR PARKING

### 4.1 Statutory Car Parking Requirements

The Planning Scheme sets out the parking requirements for new developments under Clause 52.06. The purpose of Clause 52.06 is:

- *To ensure that car parking is provided in accordance with the State Planning Policy Framework and Local Planning Policy Framework.*
- *To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.*
- *To support sustainable transport alternatives to the motor car.*
- *To promote the efficient use of car parking spaces through the consolidation of car parking facilities.*
- *To ensure that car parking does not adversely affect the amenity of the locality.*
- *To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.*

The relevant Clause 52.06 car parking rates for residential dwellings are as follows:

- *1 car space to each one or two bedroom dwelling, plus*
- *2 car spaces to each three or more bedroom dwelling (with studies or studios that are separate rooms counted as a bedroom), plus*
- *1 visitor car spaces to every 5 dwellings for developments of 5 or more dwellings.*

The car parking requirements are set out in Table 3 below.

**Table 3: Statutory Clause 52.06 Car Parking Requirements**

Use	Size/Number	Rate	Requirement
Two Bedroom Dwellings	2 units	One space per dwelling	2 spaces
Three Bedroom Dwellings	86 units	Two spaces per dwelling	172 spaces
Visitors	(88 units)	One space per 5 dwellings	17 spaces <sup>1</sup>
<b>TOTAL</b>			<b>191 spaces</b>

*Note 1: Clause 52.06-5 specifies that where a car parking calculation results in a requirement that is not a whole number, the number of spaces should be rounded down to the nearest whole number.*

Table 2 indicates that the statutory car parking requirement for the development is 191 car spaces, including 174 spaces for residents and 17 spaces for residential visitors.

The proposed car parking provision of 189 car spaces meets the resident requirement and falls short of the visitor requirement by two (2) spaces.

## 4.2 Reducing the Requirement for Car Parking

Clause 52.06-6 allows for the statutory car parking requirement to be reduced (including to zero).

Practice Note 22 (June, 2012) specifies that the provisions draw a distinction between the assessment of likely demand for parking spaces, and whether it is appropriate to allow the supply of fewer spaces. These are two separate considerations, one technical while the other is more strategic. Different factors are taken into account in each consideration.

Accordingly, the applicant must satisfy the responsible authority that the provision of car parking is appropriate on the basis of a two-step process, which has regard to:

- *The car parking demand likely to be generated by the use.*
- *Whether it is appropriate to allow fewer spaces to be provided than the number likely to be generated by the site.*

An assessment of the appropriateness of reducing the car parking provision below the statutory requirement is set out below.

## 4.3 The Car Parking Demand Likely to be Generated by the Use

For the purposes of providing a conservative assessment, it is assumed that the peak parking demand will be in accordance with the statutory requirement.

The proposed on-site provision meets the resident parking requirement. The shortfall relates to two (2) visitor parking spaces.

Peak residential visitor parking demands typically occur during the evenings and on weekends.

## 4.4 Appropriateness of Providing Fewer Spaces than the Likely Demand

The second step in determining whether it is appropriate to reduce the statutory car parking rates is to consider whether it is appropriate to allow fewer spaces to be provided than the number likely to be generated by the site.

In this case, we believe that the proposed on-site parking provision will be adequate to accommodate the long-term (residential) parking demands generated by the site based on 2011 ABS Census data, and the on-site visitor parking provision of 15 spaces will be adequate to accommodate the site's visitor parking requirements at off-peak times.

We are of the opinion that there are grounds to support a waiver of two (2) short-term visitor parking spaces noting that this demand can be entirely accommodated along the site's frontage.

In particular, up to seven (7) on-street parking spaces can be accommodated on the site's Alvina Street frontage without impacting on the surrounding area.

Based on the decision factors of Clause 52.06-6, we are satisfied that the proposed level of car parking provision for this development is appropriate, and there will not be any adverse impacts on the amenity of the surrounding area as a result of the proposed minor shortfall of two visitor parking spaces.

## 4.5 Car Parking Layout

The proposed car parking layout has been checked against the design standards for car parking listed under Clause 52.06-8 and AS2890.1:2004, as presented in Table 4 below.

**Table 4: Clause 52.06-8 Car Parking Design Standards**

Design Standard	Comments
Accessways	<ul style="list-style-type: none"> <li>• Accessways are at least 5.5m wide allowing for two-way traffic flow at low speeds.</li> <li>• We recommend that a minimum height clearance of 2.1m in accordance with the requirements set out in Clause 52.06-8 is provided beneath overhead obstructions for the townhouse garages.</li> </ul>
Car parking spaces	<ul style="list-style-type: none"> <li>• Visitor parallel car spaces are shown as 6.3m long and 2.3m where the ends of the space are obstructed exceeding the requirements of the Australian Standard.</li> <li>• Garage dimensions are generally in accordance with Planning Scheme requirements. We note that: <ul style="list-style-type: none"> <li>– single garages are at least 6m long x 3.5m wide when measured inside the garage, meeting the Planning Scheme requirements;</li> <li>– double garages are at least 6m long x 5.5m wide when measured inside the garage, meeting the Planning Scheme requirements;</li> </ul> </li> <li>• Open air spaces provided in tandem to single garages are typically at least 5.4 metres long, which complies with Clause 52.06-8, providing a 4.9 metre long space with 0.5 metre offset (to the garage door) for tandem parking</li> <li>• The “Type C” dwellings have a tandem space which is 5 metres long. All of the “Type C” dwellings take access via a rear laneway which does not have a footpath. Any overhang will be minor, will be to a private road and will not impact on pedestrians. Furthermore the driveway is for a tandem space (for a second car) and it is unlikely that residents will have two large cars. Accordingly the smaller vehicle can be parked in the driveway. Also it would not be detrimental to the flow of traffic if a car were to overhang slightly onto the common land as the laneway will carry low volumes and is 7 metres wide (5.5 metres is sufficient for two vehicles to pass). As such we are satisfied that the proposed 5 metre long tandem car spaces for the “Type C” dwellings is appropriate.</li> </ul>

## 5 BICYCLE PARKING REQUIREMENTS

Statutory bicycle parking requirements are set out at Clause 52.34 of the Planning Scheme, as follows:

Dwellings:

- *For residents: in developments of four or more storeys, one space per 5 dwellings*
- *For visitors: in developments of four or more storeys, one space per 10 dwellings*

As this development is less than four storeys there is no statutory requirement to provide bicycle parking on site.

Given the nature of the development, informal bicycle parking can be provided via parking bicycles within garages or elsewhere on the properties.

## 6 ACCESS AND MOBILITY MANAGEMENT

Clause 56.06 of the Planning Scheme sets out access and mobility objectives and standards for residential subdivisions. The proposed roads within the site will be private roads under the control of an Owners' Corporation and will not be public Council roads. Accordingly, some objectives and standards of Clause 56.06 are not applicable to the proposed development plan.

### 6.1 Walking and Cycling Network

Pedestrian paths are proposed along one side of the internal access road, with the footpath provided on the western internal road to connect with Alvina Street. The proposed footpaths will facilitate pedestrian movements of residents and their visitors between Alvina Street and Scotsburn Avenue.

The internal access road will function as a low speed 'shared zone' and will be able to facilitate bicycle movements without the need for a dedicated bicycle path.

Connections to the broader pedestrian and bicycle networks will be facilitated via the existing infrastructure on Alvina Street and Scotsburn Avenue.

The Development Plan meets the objectives and standards of Clause 56.06-2 walking and cycling network.

### 6.2 Public Transport Network

The subject site is within walking distance of a bus stop on Bus Route 704 which provides a service between East Clayton and Oakleigh via Clayton and Huntingdale. The bus stop for this route is accessed via the pedestrian crossover to Scotsburn Avenue from the site and it approximately 50 metres walking distance from the site.

### 6.3 Road Network

The proposed internal access road has a carriageway width of 5.5m, which is akin to an 'Access Street – Level 1' under Clause 56.06-8 of the Planning Scheme. This road width is considered appropriate and will allow two-way traffic throughout the site.

The laneway in the south-west corner of the site has a reduced carriageway width of 4.5m which exceeds the minimum carriageway width requirement as specified in Clause 52.06 of the Planning Scheme. This width only allows for one direction of traffic at a time however given the small number of dwellings this lane services and its short length it is considered an appropriate arrangement.

While the 'verge' requirements of Clause 56.06-8 are not met, we understand that the proposed road network within the site will be private roads under the control of the Owners' Corporation and will not be public 'Council' roads. Accordingly, these requirements are not applicable. Furthermore, we understand that the proposed "road reservation" widths are adequate to meet the servicing needs of the development.

### 6.4 Traffic Management

Generally, traffic management devices to control traffic speed are only required on sections of road that exceed 240m in length. None of the proposed roads exceed this length and accordingly, the provision of traffic management devices (speed humps, slow points, etc.) is unnecessary.

## 7 TRAFFIC GENERATION & IMPACT

### 7.1 Traffic Generation – Residential

The RTA Guide to Traffic Generating Developments (2002) (RTA Guide) sets out traffic generation rates based on survey data collected in New South Wales for a range of land uses. This guide is referred to in the AustRoads Guide which is used by VicRoads, and is generally regarded as the standard for metropolitan development characteristics.

The RTA Guide sets out the following relevant traffic generation rates for medium density residential development:

#### Smaller Units (one and two bedrooms):

- *Daily vehicle trips = 4 – 5 per dwelling per day*
- *Weekday peak hour vehicle trips = 0.4 – 0.5 per dwelling per day*

#### Larger Units (three or more bedrooms)

- *Daily vehicle trips = 5 – 6.5 per dwelling per day*
- *Weekday peak hour vehicle trips = 0.5 – 0.65 per dwelling per day*

For the purpose of providing a conservative analysis, we have applied a rate of 5 vehicle trip-ends per dwelling per day for each of the two bedroom townhouse and a rate of 6.5 vehicle trip-ends per dwelling per day for each of the three and four bedroom townhouses, with 10% occurring during the road network peak hours.

This equates to a traffic generation rate of 569 vehicle trip-ends per day, with in the order of 57 vehicle trip-ends occurring during the road network peak hours.

This corresponds to one vehicle either entering or exiting the site every 63 seconds on average, during the peak hours (and less at other times).

### 7.2 Traffic Impacts

Trips generated by the proposed development will travel along Alvina Street and further along onto Coombs Avenue and Legon Road.

Based on the AM and PM peak hour survey undertaken at Coombs Avenue/Legon Road it is estimated that Coombs Avenue and Legon Road currently carry daily traffic volumes of 2,110 vehicles and 2,080 vehicles respectively. Based on the cross-section of Coombs Road and aerial photography of Legon Road both these roads have been designed to an 'Access Street – Level 2' standard under Clause 56.06-8. An 'Access Street – Level 2' has an environmental capacity of up 3,000vpd. Accordingly, both Coombs Road and Legon Road have sufficient spare capacity to accommodate the additional traffic from the subject site (noting that it would be distributed across both these roads and not concentrated onto one).

Based on its cross-section we would expect that Alvina Street is operating at a minimum 'Access Street – Level 1' standard under Clause 56.06-8 and therefore has

an environmental capacity of up to 2,000vpd. As it is currently carrying in the order of only 261 vehicles per day, there is ample spare capacity to accommodate the subject site's anticipated traffic.

We also note that the subject site was formerly a primary school, which would have generated more than 57 vehicle trip-ends during the peak hour and accordingly the proposed use is less intensive and is likely to generate less impact on the surrounding road network and intersections compared to the former use.

We are satisfied that the surrounding road network has adequate capacity to accommodate traffic generated by the site, that the proposed access arrangements are satisfactory and that there will be no detrimental impacts on traffic conditions in the surrounding area as a result of the development.

## 8 SERVICE & EMERGENCY VEHICLE ACCESS

We have checked access to, from and throughout the subject site for an 8.8 metre medium rigid vehicle. We are satisfied that the site is adequately accessible for service and emergency vehicles (including waste collection vehicles and fire trucks).

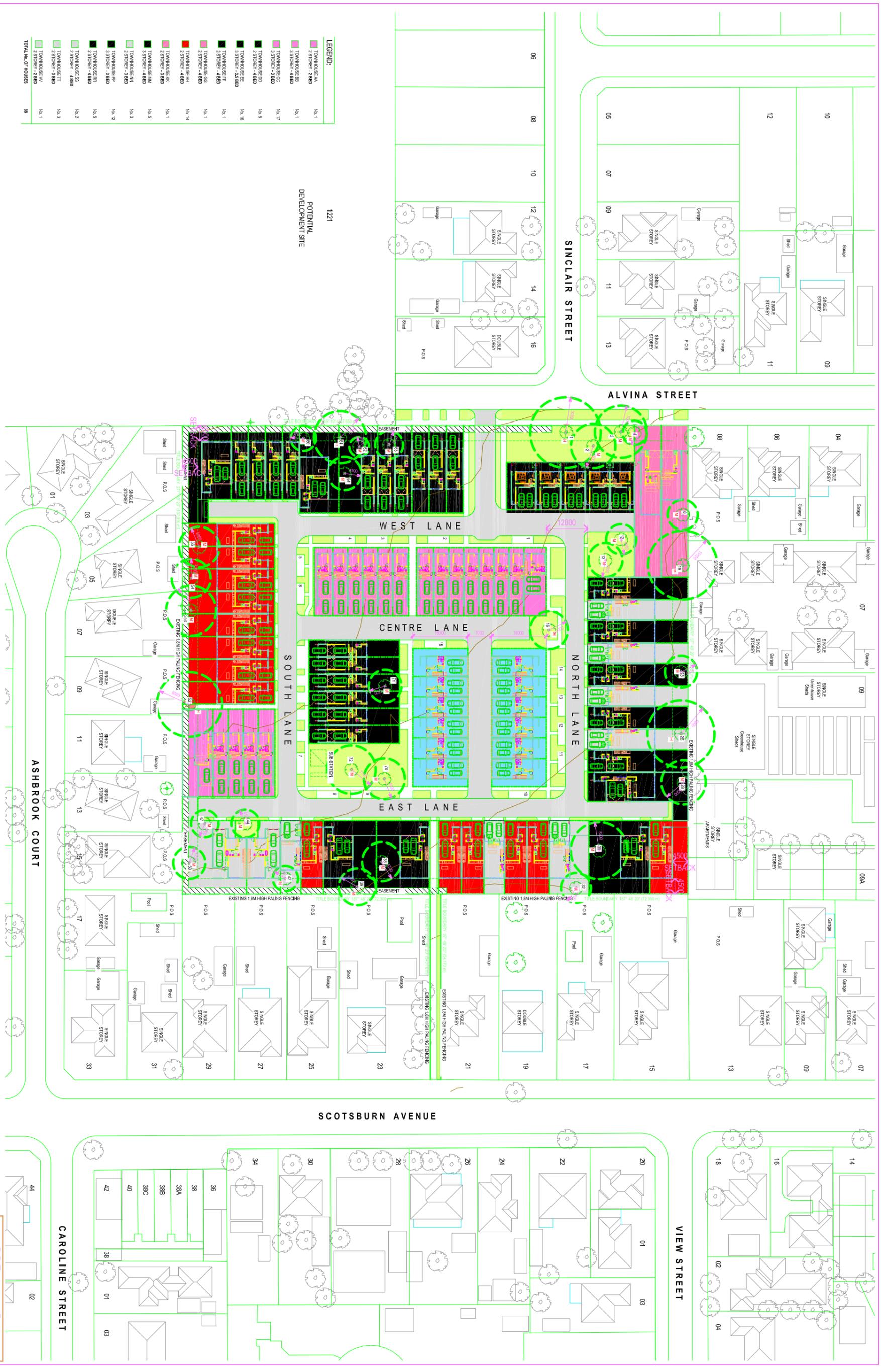
We understand that waste collection will be undertaken privately.

## 9 CONCLUSIONS

Having inspected the site, perused relevant documents and plans, provided design advice and undertaken an assessment of car parking and traffic generation and impacts, we are of the opinion that: -

- a) the proposed car parking provision meets the statutory requirements for residents and falls short of the visitor requirement by two spaces,
- b) there is adequate justification to support the minor shortfall in visitor parking provision having regard to the availability of parking on the site's Alvina Street frontage,
- c) the proposed level of car parking provision for this development is appropriate, and there will not be any adverse impacts on the amenity of the surrounding area as a result of the proposed minor shortfall of two visitor parking spaces,
- d) the proposed car parking layout and dimensions are in accordance with the statutory requirements and will work well,
- e) the site is adequately accessible for waste collection and emergency vehicles,
- f) traffic generated by the proposed development can be accommodated on the surrounding road network and intersections without any adverse impacts; and
- g) there are no traffic engineering reasons why a permit should not be granted for the proposed development located at 10 Alvina Street in Oakleigh South.





**LEGEND:**

TOWNHOUSE A 2 STOREY - 2880	No. 1
TOWNHOUSE B 3 STOREY - 4880	No. 1
TOWNHOUSE C 3 STOREY - 3880	No. 17
TOWNHOUSE D 2 STOREY - 4880	No. 5
TOWNHOUSE E 3 STOREY - 3880	No. 16
TOWNHOUSE F 2 STOREY - 4880	No. 1
TOWNHOUSE G 2 STOREY - 4880	No. 1
TOWNHOUSE H 2 STOREY - 4880	No. 14
TOWNHOUSE I 2 STOREY - 3880	No. 1
TOWNHOUSE J 3 STOREY - 4880	No. 5
TOWNHOUSE K 2 STOREY - 3880	No. 1
TOWNHOUSE L 3 STOREY - 4880	No. 5
TOWNHOUSE M 3 STOREY - 4880	No. 3
TOWNHOUSE N 2 STOREY - 3880	No. 3
TOWNHOUSE O 3 STOREY - 3880	No. 12
TOWNHOUSE P 2 STOREY - 3880	No. 5
TOWNHOUSE Q 2 STOREY - 4880	No. 2
TOWNHOUSE R 2 STOREY - 4880	No. 3
TOWNHOUSE S 2 STOREY - 4880	No. 1
TOWNHOUSE V 2 STOREY - 2880	No. 1
<b>TOTAL NO. OF HOUSES</b>	<b>88</b>

POTENTIAL DEVELOPMENT SITE

1221

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**REVISIONS**

No.	Date	Description	By
P1	17/04/16	MASTERPLAN UPDATE	IA
P2	12/04/16	MASTERPLAN UPDATE	IA
P3	14/04/16	MASTERPLAN UPDATE	IA
P4	22/04/16	MASTERPLAN UPDATE	IA
P5	17/05/16	MASTERPLAN UPDATE	IA

**PROJECT TITLE**  
RESIDENTIAL DEVELOPMENT  
1221 ASHBROOK COURT  
OAKLEIGH SOUTH, VIC

**DRAWING TITLE**  
PROPOSED SITE PLAN - GROUND LEVEL

**SCALE:** 1:1000  
1:1000  
1:1000  
1:1000

**PROJECT No.:** 214174  
**ENGR:** 1/151 STREET STREET  
**SOUTH:** SOUTH  
**AUS:** AUSTRALIA  
**DATE:** 11/04/16  
**REV:** IP5

**VEB:** 214174  
**TEL:** 1300 730 730  
**WWW:** rothlowman.com.au  
**ACN:** 005 783 997

**PRELIMINARY**