

Traffix Group

Traffic Engineering Assessment

Proposed Residential Development
52 Golf Road, Oakleigh South

Golf Road Project Development Pty Ltd

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G25977R-05B

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1. Introduction

Traffic Group has been engaged by Golf Road Project Development Pty Ltd to prepare a traffic engineering report for a proposed residential development at 52 Golf Road, Oakleigh South.

This report provides a detailed traffic engineering assessment of the parking and traffic issues associated with the proposed development.

2. Proposal

The proposal is for a medium density residential development comprising 83 townhouses. A development summary is provided in the table below.

Table 1: Development Summary

Use	No.	Car Parking Allocation	Resultant Car Parking Rate
Two-bedroom townhouse	22	22	1 car space per dwelling
Three-bedroom townhouse	21	42	2 car spaces per dwelling
Four-bedroom townhouse	40	80	2 car spaces per dwelling
Visitor Car Parking	83 dwellings	12	0.14 car spaces per dwelling.
Total		156	-

Vehicle access to the internal road network is provided via a 5.8m wide accessway to Golf Road located at the approximate mid-point along the site's frontage to Golf Road. Eight dwellings located along the site's southern boundary will have direct vehicle access to Beryl Avenue, and a further two dwellings will have direct vehicle access to Bakers Road, along the site's eastern boundary.

A total of 24 bicycle spaces are provided within horizontal spaces across the development for visitors.

Pedestrian access is provided to Beryl Avenue at the site's approximate mid-point and to Bakers Road at the site's approximate mid-point. Individual pedestrian access is also provided to all townhouses with a street frontage to Golf Road, Beryl Avenue and Bakers Road.

Post development, a total of 21 on-street car spaces will be available along the site's combined frontages (i.e. net loss of 7 spaces), including 18 spaces along Beryl Avenue (loss of 7 spaces) and 3 space along Bakers Road (no change).

A copy of the development plans prepared by Plus Architecture (dated 26th February, 2021) which form the basis of our assessment is attached at Appendix A to this report.

3. Existing Conditions

3.1. Subject Site

The subject site is located on the north-east corner of Golf Road and Beryl Avenue in Oakleigh South. A locality plan, aerial photograph and photograph of the site's frontage to Golf Road are provided at Figure 1 to Figure 3, respectively.

The site is irregular in shape, currently vacant with a total area of approximately 1.8ha. The site has frontages to Golf Road, Beryl Avenue and Bakers Road of 63.8m, 169.8m and 42.7m respectively.

Three crossovers are provided along the site's frontages, including a single width crossover to Beryl Avenue and two single width crossovers to Bakers Road.

A total of 28 unrestricted car spaces are provided along the site's combined frontages, including 25 spaces along Beryl Avenue and 3 spaces along Bakers Road.

The site is located within a General Residential Zone – Schedule 1 (GR1Z) under the Planning Scheme as presented at Figure 4. The site is also subject to Development Plan Overlay – Schedule 5 (DPO5). The site is located within the Principal Public Transport Network Area (PPTN). Land surrounding the site is predominantly residential.

Significant land uses in the nearby area include:

- **Bright Beginnings Child Care Centre**, located 50m walking distance south-west of the site,
- **Stan Riley Reserve**, located 100m walking distance south-west of the site,
- **South Oakleigh College**, located 150m walking distance south-east of the site, and
- **Oakleigh South Primary School**, located 650m walking distance south-east of the site.

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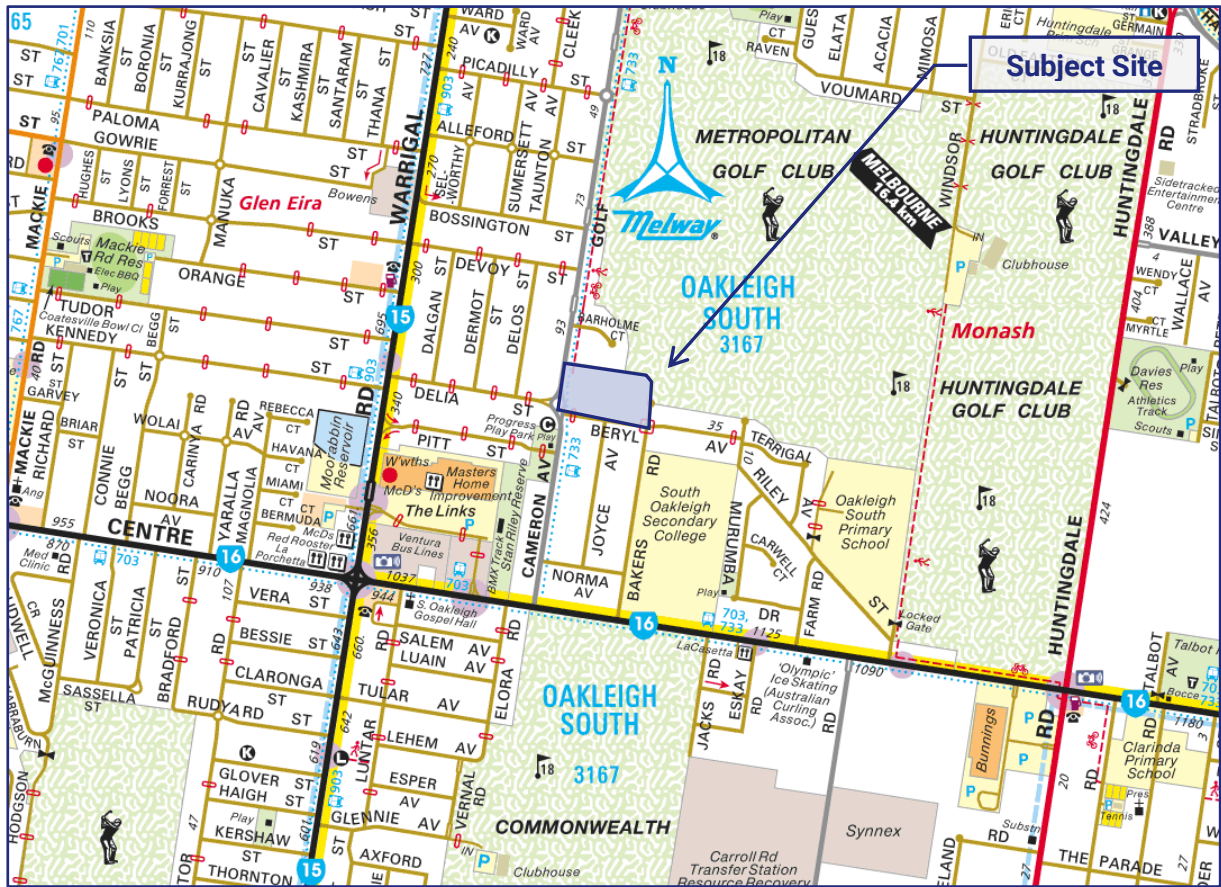


Figure 1: Locality Plan

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Figure 2: Aerial Photograph

Source: www.nearmap.com



Figure 3: Site Frontage to Golf Road



Figure 4: Land Use Zoning Map

Source: Planning Schemes Online

3.2. Road Network

Golf Road is a 'local collector road'¹ extending in a north-south direction between North Road in the north and Beryl Avenue in the south, where it continues as Cameron Street to Centre Road.

To the north of the site, Golf Road generally has a 7m wide carriageway, which accommodates a single traffic lane in both directions and indented kerbside parking along the west side. Indented parking is generally unrestricted. 'No Stopping' restrictions apply along the east side.

To the south of the site, Golf Road, which extends as Cameron Street to the south of Beryl Avenue, generally has a 6.8m wide carriageway, which accommodates a single lane of traffic in each direction. Alternatively, it accommodates a shared lane of through traffic and kerbside parking on one side of the road only.

In the vicinity of the site, the default urban speed limit of 50km/h applies to Golf Road.

Beryl Avenue is a 'local road'¹ extending in an east-west direction between Riley Street in the east and Golf Road in the west.

In the vicinity of the site, Beryl Avenue has a 6.8m wide carriageway which accommodates a shared lane of through traffic and kerbside parking on one side of the road only. On-street parking along Beryl Avenue is unrestricted in the vicinity of the site.

In the vicinity of the site, the default urban speed limit of 50km/h applies to Beryl Avenue.

The intersection between Beryl Avenue and Cameron Avenue is governed by a give way sign facing Beryl Avenue.

Bakers Road is a 'local road'¹ extending in a north-south direction between a dead end in the north and Centre Road in the south.

In the vicinity of the site, Bakers Road has a 6.8m wide carriageway which accommodates a shared lane of through traffic and kerbside parking on one side of the road only. On-street parking along Bakers Road is unrestricted in the vicinity of the site.

In the vicinity of the site, the default urban speed limit of 50km/h applies to Beryl Avenue.

The intersection between Bakers Road and Beryl Avenue is governed by a give way sign facing Bakers Road.

Photographs depicting the surrounding road network are presented in Figure 5 to Figure 10.

¹ As confirmed by Monash City Council



Figure 5: Golf Road - view north



Figure 6: Golf Road - view south



Figure 7: Beryl Avenue - view east



Figure 8: Beryl Avenue - view west



Figure 9: Bakers Road - view north



Figure 10: Bakers Road - view south

3.2.1. Existing Traffic Conditions

Traffix Group undertook 7-day automatic tube count surveys at the following locations:

- Golf Road, at proposed site access, and
- Beryl Avenue, east of Cameron Avenue.

The counts were undertaken between Monday 3rd February, 2020 and Sunday 9th February, 2020. Summaries of the results are presented below at Table 2 and Table 3.

Table 2: Tube Count Data Summary - Golf Road at Proposed Site Access

Characteristic	Vehicles per day		
	Golf Road, Oakleigh South – at Proposed Site Access		
	Northbound	Southbound	Total
24hr Weekday Average	3,361	2,446	5,805
Recorded AM Peak Hour Volume (Weekday) 8-9am	452	370	822
Recorded PM Peak Hour Volume (Weekday) 3-4pm	353	267	619
PM Peak Hour Volume (Weekday 5-6pm)	296	247	543
Commercial Vehicle %	4.4%	4.3%	4.3%
85 th Percentile Speed	49.3km/h	45.9km/h	47.6km/h

Table 3: Tube Count Data Summary - Beryl Avenue, east of Cameron Avenue

Characteristic	Vehicles per day		
	Beryl Avenue, Oakleigh South – east of Cameron Avenue		
	Eastbound	Westbound	Total
24hr Weekday Average	1,024	1,347	2,371
Recorded AM Peak Hour Volume (8-9am)	270	234	504
Recorded PM Peak Hour Volume (3-4pm)	178	215	393
PM Peak Hour Volume (Weekday 5-6pm)	80	111	191
Commercial Vehicle %	0.8%	0.7%	0.8%
85 th Percentile Speed	29.2km/h	27.7km/h	28.4km/h

The above table summaries outline the following characteristics:

- Golf Road at proposed site access carries an average traffic volume of 5,805 vehicles per day. This is consistent with its classification as a Connector Street – Level 2, which can accommodate between 3,000-7,000 vehicles per day.
- Beryl Avenue at Cameron Avenue carries an average traffic volume of 2,371 vehicles per day. This is consistent with its classification as an Access Street – Level 2, which can accommodate 2,000-3,000 vehicles per day.
- The recorded peak hour periods occurred between 8-9am and 3-4pm for both roads.

3.3. Existing Parking Conditions

As the requisite number of car spaces under Clause 52.06-5 are provided on the site, it is not necessary to consider the ability of on-street parking areas to accommodate overflow demands. However, for completeness we have undertaken a parking survey to determine the existing car parking conditions for the area surrounding the site.

The parking surveys were undertaken at the following times:

- 12noon, 1pm, 7pm & 8pm on Thursday 6th February, 2020,
- 12noon, 1pm, 7pm & 8pm on Saturday 8th February, 2020, and
- 3pm on Thursday 13th February, 2020.

The survey times encompass the peak times associated with the proposed development, the surrounding residential area (ie. evenings and weekends) and the nearby schools (during pick-up time). The parking survey area is presented in Figure 11 and the detailed parking survey is provided at Appendix B.

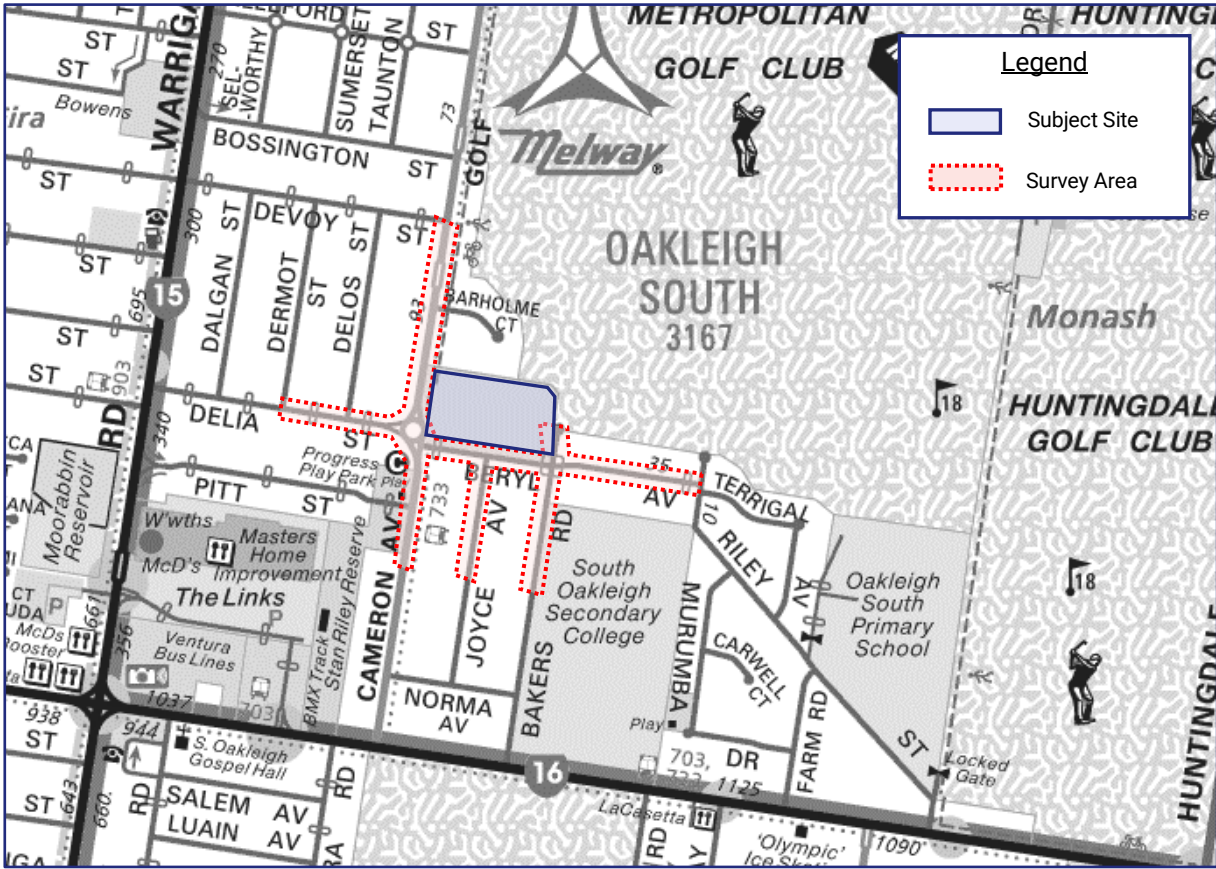


Figure 11: Parking Survey Area

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A total of 124 car spaces are available to the general public within the survey area². On-street parking within the survey area is predominantly unrestricted.

Twenty-eight unrestricted on-street car spaces are located along the site’s frontages to Beryl Avenue and Bakers Road.

The overall profile of on-street parking demand is provided at Figure 12.

² The following analysis only includes car spaces available to the general public and excludes ‘Permit Zones’, ‘Loading Zones’ and other ‘No Stopping’ areas during the relevant enforcement times.

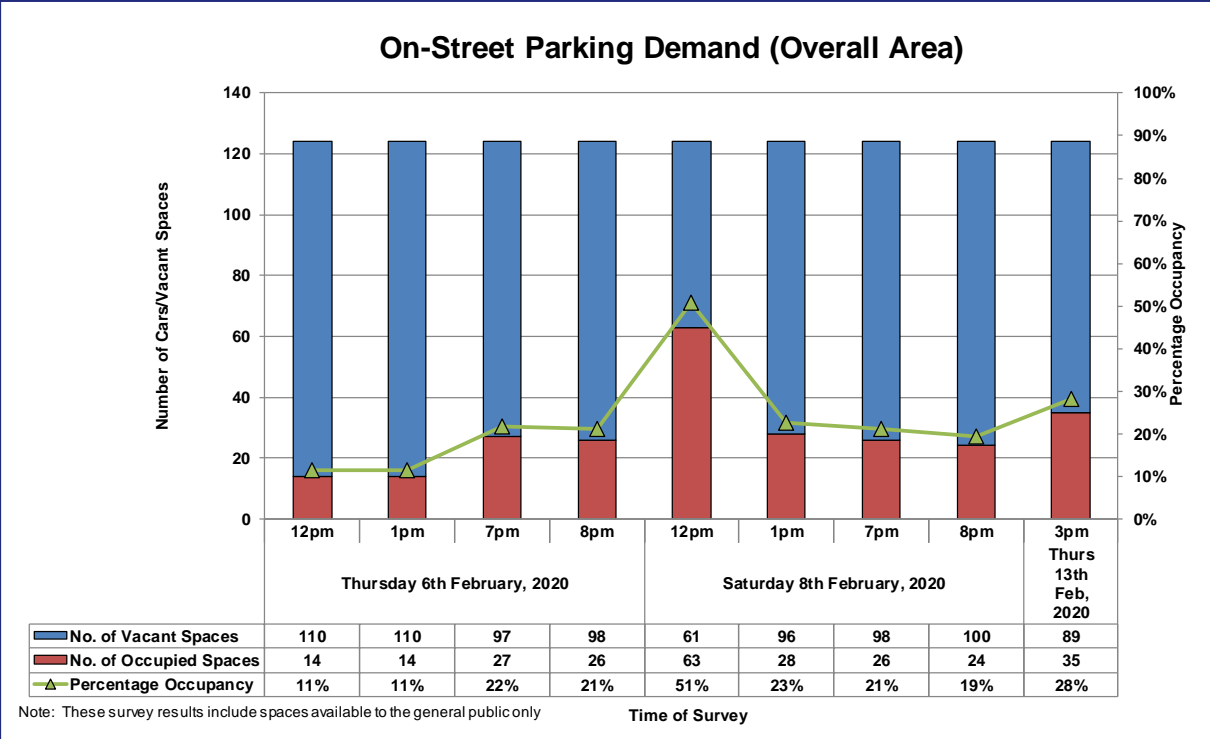


Figure 12: Profile of On-Street Parking Demand (Overall Area)

The results of the surveys indicate that there is a low to moderate demand for on-street parking throughout the survey period with occupancy recorded between 11-51% (61-110 vacant car spaces).

The minimum number of vacant spaces recorded across the survey period was 61 spaces at 12pm on Saturday 8th February, 2020 (51% occupancy).

We understand that the spike in car parking demand at this time was due to an event held at South Oakleigh Secondary College on Saturday.

3.4. Public Transport

The site is located within the PPTN area as shown in Figure 13 and as such has access to several bus services within convenient walking distance of the site. The available bus service provides a link to Oakleigh and Clayton Railway Station, which has access to a greater number of public transport services. The closest railway station is Huntingdale Station, which is located 2.3km walking distance from the site.

A summary of the accessible public transport services is provided in Table 4.

The available public transport services within close proximity of the site are shown at Figure 15.

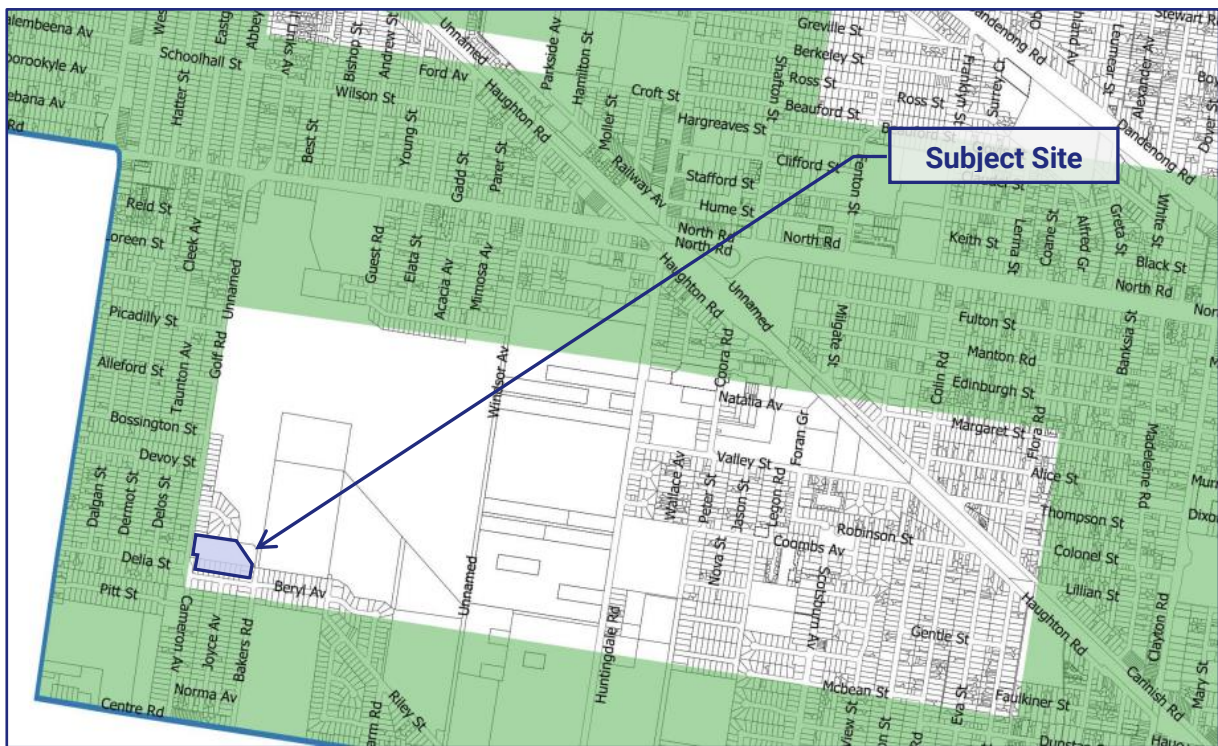


Figure 13: Principal Public Transport Network Map

Source: ptv.vic.gov.au



Figure 14: PPTN Map (Zoomed on Site)

Source: VicPlan

Table 4: Summary of Public Transport Services

Service	Between	Via	Operating Times (Frequency)		
			Weekday	Saturday	Sunday
Golf Road – approximately 100m walking distance north of the site					
Bus Route 733	Oakleigh Station & Box Hill Station	Clayton, Monash University & Mt Waverley	6:35am-9:50pm 30-40 minutes	7:45am-9:40m 30-40 minutes	9:40am-9:40m 60 minutes
Warrigal Road – approximately 500m walking distance west of the site					
Bus Route 903 (SmartBus)	Altona & Mordialloc	Sunshine, Essendon, Coburg, Preston, Heidelberg, Doncaster, Box Hill & Oakleigh	5:05am-12:20am 15-20 minutes	5:25am-11:35pm 30 minutes	6:30am-9:20pm 30 minutes

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Service	Between	Via	Operating Times (Frequency)		
			Weekday	Saturday	Sunday
Centre Road – approximately 550m walking distance south of the site					
Bus Route 703	Middle Brighton & Blackburn	Bentleigh, Clayton & Monash University	7:00am-10:30pm 15-30 minutes	7:30am-9:50am 20-30 minutes	9:45am-9:55pm 30 minutes

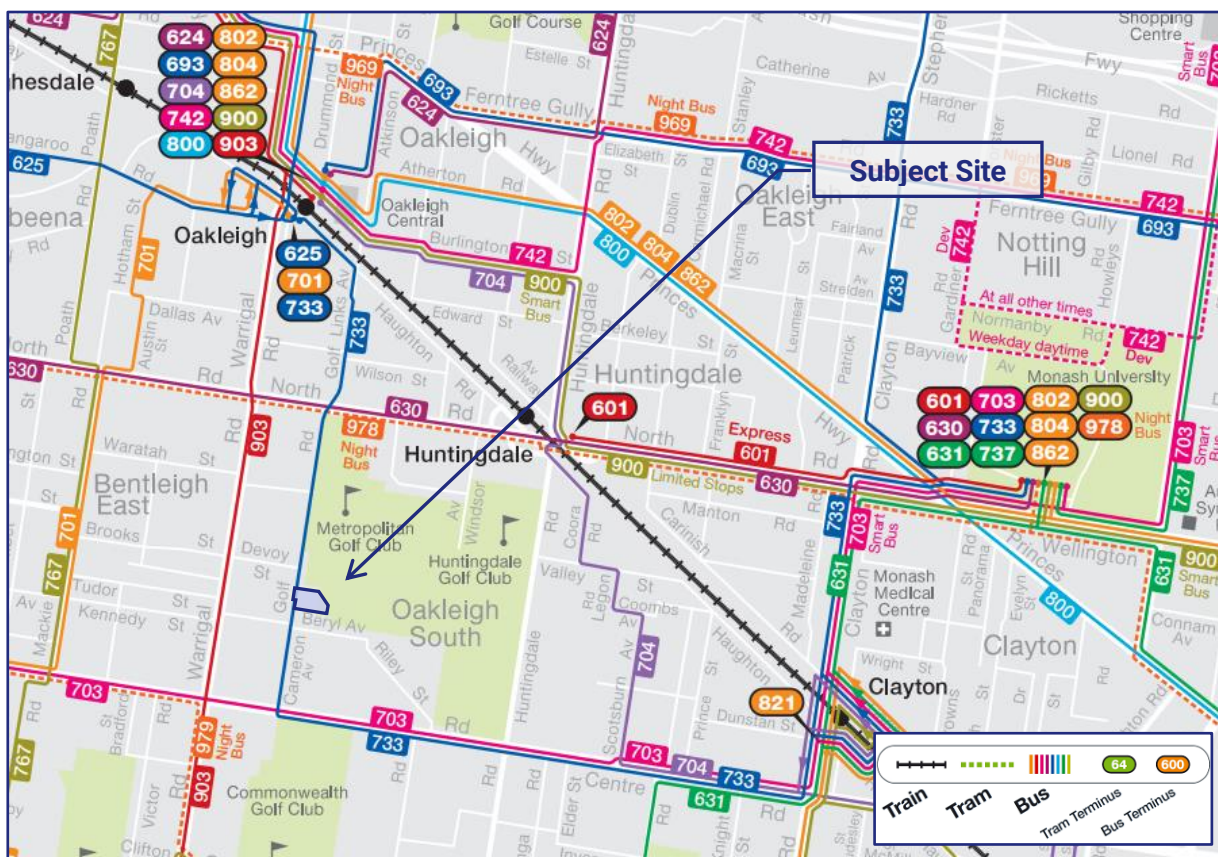


Figure 15: Public Transport Map

Source: ptv.vic.gov.au

4. Traffic Engineering Assessment

4.1. Statutory Car Parking Assessment

The proposed development falls under the land-use category of 'dwelling' under Clause 73.03 of the Planning Scheme.

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 Municipal Planning Strategy and the 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 site is located within the Principal Public Transport Network and accordingly, Column B rates apply to the site.

The assessment of car parking requirements associated with the proposed development is set out in Table 5.

Table 5: Statutory Car Parking Assessment – Clause 52.06

Proposed Use	No.	Statutory Parking Rate (Column B)	Car Parking Requirement ^(Note 1)	Car Parking Provision	Shortfall (-) / Surplus (+)
Two-bedroom Townhouse	22	1 space per one or two bedroom dwelling	22	22	0
Three-bedroom Townhouse	21	2 spaces per three or more bedroom dwelling	42	42	0
Four-bedroom Townhouse	40		80	80	0
Residential Visitors	83 dwellings	No requirement	0	12	+12
TOTAL			144	156	+12

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.

The provision of 156 car spaces, including 144 spaces for residents and 12 spaces for visitors results in a surplus of 12 visitor car spaces. Accordingly, a car parking reduction is not required for the development under Clause 52.06-7.

Other Considerations – Availability of Alternative Car Parking

Whilst there is no requirement under Clause 52.06-5 (Column B) for visitor car parking to be provided on the site, there is likely to be some level of visitor car parking generated by the development.

Some visitor car parking will be accommodated on the site within the 12 spaces. Any overflow demands above the provision of 12 will be accommodated on-street. The reliance on off-site car parking areas for visitors of the development is consistent with the approach to residential developments in PPTN areas. In addition to on-site car parking, the site also has access to a total of 21 on-street car spaces along the site’s combined frontages.

Accordingly, the development has access to a total of 33 spaces either on-site or along the site’s frontages.

4.2. Bicycle Parking Assessment

Clause 52.34 of the Planning Scheme specifies bicycle parking requirements for new developments and changes in use. Residential developments do not have a statutory bicycle parking requirement in buildings of less than four storeys in height.

Accordingly, as the development has a maximum building height of three-storeys, no bicycle parking is required for the development.

Notwithstanding this, the development has provided a total of 24 bicycle spaces across the site for visitors.

We are satisfied that residents could also store bicycles informally within garages or storage area or choose to install an above-bonnet style bicycle rack above their individual garages, as required.

The space allowed for bicycle parking on the plans satisfies the specifications of the 'Bicycle Victoria Bicycle Parking Handbook' and AS2890.3-2015 and is satisfactory.

Based on the above, we are satisfied with the provision of bicycle parking in this development.

4.3. Review of Car Parking Layout and Access Arrangements

Traffic Group has provided design advice to the project architect to achieve a satisfactory carpark layout. The proposed parking layout has been assessed under the following guidelines:

- Clause 52.06-9 of the Planning Scheme (Design Standards for car parking),
- Clause 55.03-9 & 10 (Standards B14 and B15) of the Planning Scheme, and
- AS2890.1-2004 – Part 1: Off-Street Car Parking, where relevant.

The key elements of the design include:

Clause 55.03-9 (Standard B14) & Clause 55.03-10 (Standard B15)

- The width of the accessways do not exceed 33% of the site's frontages to Golf Road, Beryl Avenue and Bakers Road in accordance with Standard B14 (Clause 55.03-9).
- Standard B15 of Clause 55.03-10 requires that shared accessways or carparks of other dwellings and residential buildings should be located at least 1.5m from the windows of habitable rooms. This requirement is satisfied.

Clause 52.06-9 Design Standard 1 – Accessways

- Vehicle access to the site is provided via a 5.8m wide crossover between kerbs to Golf Road in accordance with Clause 52.06-9 (Design Standard 1) and AS2890.1-2004 for a two-lane, two-way accessway.
- Internal accessways are generally 5.5m wide between kerbs in accordance with Clause 52.06-9 (Design Standard 1) and AS2890.1-2004 for a two-lane, two-way accessway.

The accessway narrows to 3.6m on either side of the central communal open space. This width is in accordance with Clause 52.06-9 (Design Standard 1) and AS2890.1-2004 for a one-lane, two-way accessway.

- All vehicles accessing internal garages will be able to enter and exit the site in a forwards direction in accordance with Clause 52.06-9 (Design Standard 1).
- Pedestrian sight triangles are provided on both sides of the accessway in accordance with Clause 52.06-9.

Clause 52.06-9 Design Standard 2 – Car Parking Spaces

- Garages are provided in accordance with the minimum requirements of Clause 52.06-9, specifically:
 - Single garages are provided with dimensions of at least 6m long x 3.5m wide,
 - Single tandem garages are provided with dimensions of 10.9m long x 3.5m wide when measured inside the garage, meeting the Planning Scheme requirements. In some cases, the rear tandem space is provided at 3.2m wide rather than 3.5m. We are satisfied that this is acceptable, as this width satisfies Diagram 1 of Clause 52.06-9 (Design Standard 2) and allows for the opening of car doors.
 - Double garages are provided with dimensions of at least 6m long x 5.5m wide.
 - Tandem car spaces are provided at 5.4m long and 3.2m wide. This width accommodates
- Tandem spaces are provided with additional 0.5m in length between each space in accordance with Clause 52.06-9.
- Visitor car spaces are provided in accordance with the minimum requirements of Clause 52.06-9, specifically:
 - Parallel car spaces are provided at 2.3m wide x 6.7m long with a minimum 3.6m accessway, and
 - 90° car spaces are provided at 2.8m wide x 4.9m long with a minimum 5.8m accessway.
- Access to and from the critical car spaces have been checked for access by the B85 design car (specified at Appendix B of AS2890.1-2004) and found to be acceptable. Some car spaces may require an additional manoeuvre to access. However, this is expressly permitted by AS2890.1-2004 for long term parking (i.e. resident parking) and is acceptable. A copy of the swept path diagrams demonstrating access to a number of typical car spaces are attached at Appendix D.

Clause 52.06-9 Design Standard 3 – Gradients

- Accessway grades across the site are naturally flat and accord with Clause 52.06-9, including maximum grades and transitions.

Based on the above, we are satisfied that the layout of the proposed parking spaces as detailed in the plans at Appendix A is satisfactory and that the access arrangements for the development are acceptable and accord with requirements of Clause 55.03-9/10, Clause 52.06-9 and AS2890.6-2009, where relevant.

Other Considerations

Whilst no subdivision has been applied for at this stage, we have used Clause 56.06 as a guide given the nature of the development.

Clause 52.06-9 specifies that before deciding on an application, the Responsible Authority must also consider:

The relevant standards of Clauses 56.06-2, 56.06-4, 56.06-5, 56.06-7 and 56.06-8 for residential developments with accessways longer than 60m or serving 16 or more dwellings.

A response to each of these requirements is set out in the following table.

Planning Scheme Requirement	Development Response
<p>Clause 56.06-2 – Walking and Cycling Network Objectives Clause 56.06-5 – Walking and Cycling Network Detail Objectives</p>	<p>The site has three street frontages and accordingly, the dwellings located around the east, south and west boundaries of the site have direct access to a footpath. The dwellings located within the centre of the site have access to footpaths which extend in a north-south direction through the site. The dwellings located along the north boundary of the site also have access to the footpaths which extend in a north-south direction through the site. Further, the internal access road will function as a low speed ‘shared zone’ and will be able to facilitate bicycle, pedestrian and vehicle movements within the site. Connections to the broader pedestrian and bicycle networks will be facilitated via the existing infrastructure on Golf Road and Beryl Avenue. Accordingly, we are satisfied that the development plans meets the objectives and standards of Clause 56.06-2 in regards to pedestrian and bicycle access.</p>
<p>Clause 56.06-4 – Neighbourhood and Street Network Objective Clause 56.06-7 – Neighbourhood Street Network Detail Objective</p>	<p>The proposed internal access road has a minimum 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 appropriate and will allow two-way traffic throughout the site. The accessway reduces to a width of 3.6m in two locations which accords with 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. While the ‘verge’ requirements of Clause 56.06-8 are not met, 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. We are satisfied that the development meets the objectives of the Planning Scheme in regards to neighbourhood street network objectives.</p>

Planning Scheme Requirement	Development Response
Clause 56.06-8 – Lot Access Objective	Vehicle access to each garage and visitor spaces has been reviewed and is satisfactory.

Based on the above, we are satisfied the proposed layout of car spaces is satisfactory and that the access arrangements for the site will provide for safe and efficient movements to and from the surrounding road network.

4.4. Traffic Impacts

4.4.1. Traffic Generation

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 507 vehicle trip-ends per day, with 51 vehicle trip-ends occurring during the road network peak hours. This corresponds to one vehicle entering or exiting the site every minute on average, during the peak hours (and less at other times).

We are satisfied that the level of traffic generated by the proposed development is modest, spread throughout the day and residential in nature and will not have a detrimental impact on the operation or safety of Golf Road, Beryl Avenue and Bakers Road.

4.4.2. Traffic Distribution

The following sets out the adopted traffic distribution for the proposed development. This distribution has adopted the following key assumptions:

- 80% of vehicles will exit the site and 20% will enter the site during the AM peak hour, and
- 30% of vehicles will exit the site and 70% will enter the site during the PM peak hour.

Table 4 details the predicted entering and exiting traffic volumes associated with 51 vehicle trip ends for each peak hour, based on the key assumptions listed above.

Table 6: Expected Development Peak Hour Traffic Volumes

Peak Hour	Entry Movements	Exit Movements
AM	10 veh movements (1 car per 6 minutes)	41 veh movements (1 car per 1-2 minutes)
PM	36 veh movements (1 car per 1-2 minutes)	15 veh movements (1 car per 4 minutes)

Traffic generated by the development would gain access to the wider road network via Golf Road with the majority of motorists accessing North Road. These traffic volumes are minor in the context of the existing volumes using Warrigal Road in this location.

We are satisfied that the access to Golf Road has been appropriately designed and the increase in traffic will not have a detrimental impact on the traffic conditions in the surrounding road network.

Further, we note that the subject site formerly operated as a primary school, which would have generated more than 51 vehicle trip-ends during the peak hour and accordingly the proposed use is less intense and will generate less impact on the surrounding road network and intersections compared to the former use of the site.

4.4.3. Traffic Impacts to Local Roads

Traffic generated by the development would gain access to the wider road network via Golf Road with the majority of motorists accessing North Road. These traffic volumes are minor in the context of the existing volumes using North Road in this location.

We are satisfied that the access to Golf Road has been appropriately designed and the increase in traffic will not have a detrimental impact on the traffic conditions in the surrounding road network.

Further, we note that the subject site formerly operated as a primary school, which would have generated more than 51 vehicle trip-ends during the peak hour and accordingly the proposed use is less intense and will generate less impact on the surrounding road network and intersections compared to the former use of the site.

The site is well placed with respect to routes to the arterial road network. The following figure details my predicted traffic distribution through the local road network.

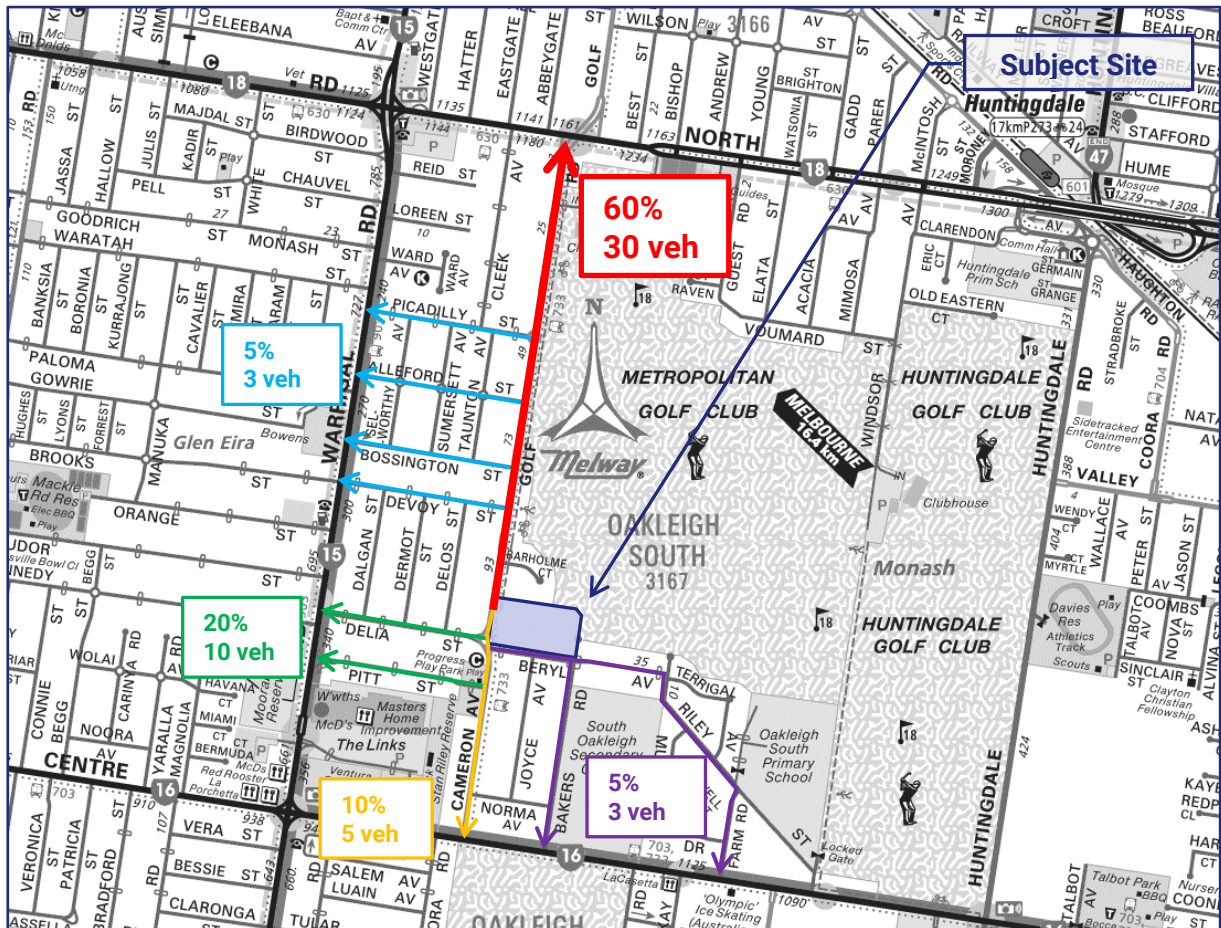


Figure 16: Local Access

Golf Road

The majority of the traffic generated from the proposed development will access the wider road network via Golf Road, to North Road. Based on the distribution of traffic above, the proposed development is expected to generate a total of 30 vehicle trips per peak hour (304 movements per day) to Golf Road, north of the site access, and 18 vehicle trips per peak hour (177 movements per day), south of the site access.

Under Clause 56.06 of the Planning Scheme, Golf Road to the north of Beryl Avenue would be classified as a Connector Street – Level 2 road, with an indicative maximum traffic volume of up to 7,000 vehicles per day (which is known as the ‘environmental capacity’ of the road).

This section of Golf Road maintains uninterrupted two-way traffic flow, due to no-stopping restrictions and indented car parking removing any parked cars from the main carriageway, consistent with the above classification.

An additional traffic volume of 304 vehicles per day to the north of the site represents 4.3% of the capacity of Golf Road, and 5.2% of the existing weekday volume recorded during the traffic survey undertaken.

We are satisfied that this level of increase to Golf Road is low in the context of the existing volumes on Golf Road and the environmental capacity of Golf Road. Post development, the environmental capacity of Golf Road will not be exceeded by traffic generated from this site.

The traffic travelling to the south of the site access will be distributed amongst the local streets to the south of the site access, including Delia Street, Pitt Street, Cameron Avenue, Bakers Road and Beryl Avenue.

Beryl Avenue

Eight dwellings located along the site's southern boundary will have direct vehicle access to Beryl Avenue. The eight dwellings are expected to generate a total of 5 vehicle movements per peak hour, with 52 vehicles trips per day to Beryl Avenue.

Under Clause 56.06 of the Planning Scheme, Beryl Avenue would be classified as an Access Street – Level 2 road, with an indicative maximum traffic volume of up to 2,000-3,000 vehicles per day (which is known as the 'environmental capacity' of the road). Accordingly, an additional traffic volume of 52 vehicles per day along Beryl Avenue represents 2.6% of the lower limit of the capacity of Beryl Avenue, and 2.2% of the existing weekday volume recorded during our survey. The environmental capacity of Beryl Avenue will not be exceeded post-development.

Bakers Road

Two dwellings located along the site's eastern boundary will have direct vehicle access to Bakers Road. Accordingly, the two dwellings are expected to generate a total of 1 vehicle movement per peak hour, with 13 vehicles trips per day to Bakers Road.

This is a negligible impact to this section of Bakers Road.

Other Local Access Streets

Vehicle access to Warrigal Road and Centre Road may also occur via local roads which connect Golf Road to Warrigal Road, and via local roads which connect Beryl Avenue to Centre Road.

These local streets include Cameron Avenue, Delia Street, Pitt Street, Devoy Street, Bossington Street, Alleford Street, Picadilly Street and Riley Street.

We are satisfied that the distribution of traffic to these roads will be such that no one street will be heavily impacted by traffic generated from the development, with 1-6 vehicle movements expected to be generated to the above streets.

Based on the above, we are satisfied that the surrounding road network has adequate capacities 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.

4.5. Waste Collection & Emergency Vehicle Access

Waste Collection

A Waste Management Plan was prepared by Sustainability House (dated 31st January, 2020) which outlines the waste collection arrangements for the proposed development.

Waste bins will be stored by residents within the private garages of each dwelling. Prior to collection, residents shall place their bins outside their townhouse for collection. In the case of the dwellings with access to the central laneways, bins will be placed in 'niche for bin placement' areas, such that they are not stored on the vehicle accessway.

It is proposed that private collection will occur on the site, via an 8.8m long MRV, for all dwellings with garages that do not front Beryl Avenue.

For all dwellings with garages fronting Beryl Avenue, waste will be collected via Council's existing waste collection service. Residents will be responsible for transferring their bins for collection and removing bins after collection.

Swept path diagrams demonstrating the 8.8m MRV entering the site, circulating to each dwelling and exiting the site in a forwards direction are provided at Appendix C.

We are satisfied the waste collection arrangements are acceptable from a traffic engineering perspective.

Emergency Vehicle Access

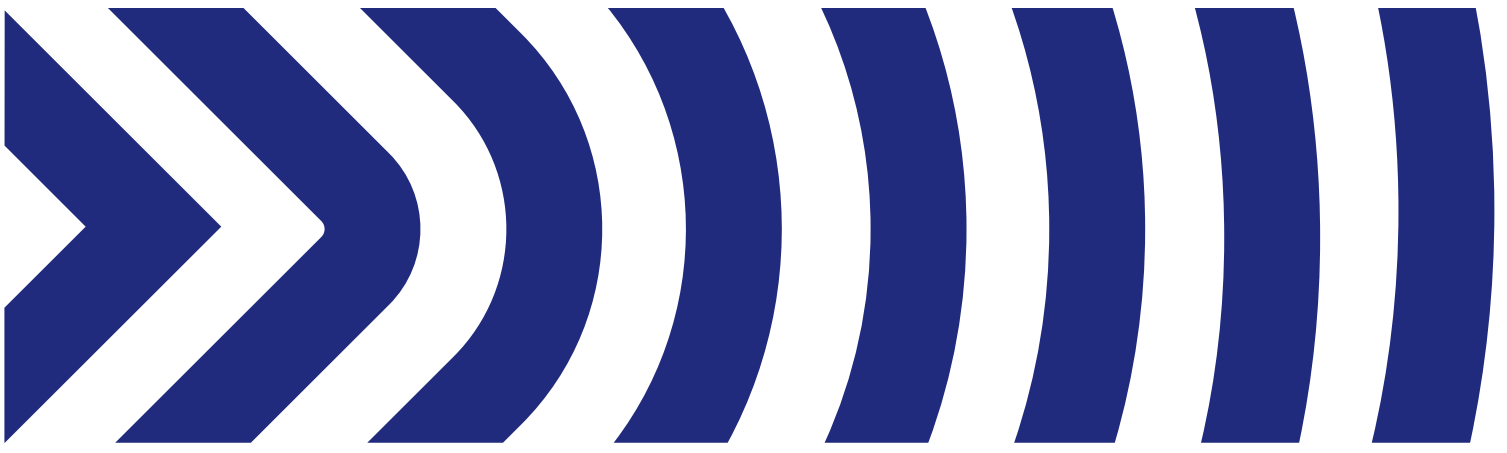
The largest emergency services vehicle which can be reasonably expected to require access to the site is the standard MFB vehicle (Standard Pumper Tanker), which is 8.75m long and has a kerb-kerb turning circle of 19.8m. These dimensions are both lower than the 8.8m service vehicle which has been tested for the internal road network as described above.

Accordingly, we are satisfied that emergency vehicle access to the site is acceptable.

5. Conclusion

Having undertaken a detailed traffic engineering assessment for the proposed residential development at 52 Golf Road, Oakleigh South, we are of the opinion that:

- a) the proposed development has a statutory car parking requirement of 144 car spaces for residents only, under Clause 52.06-5. No visitor car spaces are required for the development,
- b) the provision of 156 car spaces, including 144 resident car spaces and 12 visitor car spaces, exceeds the car parking requirements under Clause 52.06-5 of the Planning Scheme and a car parking reduction is not sought by this application,
- c) bicycle parking is not required under Clause 52.34 of the Planning Scheme. Nonetheless, the provision of 24 bicycle spaces on-site exceeds the bicycle parking requirements generated by this development. Additionally, bicycle parking could be provided within individual garages,
- d) the proposed parking layout and vehicle access arrangements accord with the requirements of the Planning Scheme, AS2890.1:2004 (where relevant) and current practice,
- e) the proposed vehicle access to Golf Road and individual access points to Beryl Avenue and Bakers Road will facilitate safe and convenient access to the site,
- f) waste collection will occur on-site via private contractor, for all dwellings except for those with garages fronting Beryl Avenue, which will be collected via Council's existing waste collection services,
- g) the level of traffic generated as a result of the proposal will be modest, residential in nature, spread throughout the road network and spread throughout the day, and
- h) there are no traffic engineering reasons why a planning permit should not be granted for the proposed residential development at 52 Golf Road, Oakleigh South, subject to appropriate conditions.



Appendix A

Development Plans



NOTE:
REFER TO LANDSCAPE DRAWINGS FOR NEW TREE LOCATIONS AND LANDSCAPING DETAILS

LEGEND

- MODERATE TREES TO BE RETAINED
- OTHER EXISTING TREES TO BE RETAINED
- RECOMMENDED BUILDING SETBACK FROM TREE AS PER ARBORIST'S ADVICE
- TREE PROTECTION ZONE

52 Golf Road Oakleigh South

NO:12737

DATE: 26/02/2021 REVISION: 1

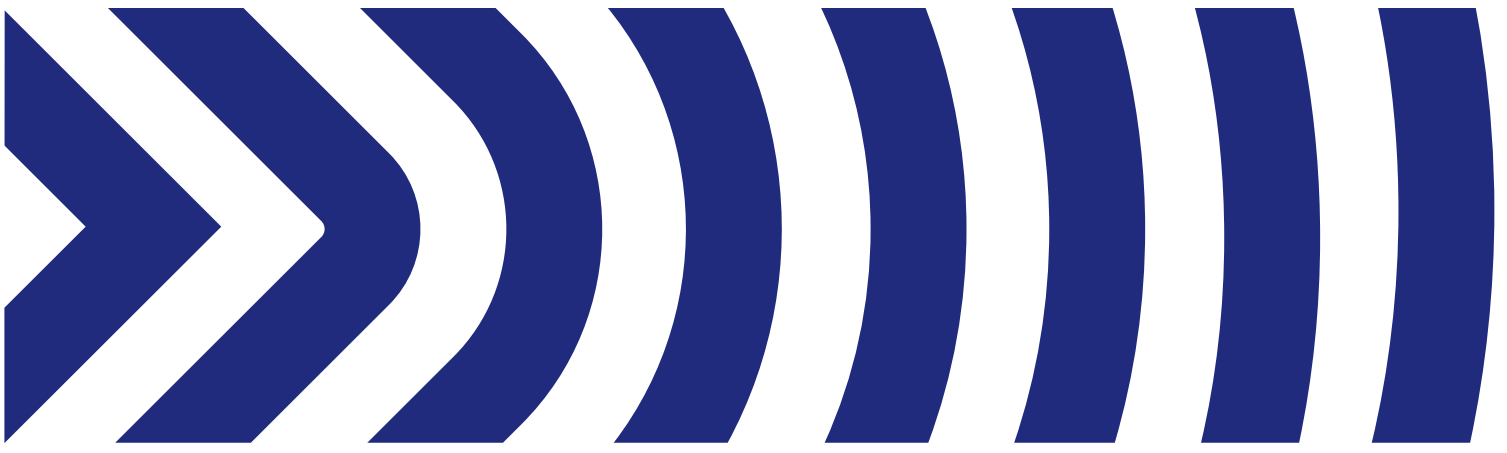
1:750

WITHOUT PREJUDICE

	TH 01		TH 02		TH 03		TH 04		TH 05		TH 06		TH 07		TH 08		TH 09
--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------

OAKMONT
OAKLEIGH SOUTH

VIMG plus
architecture



Appendix B

Traffic Survey Results

TRANS TRAFFIC SURVEY

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AUTOMATIC COUNT SUMMARY

Street Name :	Golf Rd	Location :	Outside Property 111
Suburb :	Oakleigh South	Start Date :	00:00 Mon 03/February/2020
Metrocount ID	ME87ZDVF	Finish Date :	00:00 Mon 10/February/2020
Site ID Number :	8836	Speed Zone :	50 km/h
Prepared By :	Vo Son Binh	Email:	binh@trafficsurvey.com.au

GPS information	Lat 37° 55' 11.56 South Long 145° 5' 15.57 East	Direction of Travel		
		Both directions	Northbound	Southbound
Traffic Volume : (Vehicles/Day)	Weekdays Average	5,807	3,361	2,446
	7 Day Average	5,235	3,029	2,206
Weekday	AM 08:00	822	452	370
Peak hour starts	PM 15:00	619	353	267
Speeds : (Km/Hr)	85th Percentile	47.6	49.3	45.9
	Average	42.1	43.6	40.5
Classification % :	Light Vehicles up to 5.5m	95.7%	95.6%	95.7%

Location

GPS Information [Load Google Map \(internet required\)](#)
(Latitude, Longitude) -37.919879, 145.087657



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)
[Volume Data](#) [Volume Graph](#) [Classification](#)



QUALITY ASSURED COMPANY BY ISO 9001:2015

OH&S SYSTEM CERTIFIED TO ISO 4801:2001

ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015



Site Golf Rd

Direction ▼

[Back to Site Summary Page](#)

Day Date	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
	3/02/2020	4/02/2020	5/02/2020	6/02/2020	7/02/2020	8/02/2020	9/02/2020	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	09:00	11:00	N/A	08:00	N/A	08:00	N/A	09:00
PM Peak	15:00	15:00	15:00	15:00	15:00	12:00	12:00	N/A	15:00	N/A	15:00	N/A	12:00
00:00	6	0	4	7	3	12	16	48	7	20	4	28	14
01:00	3	2	3	1	4	7	6	26	4	13	3	13	7
02:00	2	5	2	4	1	3	3	20	3	14	3	6	3
03:00	3	1	0	0	4	3	3	14	2	8	2	6	3
04:00	3	6	8	6	7	3	3	36	5	30	6	6	3
05:00	20	30	26	28	24	12	10	150	21	128	26	22	11
06:00	70	80	86	81	78	33	15	443	63	395	79	48	24
07:00	314	319	311	315	274	58	42	1633	233	1533	307	100	50
08:00	469	445	441	465	440	117	71	2448	350	2260	452	188	94
09:00	245	255	261	249	257	277	135	1679	240	1267	253	412	206
10:00	139	144	143	143	136	204	142	1051	150	705	141	346	173
11:00	129	146	150	155	140	215	162	1097	157	720	144	377	189
12:00	139	146	181	161	188	322	164	1301	186	815	163	486	243
13:00	144	154	162	172	178	170	163	1143	163	810	162	333	167
14:00	167	170	171	157	198	222	139	1224	175	863	173	361	181
15:00	377	331	363	347	345	204	129	2096	299	1763	353	333	167
16:00	251	296	309	255	289	164	145	1709	244	1400	280	309	155
17:00	305	289	308	304	276	169	142	1793	256	1482	296	311	156
18:00	191	229	207	219	190	130	122	1288	184	1036	207	252	126
19:00	115	116	130	147	131	110	71	820	117	639	128	181	91
20:00	89	92	84	80	103	77	65	590	84	448	90	142	71
21:00	46	45	37	60	59	40	31	318	45	247	49	71	36
22:00	24	17	30	20	35	44	22	192	27	126	25	66	33
23:00	15	8	13	16	21	16	10	99	14	73	15	26	13
Total	3266	3326	3430	3392	3381	2612	1811	21218	3029	16795	3361	4423	2216
% Heavy	4.75%	4.51%	4.31%	4.22%	4.70%	4.17%	3.20%	4.35%		4.50%		3.78%	



Site Golf Rd

Direction ▼

[Back to Site Summary Page](#)

Day Date	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
	3/02/2020	4/02/2020	5/02/2020	6/02/2020	7/02/2020	8/02/2020	9/02/2020	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	08:00	11:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	15:00	15:00	17:00	15:00	15:00	12:00	13:00	N/A	15:00	N/A	15:00	N/A	12:00
00:00	9	6	2	7	7	16	31	78	11	31	6	47	24
01:00	8	2	3	5	2	10	7	37	5	20	4	17	9
02:00	2	2	2	3	2	4	3	18	3	11	2	7	4
03:00	2	1	2	2	3	5	4	19	3	10	2	9	5
04:00	2	2	2	1	1	2	1	11	2	8	2	3	2
05:00	16	13	16	17	13	3	4	82	12	75	15	7	4
06:00	44	49	53	34	44	14	9	247	35	224	45	23	12
07:00	128	133	139	127	124	36	22	709	101	651	130	58	29
08:00	354	381	361	385	371	185	41	2078	297	1852	370	226	113
09:00	125	120	119	123	122	101	74	784	112	609	122	175	88
10:00	91	97	85	97	95	125	96	686	98	465	93	221	111
11:00	84	103	100	109	118	160	112	786	112	514	103	272	136
12:00	115	106	123	94	118	242	117	915	131	556	111	359	180
13:00	92	104	124	111	134	144	127	836	119	565	113	271	136
14:00	140	156	168	136	173	174	118	1065	152	773	155	292	146
15:00	279	275	255	263	262	109	100	1543	220	1334	267	209	105
16:00	186	176	204	208	235	134	93	1236	177	1009	202	227	114
17:00	212	248	286	245	244	111	83	1429	204	1235	247	194	97
18:00	174	207	185	201	155	101	65	1088	155	922	184	166	83
19:00	92	99	85	110	131	75	67	659	94	517	103	142	71
20:00	56	65	58	72	77	62	44	434	62	328	66	106	53
21:00	35	52	45	56	61	43	34	326	47	249	50	77	39
22:00	30	38	30	29	45	34	24	230	33	172	34	58	29
23:00	14	17	13	22	33	36	13	148	21	99	20	49	25
Total	2290	2452	2460	2457	2570	1926	1289	15444	2206	12229	2446	3215	1615
% Heavy	4.45%	4.89%	4.72%	5.21%	4.28%	3.32%	2.33%	4.34%		4.71%		2.92%	



Site Golf Rd

Direction ▼

[Back to Site Summary Page](#)

Day Date	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
	3/02/2020	4/02/2020	5/02/2020	6/02/2020	7/02/2020	8/02/2020	9/02/2020	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	09:00	11:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	15:00	15:00	15:00	15:00	15:00	12:00	13:00	N/A	15:00	N/A	15:00	N/A	12:00
00:00	15	6	6	14	10	28	47	126	18	51	10	75	38
01:00	11	4	6	6	6	17	13	63	9	33	7	30	15
02:00	4	7	4	7	3	7	6	38	5	25	5	13	7
03:00	5	2	2	2	7	8	7	33	5	18	4	15	8
04:00	5	8	10	7	8	5	4	47	7	38	8	9	5
05:00	36	43	42	45	37	15	14	232	33	203	41	29	15
06:00	114	129	139	115	122	47	24	690	99	619	124	71	36
07:00	442	452	450	442	398	94	64	2342	335	2184	437	158	79
08:00	823	826	802	850	811	302	112	4526	647	4112	822	414	207
09:00	370	375	380	372	379	378	209	2463	352	1876	375	587	294
10:00	230	241	228	240	231	329	238	1737	248	1170	234	567	284
11:00	213	249	250	264	258	375	274	1883	269	1234	247	649	325
12:00	254	252	304	255	306	564	281	2216	317	1371	274	845	423
13:00	236	258	286	283	312	314	290	1979	283	1375	275	604	302
14:00	307	326	339	293	371	396	257	2289	327	1636	327	653	327
15:00	656	606	618	610	607	313	229	3639	520	3097	619	542	271
16:00	437	472	513	463	524	298	238	2945	421	2409	482	536	268
17:00	517	537	594	549	520	280	225	3222	460	2717	543	505	253
18:00	365	436	392	420	345	231	187	2376	339	1958	392	418	209
19:00	207	215	215	257	262	185	138	1479	211	1156	231	323	162
20:00	145	157	142	152	180	139	109	1024	146	776	155	248	124
21:00	81	97	82	116	120	83	65	644	92	496	99	148	74
22:00	54	55	60	49	80	78	46	422	60	298	60	124	62
23:00	29	25	26	38	54	52	23	247	35	172	34	75	38
Total	5556	5778	5890	5849	5951	4538	3100	36662	5238	29024	5805	7638	3826
% Heavy	4.63%	4.67%	4.48%	4.63%	4.52%	3.81%	2.84%	4.34%		4.59%		3.42%	

TRANS TRAFFIC SURVEY

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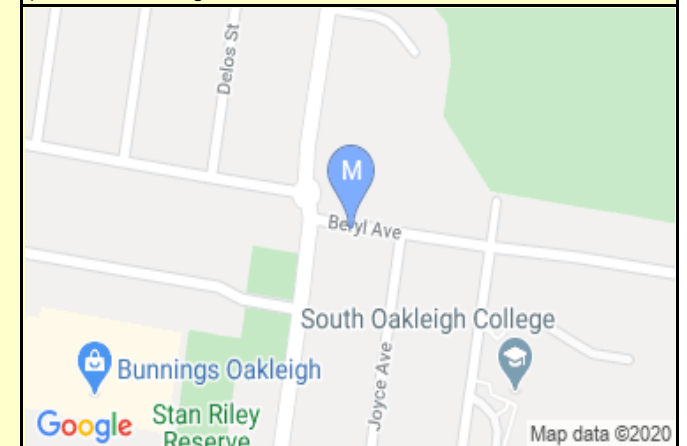
AUTOMATIC COUNT SUMMARY

Street Name :	Beryl Ave	Location :	Outside Property 4
Suburb :	Oakleigh South	Start Date :	00:00 Mon 03/February/2020
Metrocount ID	MD722R32	Finish Date :	00:00 Mon 10/February/2020
Site ID Number :	8837	Speed Zone :	50 km/h
Prepared By :	Vo Son Binh	Email:	binh@trafficsurvey.com.au

GPS information	Lat 37° 55' 14.78 South Long 145° 5' 17.53 East	Direction of Travel		
		Both directions	Westbound	Eastbound
Traffic Volume :	Weekdays Average	2,371	1,347	1,024
(Vehicles/Day)	7 Day Average	2,110	1,200	910
Weekday AM	08:00	504	234	270
Peak hour start PM	15:00	393	215	178
Speeds :	85th Percentile	28.4	27.7	29.2
(Km/Hr)	Average	24.8	24.0	25.5
Classification % :	Light Vehicles up to 5.5m	99.2%	99.3%	99.2%

Location

GPS Information [Load Google Map \(internet required\)](#)
(Latitude, Longitude) -37.920773, 145.088204



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)
[Volume Data](#) [Volume Graph](#) [Classification](#)



QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015



Site Beryl Ave

Direction ▼

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Day Date	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
	3/02/2020	4/02/2020	5/02/2020	6/02/2020	7/02/2020	8/02/2020	9/02/2020	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	09:00	10:00	N/A	08:00	N/A	08:00	N/A	09:00
PM Peak	15:00	15:00	15:00	15:00	15:00	12:00	12:00	N/A	15:00	N/A	15:00	N/A	12:00
00:00	3	0	1	4	1	5	13	27	4	9	2	18	9
01:00	0	0	1	1	1	3	2	8	1	3	1	5	3
02:00	0	2	1	1	0	0	0	4	1	4	1	0	0
03:00	1	0	0	0	1	3	2	7	1	2	0	5	3
04:00	1	2	1	0	3	1	0	8	1	7	1	1	1
05:00	8	9	9	8	9	5	4	52	7	43	9	9	5
06:00	19	29	28	28	21	9	4	138	20	125	25	13	7
07:00	67	69	58	77	65	15	16	367	52	336	67	31	16
08:00	226	223	240	230	250	45	26	1240	177	1169	234	71	36
09:00	119	110	105	117	138	163	44	796	114	589	118	207	104
10:00	48	61	49	47	59	82	50	396	57	264	53	132	66
11:00	36	52	56	44	46	61	48	343	49	234	47	109	55
12:00	40	45	51	49	47	161	54	447	64	232	46	215	108
13:00	39	44	59	47	41	68	38	336	48	230	46	106	53
14:00	53	42	61	48	55	106	49	414	59	259	52	155	78
15:00	224	188	223	197	244	71	42	1189	170	1076	215	113	57
16:00	103	125	120	108	129	63	41	689	98	585	117	104	52
17:00	122	113	99	104	118	67	38	661	94	556	111	105	53
18:00	64	73	71	80	86	45	46	465	66	374	75	91	46
19:00	56	42	62	70	56	43	24	353	50	286	57	67	34
20:00	30	38	37	29	46	35	24	239	34	180	36	59	30
21:00	19	17	12	20	13	17	11	109	16	81	16	28	14
22:00	12	4	15	7	20	15	7	80	11	58	12	22	11
23:00	4	3	3	7	11	10	5	43	6	28	6	15	8
Total	1294	1291	1362	1323	1460	1093	588	8411	1200	6730	1347	1681	849
% Heavy	0.85%	0.70%	0.66%	0.45%	1.03%	0.73%	0.51%	0.73%		0.74%		0.65%	



Site Beryl Ave

Direction ▼

[Back to Site Summary Page](#)

Day Date	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
	3/02/2020	4/02/2020	5/02/2020	6/02/2020	7/02/2020	8/02/2020	9/02/2020	Total	Average	Total	Average	Total	Average
AM Peak PM Peak	08:00 15:00	08:00 15:00	08:00 15:00	08:00 15:00	08:00 15:00	08:00 12:00	11:00 12:00	N/A N/A	08:00 15:00	N/A N/A	08:00 15:00	N/A N/A	08:00 12:00
00:00	3	0	0	2	2	4	18	29	4	7	1	22	11
01:00	3	3	2	2	0	2	3	15	2	10	2	5	3
02:00	1	1	0	2	2	2	2	10	1	6	1	4	2
03:00	1	0	0	2	1	3	2	9	1	4	1	5	3
04:00	0	0	1	0	0	0	0	1	0	1	0	0	0
05:00	2	3	2	4	4	1	0	16	2	15	3	1	1
06:00	7	6	9	14	10	3	2	51	7	46	9	5	3
07:00	41	45	40	40	40	10	6	222	32	206	41	16	8
08:00	271	279	260	269	271	171	10	1531	219	1350	270	181	91
09:00	36	31	27	29	41	60	21	245	35	164	33	81	41
10:00	23	27	21	25	22	35	22	175	25	118	24	57	29
11:00	17	23	21	30	31	65	44	231	33	122	24	109	55
12:00	27	23	46	25	39	115	34	309	44	160	32	149	75
13:00	25	34	39	31	37	56	33	255	36	166	33	89	45
14:00	73	70	70	62	76	101	24	476	68	351	70	125	63
15:00	181	173	154	175	207	40	30	960	137	890	178	70	35
16:00	54	61	67	61	85	44	28	400	57	328	66	72	36
17:00	66	74	110	87	64	53	23	477	68	401	80	76	38
18:00	68	61	59	65	41	26	20	340	49	294	59	46	23
19:00	28	34	40	46	54	21	16	239	34	202	40	37	19
20:00	24	21	19	36	25	23	21	169	24	125	25	44	22
21:00	11	19	11	15	24	18	12	110	16	80	16	30	15
22:00	9	11	5	9	15	12	11	72	10	49	10	23	12
23:00	1	4	5	5	13	11	2	41	6	28	6	13	7
Total	972	1003	1008	1036	1104	876	384	6383	910	5123	1024	1260	637
% Heavy	0.72%	1.20%	0.89%	0.77%	0.82%	0.46%	0.78%	0.81%		0.88%		0.56%	



Site Beryl Ave

Direction ▼

[Back to Site Summary Page](#)

Day Date	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
	3/02/2020	4/02/2020	5/02/2020	6/02/2020	7/02/2020	8/02/2020	9/02/2020	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	09:00	11:00	N/A	08:00	N/A	08:00	N/A	09:00
PM Peak	15:00	15:00	15:00	15:00	15:00	12:00	12:00	N/A	15:00	N/A	15:00	N/A	12:00
00:00	6	0	1	6	3	9	31	56	8	16	3	40	20
01:00	3	3	3	3	1	5	5	23	3	13	3	10	5
02:00	1	3	1	3	2	2	2	14	2	10	2	4	2
03:00	2	0	0	2	2	6	4	16	2	6	1	10	5
04:00	1	2	2	0	3	1	0	9	1	8	2	1	1
05:00	10	12	11	12	13	6	4	68	10	58	12	10	5
06:00	26	35	37	42	31	12	6	189	27	171	34	18	9
07:00	108	114	98	117	105	25	22	589	84	542	108	47	24
08:00	497	502	500	499	521	216	36	2771	396	2519	504	252	126
09:00	155	141	132	146	179	223	65	1041	149	753	151	288	144
10:00	71	88	70	72	81	117	72	571	82	382	76	189	95
11:00	53	75	77	74	77	126	92	574	82	356	71	218	109
12:00	67	68	97	74	86	276	88	756	108	392	78	364	182
13:00	64	78	98	78	78	124	71	591	84	396	79	195	98
14:00	126	112	131	110	131	207	73	890	127	610	122	280	140
15:00	405	361	377	372	451	111	72	2149	307	1966	393	183	92
16:00	157	186	187	169	214	107	69	1089	156	913	183	176	88
17:00	188	187	209	191	182	120	61	1138	163	957	191	181	91
18:00	132	134	130	145	127	71	66	805	115	668	134	137	69
19:00	84	76	102	116	110	64	40	592	85	488	98	104	52
20:00	54	59	56	65	71	58	45	408	58	305	61	103	52
21:00	30	36	23	35	37	35	23	219	31	161	32	58	29
22:00	21	15	20	16	35	27	18	152	22	107	21	45	23
23:00	5	7	8	12	24	21	7	84	12	56	11	28	14
Total	2266	2294	2370	2359	2564	1969	972	14794	2114	11853	2370	2941	1475
% Heavy	0.79%	0.92%	0.76%	0.59%	0.94%	0.61%	0.62%	0.76%		0.80%		0.61%	

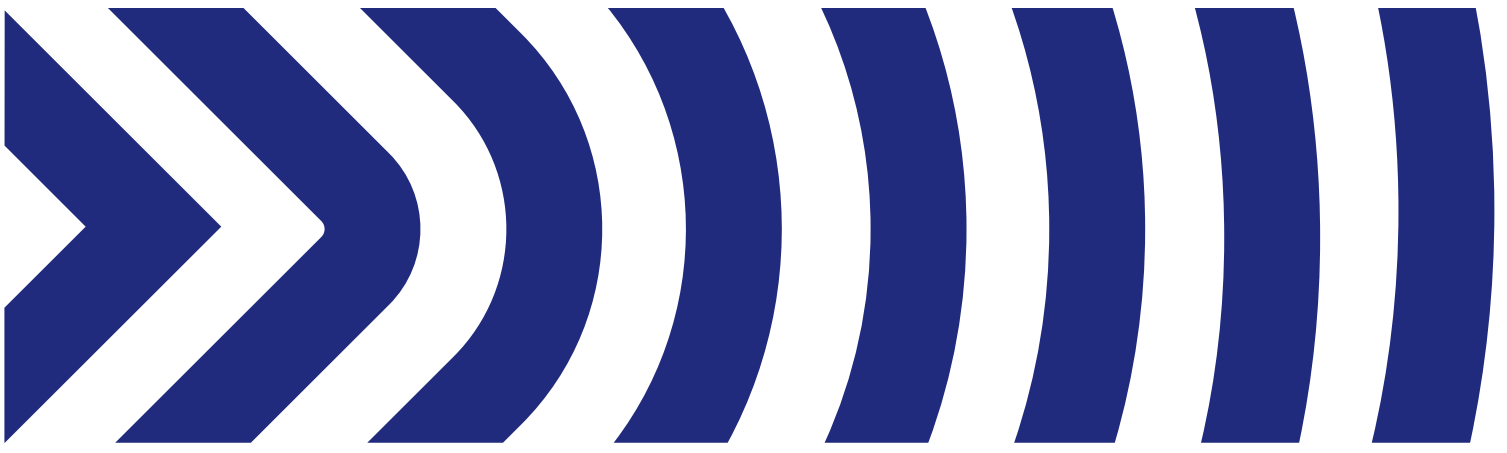


Site Beryl Ave

Direction ▼

[Back to Site Summary Page](#)

Day Date	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
	3/02/2020	4/02/2020	5/02/2020	6/02/2020	7/02/2020	8/02/2020	9/02/2020	Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	09:00	11:00	N/A	08:00	N/A	08:00	N/A	09:00
PM Peak	15:00	15:00	15:00	15:00	15:00	12:00	12:00	N/A	15:00	N/A	15:00	N/A	12:00
00:00	6	0	1	6	3	9	31	56	8	16	3	40	20
01:00	3	3	3	3	1	5	5	23	3	13	3	10	5
02:00	1	3	1	3	2	2	2	14	2	10	2	4	2
03:00	2	0	0	2	2	6	4	16	2	6	1	10	5
04:00	1	2	2	0	3	1	0	9	1	8	2	1	1
05:00	10	12	11	12	13	6	4	68	10	58	12	10	5
06:00	26	35	37	42	31	12	6	189	27	171	34	18	9
07:00	108	114	98	117	105	25	22	589	84	542	108	47	24
08:00	497	502	500	499	521	216	36	2771	396	2519	504	252	126
09:00	155	141	132	146	179	223	65	1041	149	753	151	288	144
10:00	71	88	70	72	81	117	72	571	82	382	76	189	95
11:00	53	75	77	74	77	126	92	574	82	356	71	218	109
12:00	67	68	97	74	86	276	88	756	108	392	78	364	182
13:00	64	78	98	78	78	124	71	591	84	396	79	195	98
14:00	126	112	131	110	131	207	73	890	127	610	122	280	140
15:00	405	361	377	372	451	111	72	2149	307	1966	393	183	92
16:00	157	186	187	169	214	107	69	1089	156	913	183	176	88
17:00	188	187	209	191	182	120	61	1138	163	957	191	181	91
18:00	132	134	130	145	127	71	66	805	115	668	134	137	69
19:00	84	76	102	116	110	64	40	592	85	488	98	104	52
20:00	54	59	56	65	71	58	45	408	58	305	61	103	52
21:00	30	36	23	35	37	35	23	219	31	161	32	58	29
22:00	21	15	20	16	35	27	18	152	22	107	21	45	23
23:00	5	7	8	12	24	21	7	84	12	56	11	28	14
Total	2266	2294	2370	2359	2564	1969	972	14794	2114	11853	2370	2941	1475
% Heavy	0.79%	0.92%	0.76%	0.59%	0.94%	0.61%	0.62%	0.76%		0.80%		0.61%	



Appendix C

Car Parking Survey Results

Supervised By: Yvonne Leow
 Surveyed By: San Murali

Survey Dates & Times: See below

Location	Restriction	Reduced Parking Area	Capacity Min - Max	Thursday 6th February, 2020				Saturday 8th February, 2020				Thurs 13th Feb, 2020
				12pm	1pm	7pm	8pm	12pm	1pm	7pm	8pm	3pm
ON-STREET CARPARKING												
GOLF ROAD												
East Side												
No. 28 (NB) to Barholme Court	Unrestricted (indented)		7	0	0	1	2	1	2	2	2	0
	No Stopping		-	0	0	0	0	0	0	0	0	0
Barholme Court to No. 52 (WB)	No Stopping		-	0	0	0	0	0	0	0	0	0
	Bus Zone		-	0	0	0	0	0	0	0	0	0
	No Stopping		-	0	0	0	0	1	1	0	0	0
No. 52 (WB) to Beryl Avenue (Subject Site)	No Stopping 7am-5pm Mon-Fri		-	0	0	0	0	0	0	0	0	0
	No Stopping		-	0	0	0	0	0	0	0	0	0
West Side												
Delia Street to No. 97 (NB)	No Stopping		-	0	0	0	0	0	0	0	0	0
	No Stopping 7-9am, 4-6:30pm Mon-Fri		-	0	0	0	0	0	0	0	0	0
	Unrestricted (Indented Parking)		1	0	0	1	1	1	1	1	1	1
	Bus Zone		-	0	0	0	0	0	0	0	0	0
	Unrestricted (Indented Parking)		2	1	1	2	2	2	2	2	2	2
	No Stopping		-	0	0	0	0	0	0	0	0	0
No. 97 (NB) to Deroy Street	No Stopping		-	0	0	0	0	0	0	0	0	0
	Bus Zone		-	0	0	0	0	0	0	0	0	0
	No Stopping		-	0	0	0	0	0	0	0	0	0
GOLF ROAD	Capacity		10 - 10	10	10	10	10	10	10	10	10	10
	Total Number of Cars Parked			1	1	4	5	5	6	5	5	3
	Total Number of Vacant Spaces			9	9	6	5	5	4	5	5	7
	Percentage Occupancy			10%	10%	40%	50%	50%	60%	50%	50%	30%

Supervised By: Yvonne Leow
 Surveyed By: San Murali

Survey Dates & Times: See below

Location	Restriction	Reduced Parking Area	Capacity Min - Max	Thursday 6th February, 2020				Saturday 8th February, 2020				Thurs 13th Feb, 2020
				12pm	1pm	7pm	8pm	12pm	1pm	7pm	8pm	3pm
CAMERON AVENUE												
East Side												
Beryl Avenue to No. 16 (SB)	No Stopping	-	0	0	0	0	0	0	0	0	0	0
	Bus Zone	-	0	0	0	0	0	0	0	0	0	0
	No Stopping 7-9am & 4-6pm Mon-Fri	10	0	0	0	1	1	0	0	0	0	0
West Side												
No. 17 (NB) to Pitt Street	Unrestricted	9	1	2	1	0	1	1	0	0	0	1
	No Stopping	-	0	0	0	0	0	0	0	0	0	0
Pitt Street to Roundabout	No Stopping	-	0	0	0	0	0	0	0	0	0	0
	Unrestricted	2	0	0	0	0	0	0	0	0	0	0
	Bus Zone	-	0	0	0	0	0	0	0	0	0	0
	No Stopping	-	0	0	0	0	0	0	0	0	0	0
CAMERON AVENUE	Capacity	21 - 21	21	21	21	21	21	21	21	21	21	21
	Total Number of Cars Parked		1	2	1	1	2	1	0	0	1	
	Total Number of Vacant Spaces		20	19	20	20	19	20	21	21	20	
	Percentage Occupancy		5%	10%	5%	5%	10%	5%	0%	0%	5%	

Supervised By: Yvonne Leow
 Surveyed By: San Murali

Survey Dates & Times: See below

Location	Restriction	Reduced Parking Area	Capacity Min - Max	Thursday 6th February, 2020				Saturday 8th February, 2020				Thurs 13th Feb, 2020
				12pm	1pm	7pm	8pm	12pm	1pm	7pm	8pm	3pm
DELIA STREET												
North Side												
Dermot Street to Delos Street	No Stopping	-	0	0	0	0	0	0	0	0	0	0
	Unrestricted	6	0	0	1	1	1	0	2	2	0	
	No Stopping	-	0	0	0	0	0	0	0	0	0	
Delos Street to Golf Road	No Stopping	-	0	0	0	0	0	0	0	0	0	
	Unrestricted	6	0	0	1	1	0	0	0	0	0	
	No Stopping	-	0	0	0	0	0	0	0	0	0	
South Side												
Golf Road to No. 32 (WB)	No Stopping	-	0	0	0	0	0	0	0	0	0	
	Unrestricted	8	0	0	4	3	0	0	1	1	0	
No. 32 (WB) to No. 20 (WB)	Unrestricted	11	5	6	7	7	6	5	11	10	5	
DELIA STREET	Capacity	19 - 19	19	19	19	19	19	19	19	19	19	
	Total Number of Cars Parked		5	6	13	12	7	5	14	13	5	
	Total Number of Vacant Spaces		14	13	6	7	12	14	5	6	14	
	Percentage Occupancy		26%	32%	68%	63%	37%	26%	74%	68%	26%	
Note: Due to width of carriageway, parking can only be legally accommodated on one side of the road. Accordingly, we have only considered the capacity on one side.												

Supervised By: Yvonne Leow
 Surveyed By: San Murali

Survey Dates & Times: See below

Location	Restriction	Reduced Parking Area	Capacity Min - Max	Thursday 6th February, 2020				Saturday 8th February, 2020				Thurs 13th Feb, 2020
				12pm	1pm	7pm	8pm	12pm	1pm	7pm	8pm	3pm
BERYL AVENUE												
North Side												
Cameron Avenue to Bakers Road (Subject Site)	Unrestricted		23	0	0	0	0	2	0	0	0	0
	Unrestricted (indented)		2	0	0	0	0	2	0	0	0	1
	No Stopping		-	0	0	0	0	0	0	0	0	0
Bakers Road to Riley Street	No Stopping		-	0	0	0	0	0	0	0	0	0
	Unrestricted		21	1	0	1	1	8	2	1	1	3
	No Stopping		-	0	0	0	0	0	0	0	0	0
West Side												
Riley Street to Bakers Road	No Stopping		-	0	0	0	0	0	0	0	0	0
	Unrestricted		19	0	0	0	0	6	1	1	1	3
	No Stopping		-	0	0	0	0	0	0	0	0	0
Bakers Road to Joyce Avenue	No Stopping		-	0	0	0	0	0	0	0	0	0
	Unrestricted		4	0	0	0	0	7	2	0	0	0
	No Stopping		-	0	0	0	0	0	0	0	0	0
Joyce Avenue to Cameron Avenue	No Stopping		-	0	0	0	0	0	0	0	0	0
	Unrestricted		5	0	0	0	0	0	0	0	0	0
	No Stopping		-	0	0	0	0	0	0	0	0	0
Capacity			46 - 46	46	46	46	46	46	46	46	46	46
Total Number of Cars Parked			1	0	1	1	25	5	2	2	7	
Total Number of Vacant Spaces			45	46	45	45	21	41	44	44	39	
Percentage Occupancy			2%	0%	2%	2%	54%	11%	4%	4%	15%	
Note: Due to width of carriageway, parking can only be legally accommodated on one side of the road. Accordingly, we have only considered the capacity on one side.												

Supervised By: Yvonne Leow
 Surveyed By: San Murali

Survey Dates & Times: See below

Location	Restriction	Reduced Parking Area	Capacity Min - Max	Thursday 6th February, 2020				Saturday 8th February, 2020				Thurs 13th Feb, 2020
				12pm	1pm	7pm	8pm	12pm	1pm	7pm	8pm	3pm
BAKERS ROAD												
East Side												
END to Beryl Avenue	Unrestricted		2	0	0	1	1	2	1	1	1	3
	No Stopping		-	0	0	0	0	0	0	0	0	0
Beryl Avenue to opposite No. 17 (NB)	No Stopping		-	0	0	0	0	0	0	0	0	0
	Permit Zone		4	0	0	0	0	2	0	0	0	0
	P 2minute 8am-9am & 3-4pm School Days		6	0	0	0	0	5	4	0	0	5
	Bus Zone		-	0	0	0	0	0	0	0	0	0
	No stopping		-	0	0	0	0	0	0	0	0	0
West Side												
No. 17 (NB) to Beryl Avenue	Permit zone		15	3	3	1	1	12	8	5	4	11
	No Stopping		-	0	0	0	0	0	0	0	0	0
Beryl Avenue to END (Subject Site)	Unrestricted		3	1	0	0	0	4	0	0	0	1
BAKERS ROAD	Capacity		9 - 9	9	9	9	9	9	9	9	9	9
	Total Number of Cars Parked			1	0	1	1	11	5	1	1	9
	Total Number of Vacant Spaces			8	9	8	8	-2	4	8	8	0
	Percentage Occupancy			11%	0%	11%	11%	122%	56%	11%	11%	100%
Note: Due to width of carriageway, parking can only be legally accommodated on one side of the road. Accordingly, we have only considered the capacity on one side.												

Supervised By: Yvonne Leow
 Surveyed By: San Murali

Survey Dates & Times: See below

Location	Restriction	Reduced Parking Area	Capacity Min - Max	Thursday 6th February, 2020				Saturday 8th February, 2020				Thurs 13th Feb, 2020
				12pm	1pm	7pm	8pm	12pm	1pm	7pm	8pm	3pm
JOYCE AVENUE												
West Side												
No. 15 (SB) to Beryl Avenue	Unrestricted		17	3	3	4	3	5	3	2	1	4
	No Stopping		-	0	0	0	0	0	0	0	0	0
East Side												
Beryl Avenue to No. 16 (SB)	No Stopping		-	0	0	0	0	0	0	0	0	0
	Unrestricted		16	2	2	3	3	8	3	2	2	6
JOYCE AVENUE	Capacity		17 - 17	17	17	17	17	17	17	17	17	17
	Total Number of Cars Parked			5	5	7	6	13	6	4	3	10
	Total Number of Vacant Spaces			12	12	10	11	4	11	13	14	7
	Percentage Occupancy			29%	29%	41%	35%	76%	35%	24%	18%	59%

Note: Due to width of carriageway, parking can only be legally accommodated on one side of the road. Accordingly, we have only considered the capacity on one side.

SUMMARY => ON-STREET CARPARKING

Car Parking Supply	122 - 122	122	122	122	122	122	122	122	122	122	122
Total Number of Cars Parked		14	14	27	26	63	28	26	24	35	
Total Number of Vacant Spaces		108	108	95	96	59	94	96	98	87	
Percentage Occupancy		11%	11%	22%	21%	52%	23%	21%	20%	29%	

SUMMARY => ON-STREET CARPARKING (REDUCED AREA)

Car Parking Supply	28 - 28	28	28	28	28	28	28	28	28	28
Total Number of Cars Parked		1	0	1	1	17	3	1	1	5
Total Number of Vacant Spaces		27	28	27	27	11	25	27	27	23
Percentage Occupancy		4%	0%	4%	4%	61%	11%	4%	4%	18%

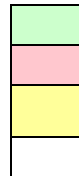
Note: Public parking includes spaces that are available to the general public and excludes 'No Stopping', 'Loading Zones' and 'No Parking' areas, etc., during the relevant enforcement periods

LEGEND: Public Parking

Not available to the general public

Illegally parked cars on nature strip included in analysis

No Stopping/
Other No Parking

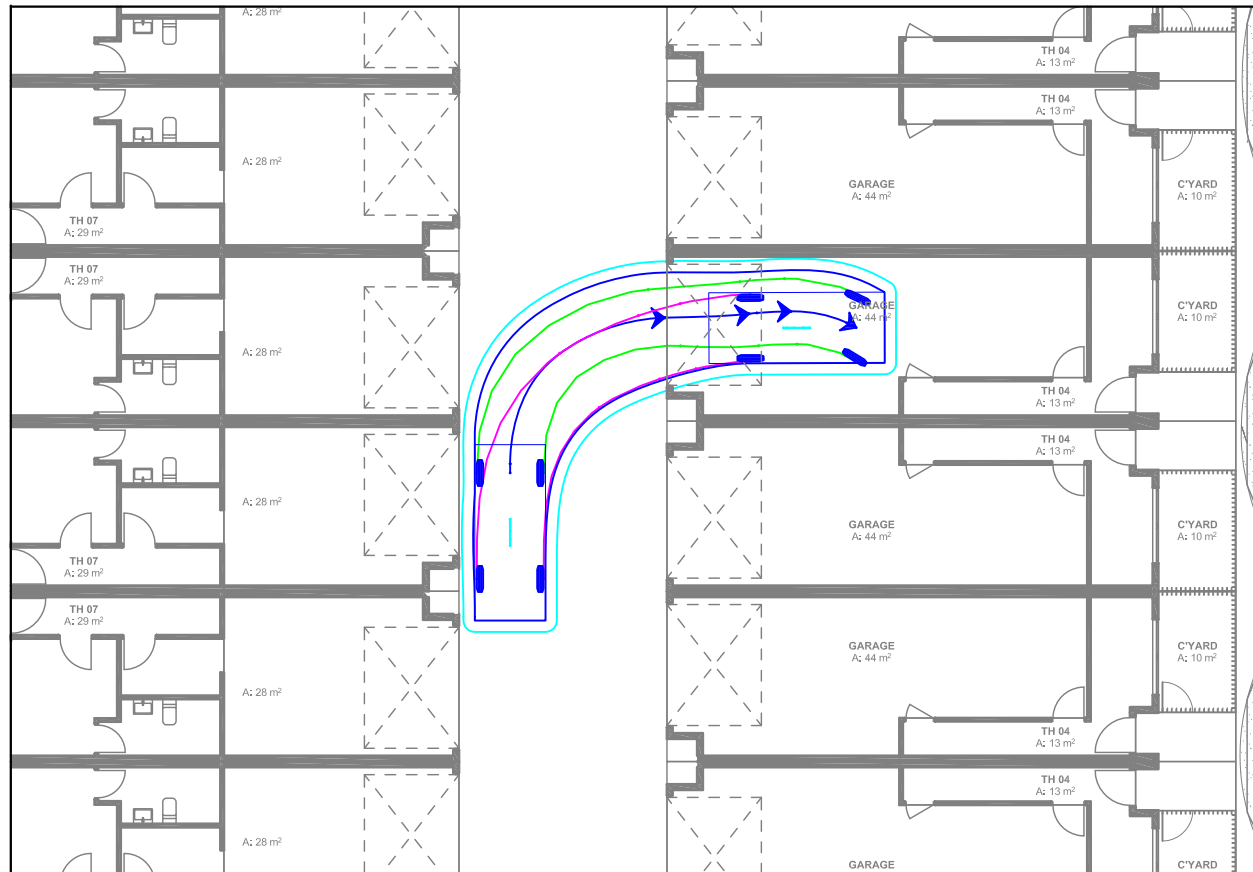




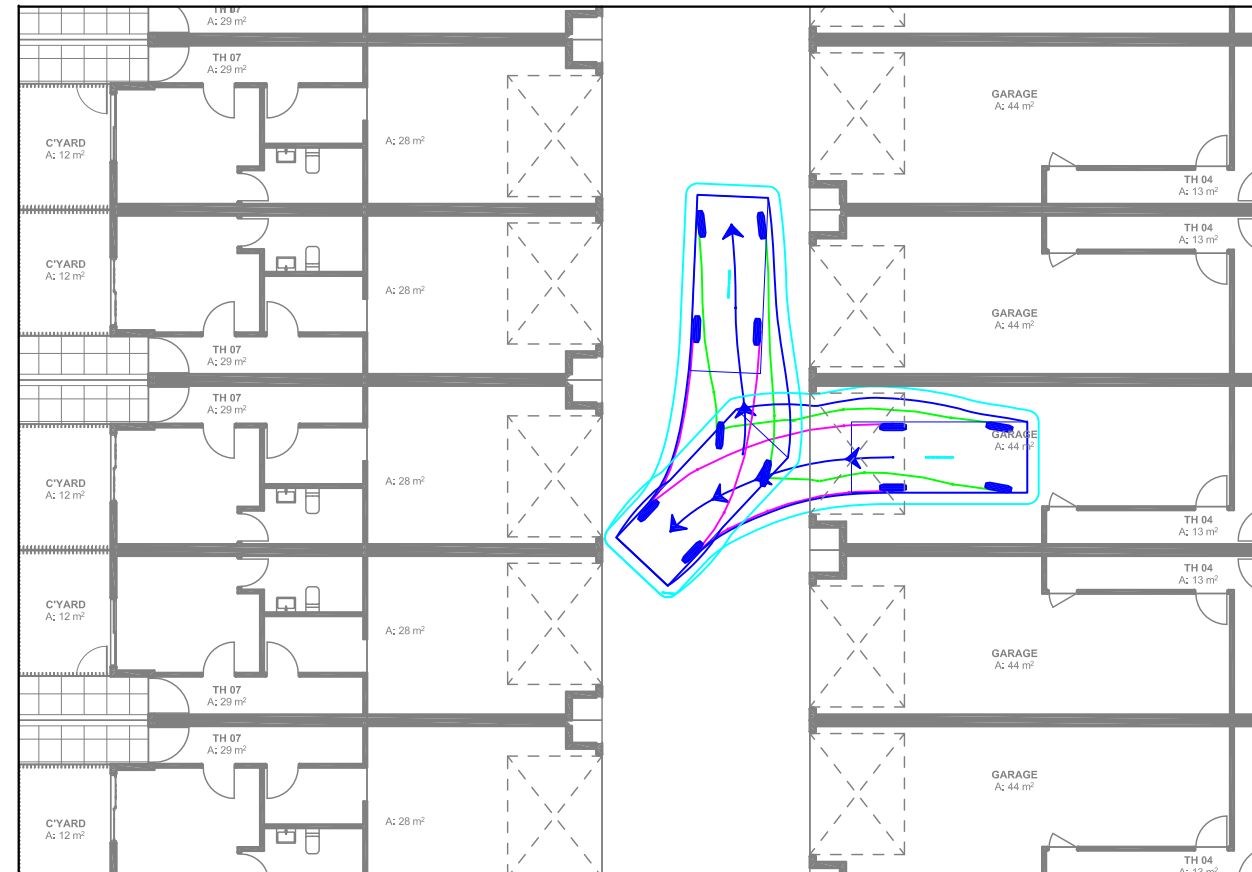
Appendix D

Swept Path Diagrams

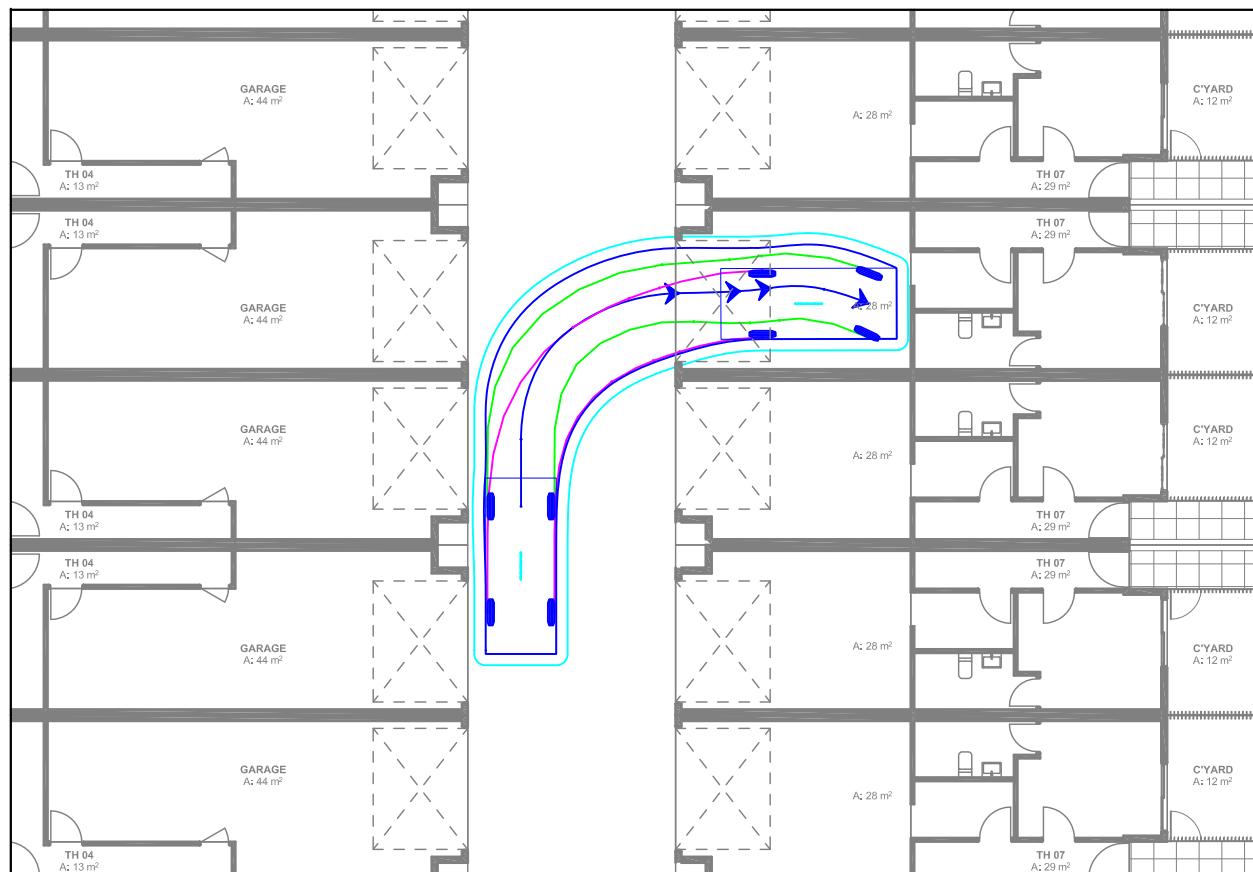
GARAGE SPACE 1 - INGRESS



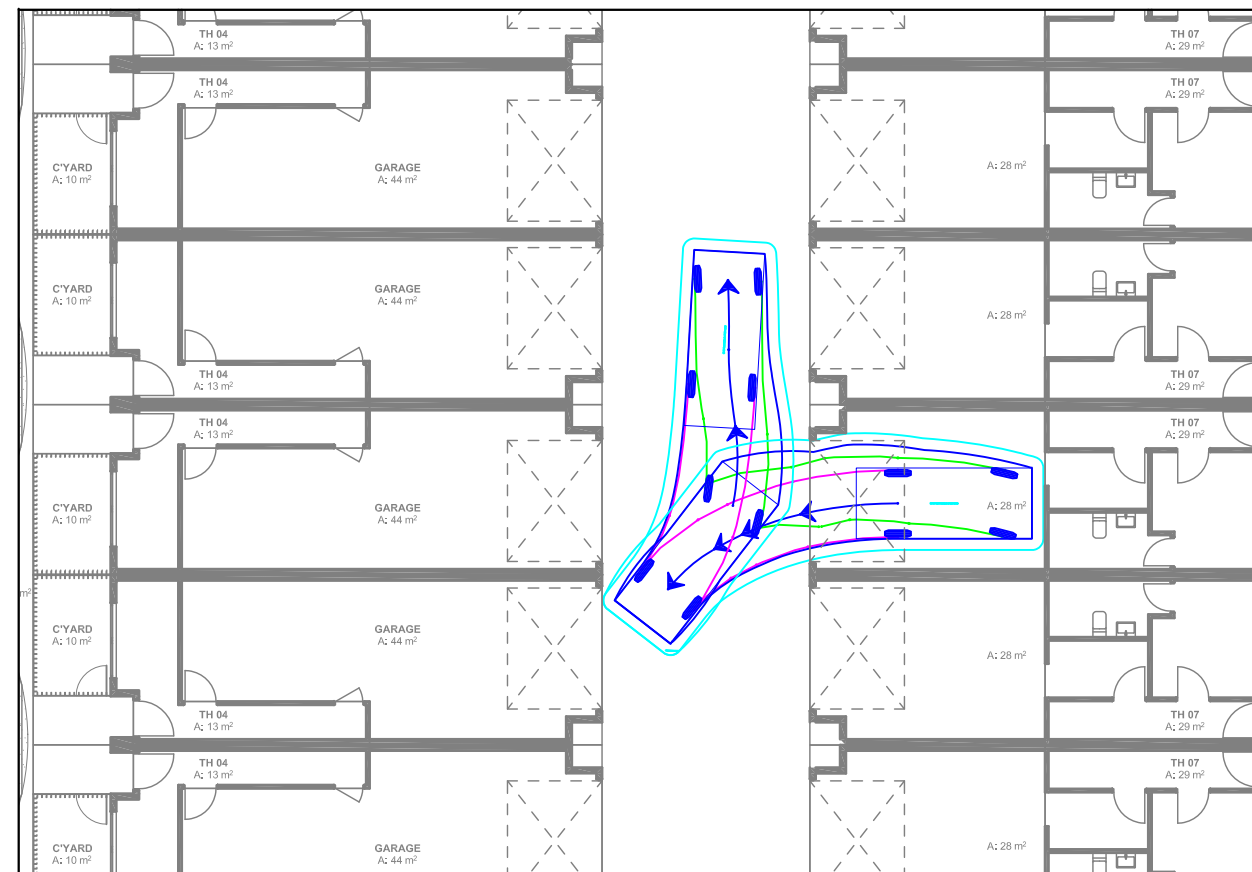
GARAGE SPACE 1 - EGRESS



GARAGE SPACE 2 - INGRESS



GARAGE SPACE 2 - EGRESS



VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)

85th percentile
(AS/NZS 2890.1:2004)

Width : 1.87m
Track : 1.77m
Kerb to Kerb Radius: 1.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE



PRELIMINARY ONLY
NOT FOR CONSTRUCTION

REV.	REVISION NOTES	REVISION DATE

GENERAL NOTES:
INFORMATION BASED ON "4.26 MASTER PLAN - TRAFFIC.dwg"
PREPARED BY PLUS ARCHITECTURE , RECEIVED ON 2 MAR 2021

DESIGNED BY:
Y. LEOW 2 MAR 2021

CHECKED BY:
M. WOOLLARD 2 MAR 2021

FILE NAME:
G25977-06.dwg

ISSUE:
A

Traffix Group

Level 28, 459 Collins Street
MELBOURNE VICTORIA 3000
TEL : (03) 9822-2888

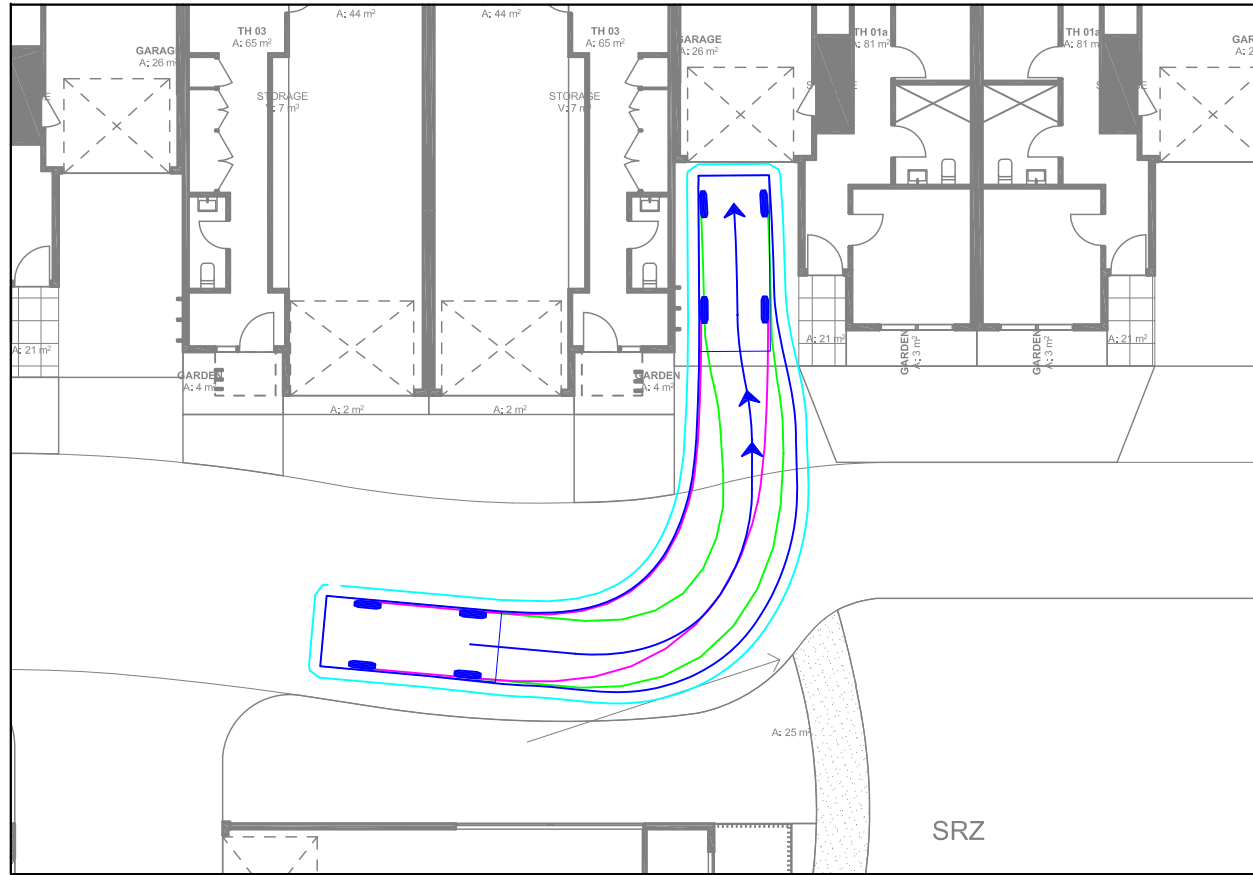
52 GOLF ROAD, OAKLEIGH SOUTH
B85 DESIGN CAR SWEEP PATHS
PROPOSED RESIDENTIAL DEVELOPMENT

SCALE: 1:200 (A3)

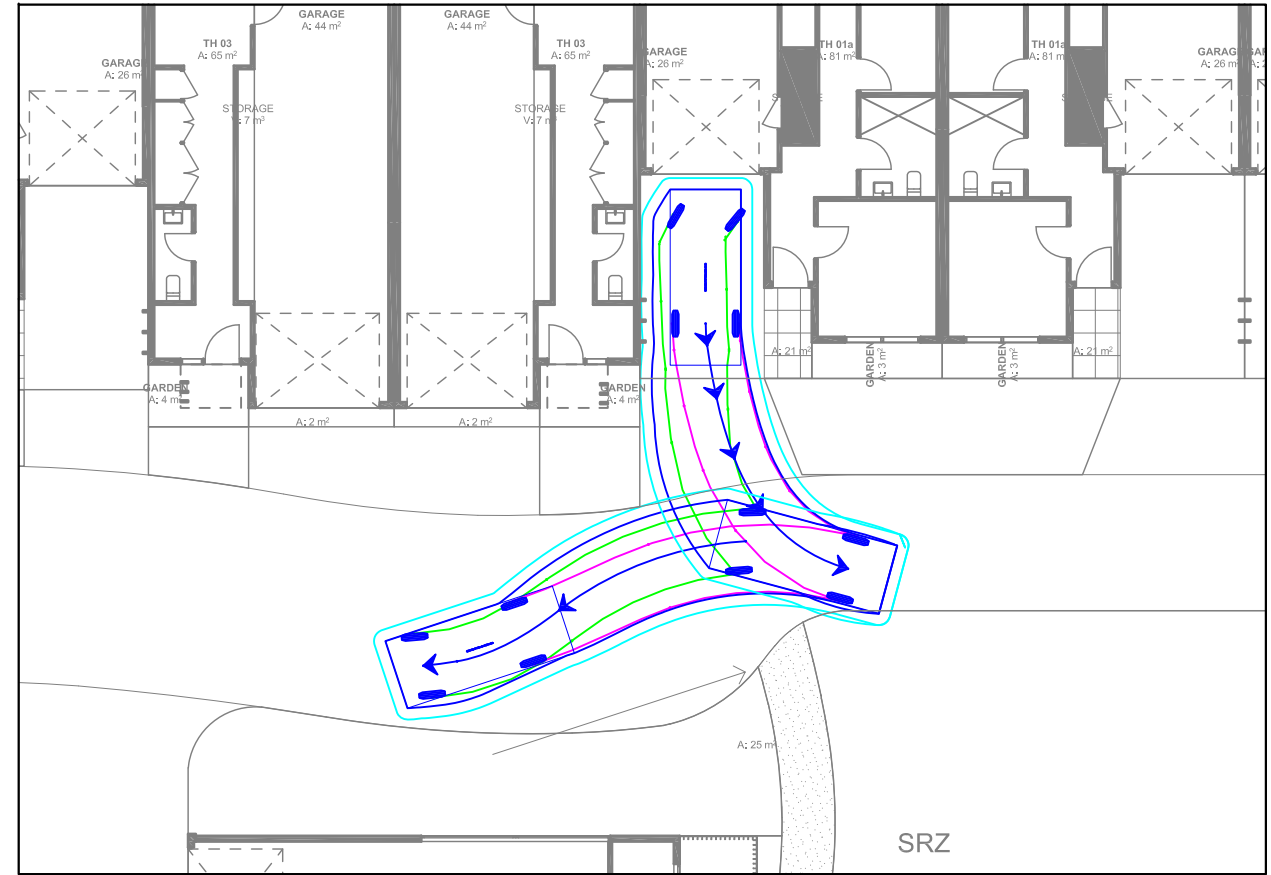
SHEET NO.: 01/05

JOB NO.: G25977

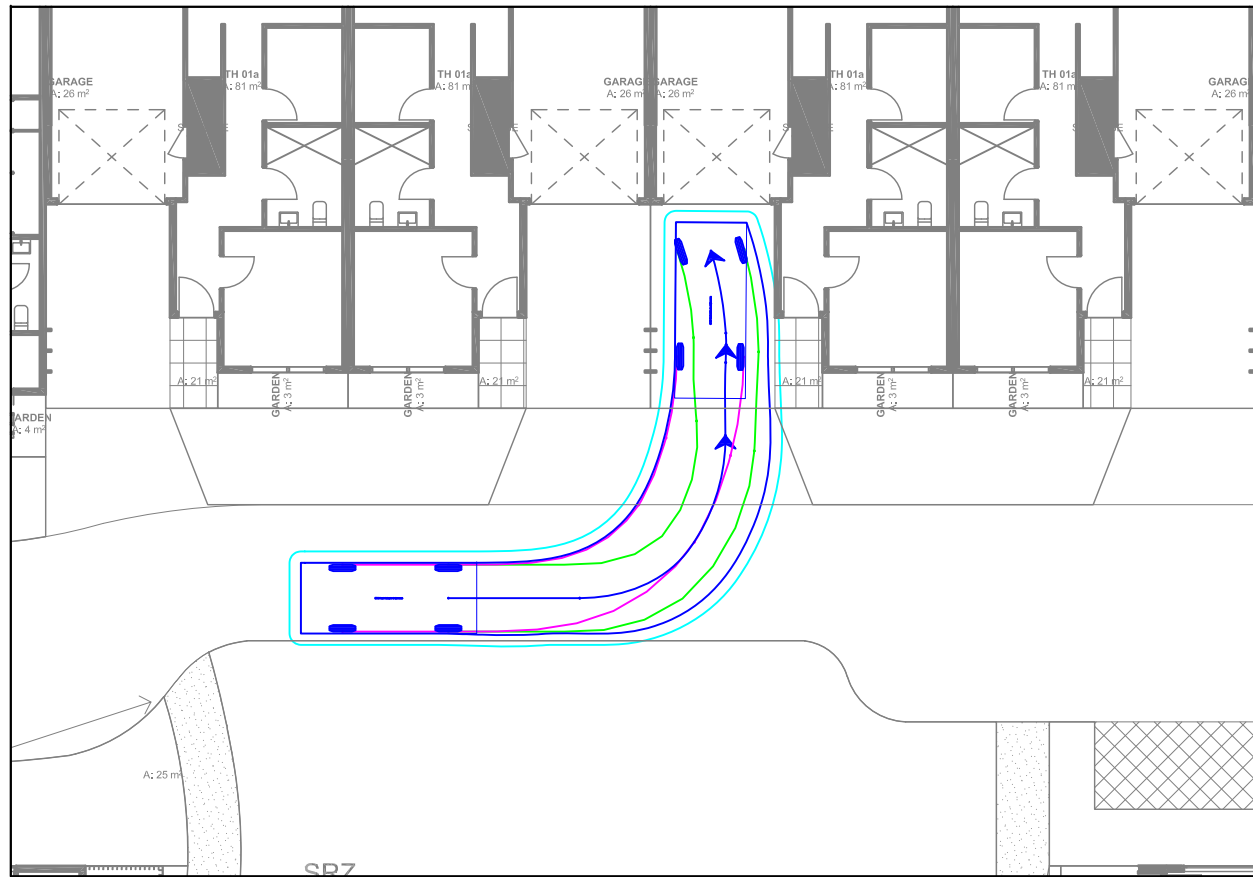
GARAGE SPACE 3 - INGRESS



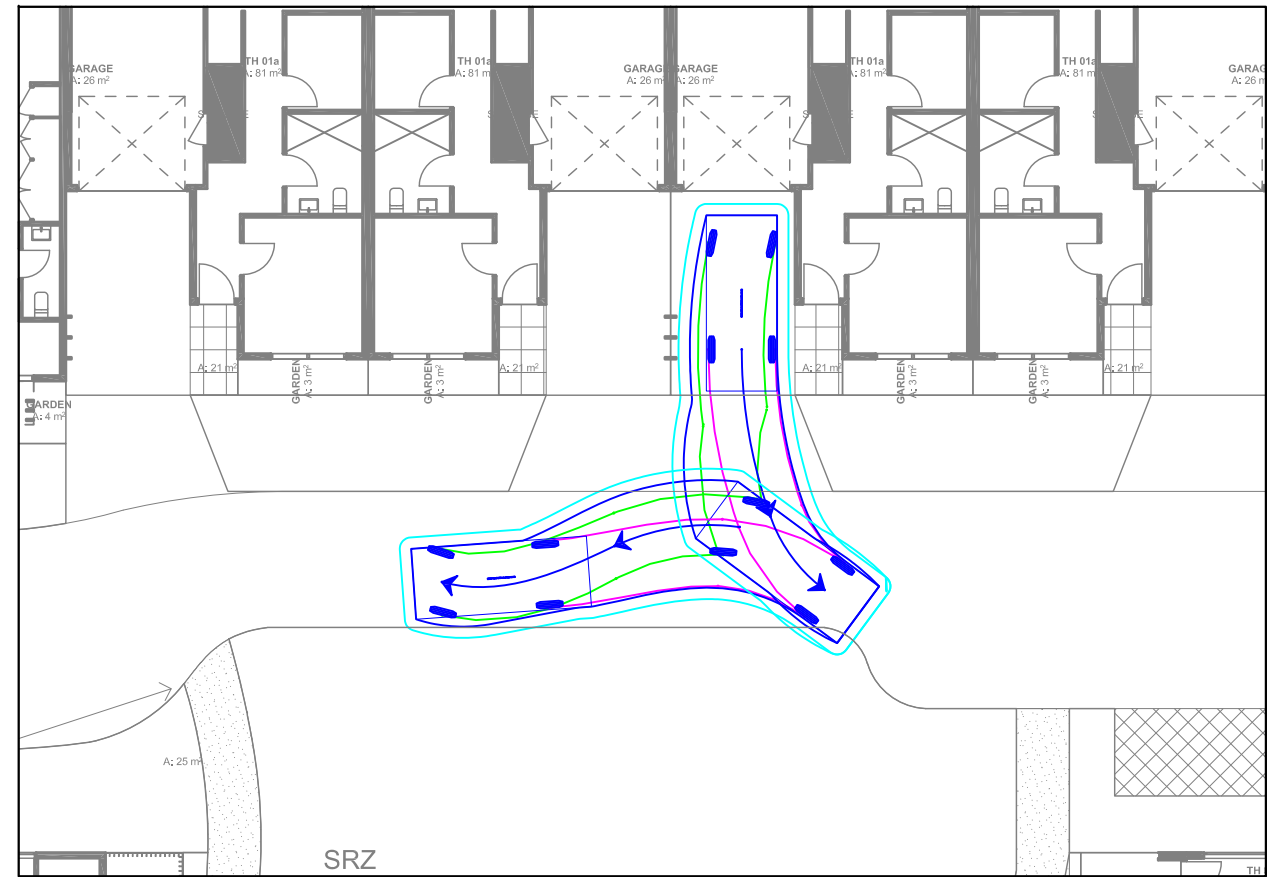
GARAGE SPACE 3 - EGRESS



GARAGE SPACE 4 - INGRESS

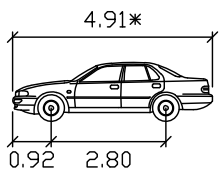


GARAGE SPACE 4 - EGRESS



VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



85th percentile
(AS/NZS 2890.1:2004)

Width : 1.87m
Track : 1.77m
Kerb to Kerb Radius 1.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE



PRELIMINARY ONLY
NOT FOR CONSTRUCTION

REV.	REVISION NOTES	REVISION DATE

GENERAL NOTES:
INFORMATION BASED ON "4.26 MASTER PLAN - TRAFFIC.dwg"
PREPARED BY PLUS ARCHITECTURE , RECEIVED ON 2 MAR 2021

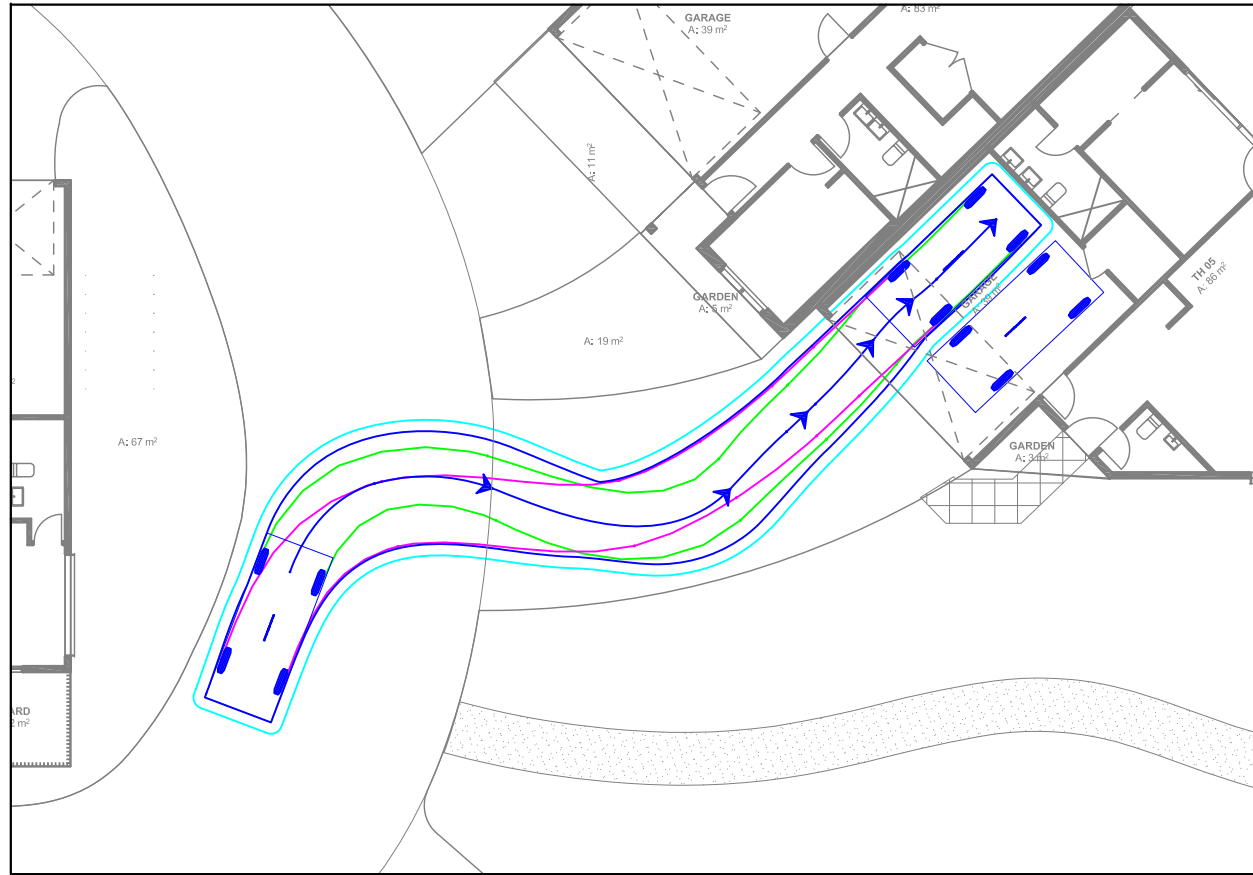
DESIGNED BY:
Y. LEOW 2 MAR 2021
CHECKED BY:
M. WOOLLARD 2 MAR 2021
FILE NAME:
G25977-06.dwg
ISSUE:
A

Traffix Group
Level 28, 459 Collins Street
MELBOURNE VICTORIA 3000
TEL : (03) 9822-2888

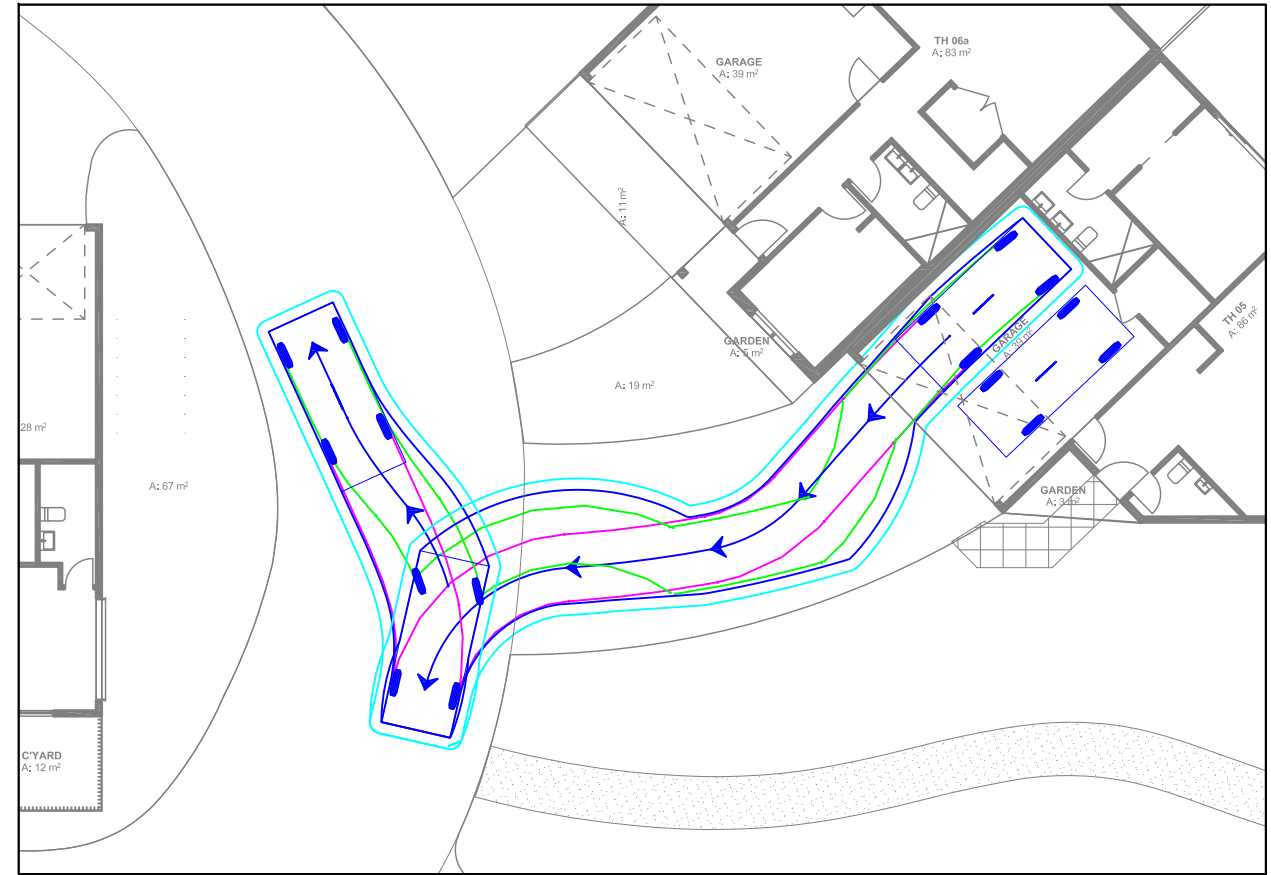
52 GOLF ROAD, OAKLEIGH SOUTH
B85 DESIGN CAR SWEEP PATHS
PROPOSED RESIDENTIAL DEVELOPMENT

SCALE: 1:200 (A3) SHEET NO.: 02/05 JOB NO.: G25977

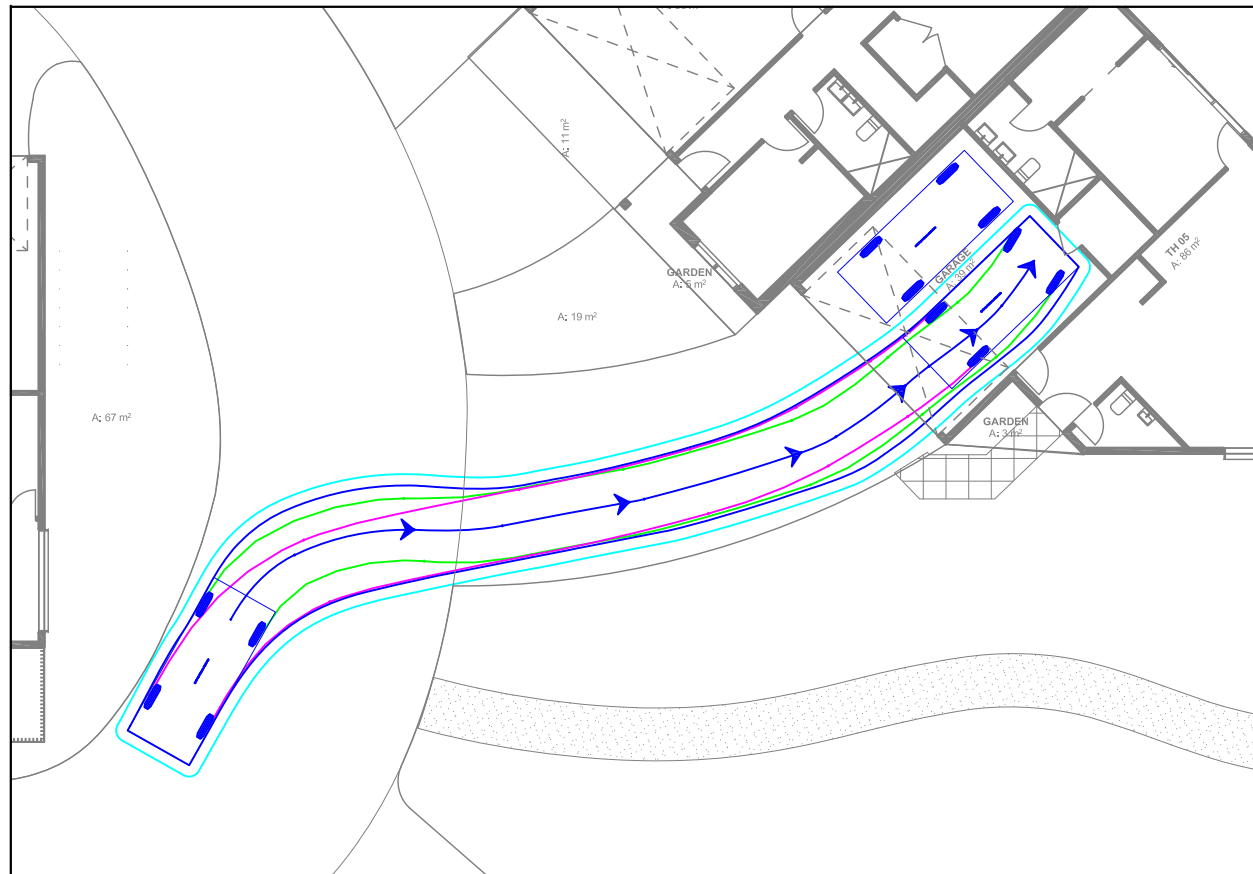
GARAGE SPACE 5 - INGRESS



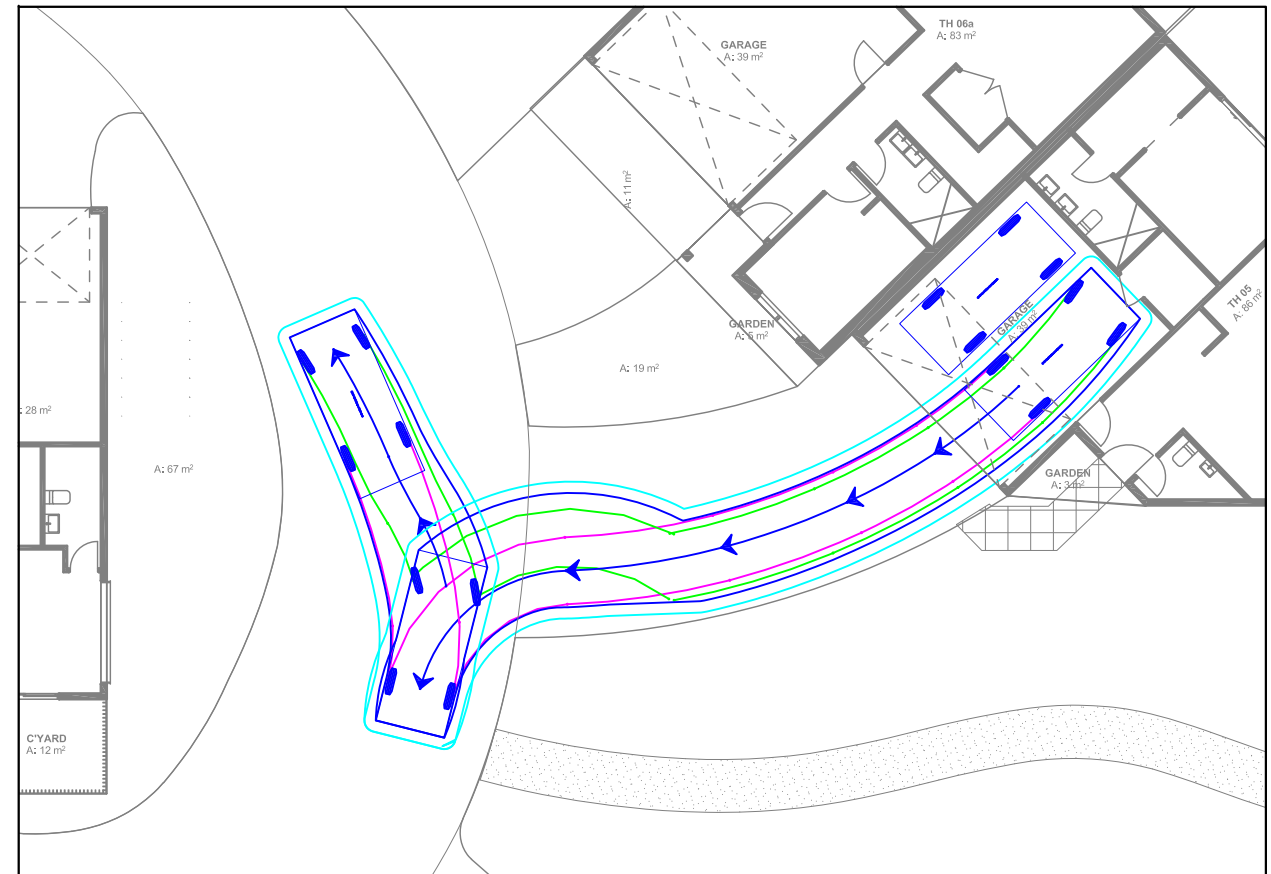
GARAGE SPACE 5 - EGRESS



GARAGE SPACE 6 - INGRESS

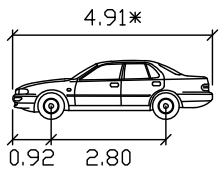


GARAGE SPACE 6 - EGRESS



VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



85th percentile
(AS/NZS 2890.1:2004)

Width : 1.87m
Track : 1.77m
Kerb to Kerb Radius: 1.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

REV.	REVISION NOTES	REVISION DATE

GENERAL NOTES:
INFORMATION BASED ON "4.26 MASTER PLAN - TRAFFIC.dwg"
PREPARED BY PLUS ARCHITECTURE , RECEIVED ON 2 MAR 2021

DESIGNED BY:
Y. LEOW 2 MAR 2021

CHECKED BY:
M. WOOLLARD 2 MAR 2021

FILE NAME:
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52 GOLF ROAD, OAKLEIGH SOUTH
B85 DESIGN CAR SWEEP PATHS
PROPOSED RESIDENTIAL DEVELOPMENT

SCALE: 1:200 (A3)

SHEET NO.: 03/05

JOB NO.: G25977

8.8m MRV - CIRCULATING SITE



PRELIMINARY ONLY
NOT FOR CONSTRUCTION

VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)

MRV (AS 2890.2) mm
 Width : 2500
 Track : 2500
 Lock to Lock Time : 6.0
 Steering Angle : 34.0

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE

REV.	REVISION NOTES	REVISION DATE

GENERAL NOTES:
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52 GOLF ROAD, OAKLEIGH SOUTH
 8.8M MRV DESIGN CAR SWEEP PATHS
 PROPOSED RESIDENTIAL DEVELOPMENT

SCALE: 1:400 (A3)

SHEET NO.: 04/05

JOB NO.: G25977

8.8m MRV - CIRCULATING SITE



PRELIMINARY ONLY
NOT FOR CONSTRUCTION

VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)

MRV (AS 2890.2) mm
 Width : 2500
 Track : 2500
 Lock to Lock Time : 6.0
 Steering Angle : 34.0

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE

REV.	REVISION NOTES	REVISION DATE

GENERAL NOTES:
 INFORMATION BASED ON "4.26 MASTER PLAN - TRAFFIC.dwg"
 PREPARED BY PLUS ARCHITECTURE , RECEIVED ON 2 MAR 2021

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52 GOLF ROAD, OAKLEIGH SOUTH
 8.8M MRV DESIGN CAR SWEEP PATHS
 PROPOSED RESIDENTIAL DEVELOPMENT

SCALE: 1:400 (A3)

SHEET NO.: 05/05

JOB NO.: G25977