

# Traffix Group

## 52 Golf Road, Oakleigh South

### Proposed Development Plan

Victorian Civil and Administrative Tribunal

VCAT Reference Number: P1707/2019

Date of Hearing: 2<sup>nd</sup> March, 2020 (4 days)

Date of Statement: 14<sup>th</sup> February, 2020

Date of Inspection: 6<sup>th</sup> February, 2020

Prepared For the Applicant: Golf Road Project Development Pty Ltd

Instructed By: MinterEllison

IN THE MATTER OF AN APPLICATION FOR REVIEW BY THE APPLICANT AGAINST  
MONASH CITY COUNCIL'S FAILURE TO DETERMINE FOR APPLICATION NO. TP/440

STATEMENT TO THE VICTORIAN CIVIL AND ADMINISTRATIVE TRIBUNAL BY  
CHARMAINE DUNSTAN, TRAFFIC ENGINEER

# **Traffic Engineering Assessment**

## **Proposed Development Plan at 52 Golf Road, Oakleigh South**

### **Our Reference: G25977A-01A**

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# **1. Executive Summary**

## **1.1. Proposal and Summary of Issues**

This statement presents my traffic engineering assessment of a proposed development plan for 52 Golf Road, Oakleigh South.

The proposal considered by Monash City Council under Application No. TP/440 was for 89 townhouses, comprising:

- 16 x two-bedroom dwellings (1 car space per dwelling),
- 18 x three-bedroom dwellings (2 car spaces per dwelling), and
- 55 x four-bedroom dwellings (2 car spaces per dwelling).

A total of 12 shared visitor car parking spaces were provided across the site.

An Application for Review has been lodged by the applicant against Monash City Council's Failure to Determine on Application No. TP/440.

Following the lodgement of the Application for Review by the applicant, Council's officer recommended through the Delegate Report that if it had been in a position to determine on this application, Council would have resolved to refuse the application. None of the grounds of refusal relate directly to traffic engineering matters.

A set of amended plans prepared by Plus Architecture (dated February, 2020), have been circulated for the VCAT hearing. The amended plans propose 90 townhouses comprising:

- 20 x two-bedroom dwellings (1 car space per dwelling),
- 18 x three-bedroom dwellings (2 car spaces per dwelling), and
- 52 x four-bedroom dwellings (2 car spaces per dwelling).

The principal plan changes related to traffic engineering include changes to the townhouse mix from the development breakdown.

The proposed access arrangements are largely consistent with the Application Plans considered by Council from a traffic engineering perspective. Three additional townhouses have direct access to Beryl Avenue.

I have visited the site, made various assessments, perused relevant documentation and plans, and report as follows.

The Statement of Witness is provided in accordance with the VCAT Practice Note – PNVCAT2 – Expert Evidence is provided at Appendix A.

## **1.2. Summary of Opinion**

Having undertaken a detailed traffic engineering assessment for the proposed development plan for 52 Golf Road, Oakleigh South, I am of the opinion that:

- a) a proposed residential development on the site consistent with this development plan would have a statutory car parking requirement of 160 car spaces for residents only, under Clause 52.06-5. No visitor car spaces would be required,
- b) the provision of 172 car spaces, including 160 resident car spaces and 12 visitor car spaces, would exceed the car parking requirements under Clause 52.06-5 of the Planning Scheme and a car parking reduction would not be sought by the application,
- c) bicycle parking would not be required under Clause 52.34 of the Planning Scheme. Nonetheless, the provision of 24 bicycle spaces on-site would adequately provide for visitors. Additionally, bicycle parking for residents could be provided within individual garages,
- d) the proposed parking layout and vehicle access arrangements within the development plan accord with the relevant 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 the development plan at 52 Golf Road, Oakleigh South, should be refused, subject to appropriate conditions.

## **2. Introduction**

My assessment is based on the amended development plan documentation prepared by Plus Architecture (dated February, 2020), which have been circulated for the VCAT hearing. The development plan documentation included a traffic report prepared by my office assessing the traffic engineering matters within the masterplan.

This traffic report was prepared by Matthew Woollard (Associate) of my office. Whilst I was the director responsible for the team preparing the document, I had no involvement in the preparation of this report.

The traffic report is attached at Appendix B to this evidence statement and the Architectural Masterplan is provided at Appendix C.

The following statement makes reference to the traffic report attached at Appendix B and provides additional details where required and where I believe would assist the Tribunal.

## **3. Proposal**

The traffic report which accompanies the development plan sets out the details of the application at Section 2.

Additional details of the application which I consider necessary to provide to the Tribunal is as follows.

Car parking for the townhouses is proposed in one of the following arrangements:

- Single garage,
- Single garage with car space in a tandem arrangement,
- Single width tandem garage, or
- Double garage.

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.

## **4. Application for Review**

An Application for Review has been lodged by the permit applicant against Monash City Council's Failure to Determine on Application No. TP/440.

Following the lodgement of the Application for Review by the applicant, Council's officer recommended, through the Delegate Report, that if it had been in a position to determine on this application, Council would have resolve to refuse the application. None of the grounds of refusal relate directly to traffic engineering matters.

## 5. Existing Conditions

Details of the existing conditions of the development site are provided at Section 3 within the traffic report circulated in association with the Development Plan documentation.

I have undertaken further assessment of the existing conditions of the site, to provide further context to the tribunal. These further assessments are provided within the following sections.

### 5.1.1. Existing Traffic Conditions

#### Automatic Tube Count Surveys

Due to the timing of receiving instructions in relation to the preparation of the traffic report, the traffic surveys presented below were not available to my office at the time of preparation.

My office 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 3<sup>rd</sup> February, 2020 and Sunday 9<sup>th</sup> February, 2020. Summaries of the results are presented below at Table 1 and Table 2.

*Table 1: 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) | 452<br>8-9am  | 370<br>8-9am | 822<br>8-9am |
| Recorded PM Peak Hour Volume (Weekday) | 353<br>3-4pm  | 267<br>3-4pm | 619<br>3-4pm |
| PM Peak Hour Volume (Weekday 5-6pm)    | 296   | 247          | 543          |
| Commercial Vehicle %                   | 4.4%  | 4.3%         | 4.3%         |
| 85 <sup>th</sup> Percentile Speed      | 49.3km/h  | 45.9km/h     | 47.6km/h     |



Table 2: 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 <sup>th</sup> 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.

### 5.1.2. Road Safety Review

I have undertaken a review of the State Road Accident Records (Crashstats) in the vicinity of the site for the past 5 years of available data (01/01/2014 to 31/12/2018)<sup>1</sup>. The review area is shown in Figure 1.

I have undertaken this assessment to provide the Tribunal with details regarding historical casualty crash data of the area surrounding the site and to assess any casualty crash history that would impact on the access type or access location to the site.

<sup>1</sup> Casualty crash data is contained in the VicRoads' *Crashstats Internet Database* and includes all reported casualty crashes (i.e. injury crashes), which are classified into Fatal Injury, Serious Injury and Other Injury (i.e. minor injury) crashes. Property damage only or non-injury crashes are not included in the database.

# 52 Golf Road, Oakleigh South

VCAT Ref. No. P1707/2019

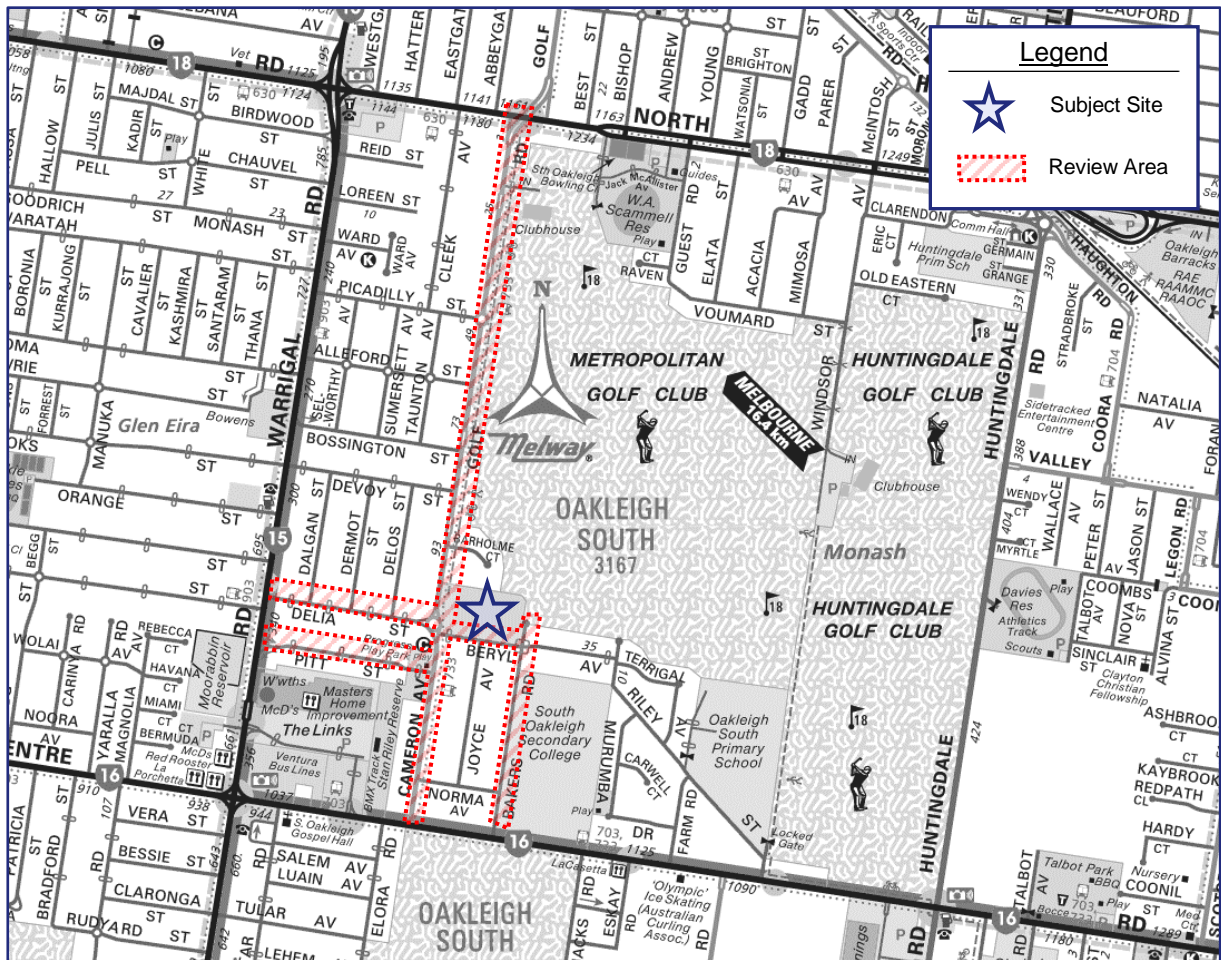


Figure 1: Crash History Investigation Area

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Table 3: Casualty Crash History

| Location                             | Date                 | Time  | Severity | Conditions | DCA Code | Type   |
|--------------------------------------|----------------------|-------|----------|------------|----------|--|
| Delia Street 22m W of Dermot Street  | Friday<br>16/05/2014 | 11:25 | OI       | Day, Dry   | 173      | Right off carriageway into object/parked vehicle             |
|                                      | Thur<br>29/10/2015   | 18:00 | SI       | Dusk, Dry  | 106 (P)  | Vehicle strikes pedestrian on footpath/median/traffic island |
| Warrigal Road at Delia Street        | Mon<br>25/02/2019    | 13:30 | SI       | Day, Dry   | 130      | Rear end (vehicles in same lane)                             |
| Golf Road 38m S of Bossington Street | Thur<br>1/06/2017    | 20:10 | OI       | Dark, Dry  | 199      | Unknown, no details on manoeuvres of road users              |
| Golf Road at Alleford Street         | Sat<br>18/07/2015    | 13:00 | OI       | Day, Dry   | 111      | Right far (intersections only)                               |

| Location   | Date              | Time  | Severity | Conditions | DCA Code | Type                              |
|--|-------------------|-------|----------|------------|----------|-----------------------------------|
| Golf Road 18m SW of North Road   | Tue<br>27/03/2018 | 15:50 | OI       | Day, Dry   | 135      | Lane change left (not overtaking) |
| Warrigal Road at Pitt Street   | Sun<br>15/03/2015 | 14:30 | OI       | Day, Dry   | 132      | Right rear                        |
|  | Wed<br>31/05/2017 | 6:20  | OI       | Dark, Wet  | 130      | Rear end (vehicles in same lane)  |
| <b>LEGEND:</b><br>OI: Other Injury                      SI: Serious Injury                      F: Fatality<br>(B): Bicyclist                          (M): Motorcyclist                      (P): Pedestrian<br>(C): Bus/Coach                        (RT): Rigid Truck                      (ST): Semi-trailer |                   |       |          |            |          |                                   |

The road safety review indicates that there have been 8 casualty crashes within the review area.

Overall, I am satisfied that the casualty crashes reported in this area do not highlight any particular road safety concern that impact upon vehicle access to this development.

## 5.2. Existing Parking Conditions

The parking survey data available to my office at the time of preparing the traffic report for the development plan was in excess of 1 year old, and was completed for only one time period during the week.

I therefore commissioned updated parking surveys, to ensure up to date data was collected and additional time periods were available detailing a range of time periods, including 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 surveys were undertaken at the following times:

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

The parking survey area is presented in Figure 2 and the detailed parking survey is provided at Appendix C.

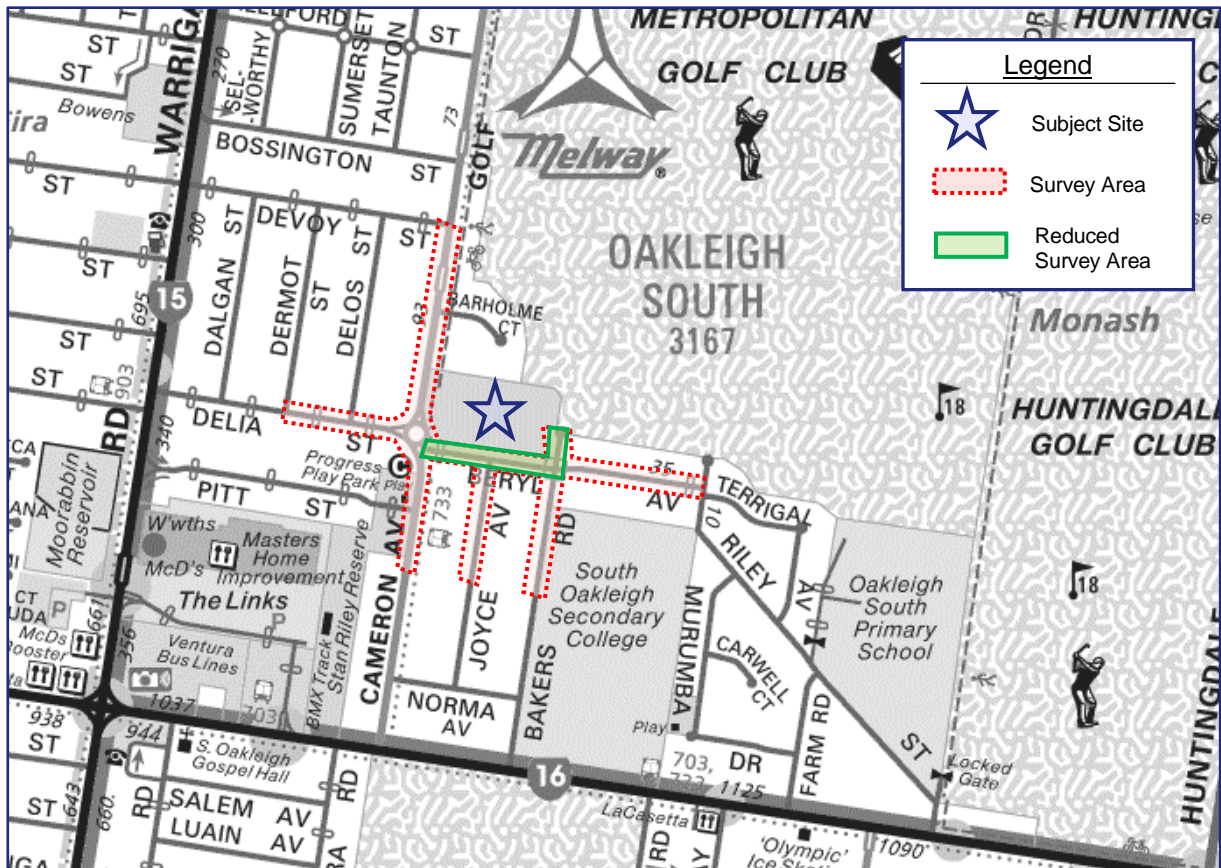


Figure 2: Parking Survey Area

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**Overall Survey Area**

A total of 122 car spaces are available to the general public within the survey area. The total number of available spaces is reduced during the relevant time periods when various ‘No Stopping’, ‘Permit Zone’, ‘Bus Zone’ and ‘Loading Zone’ restrictions apply.

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 3.

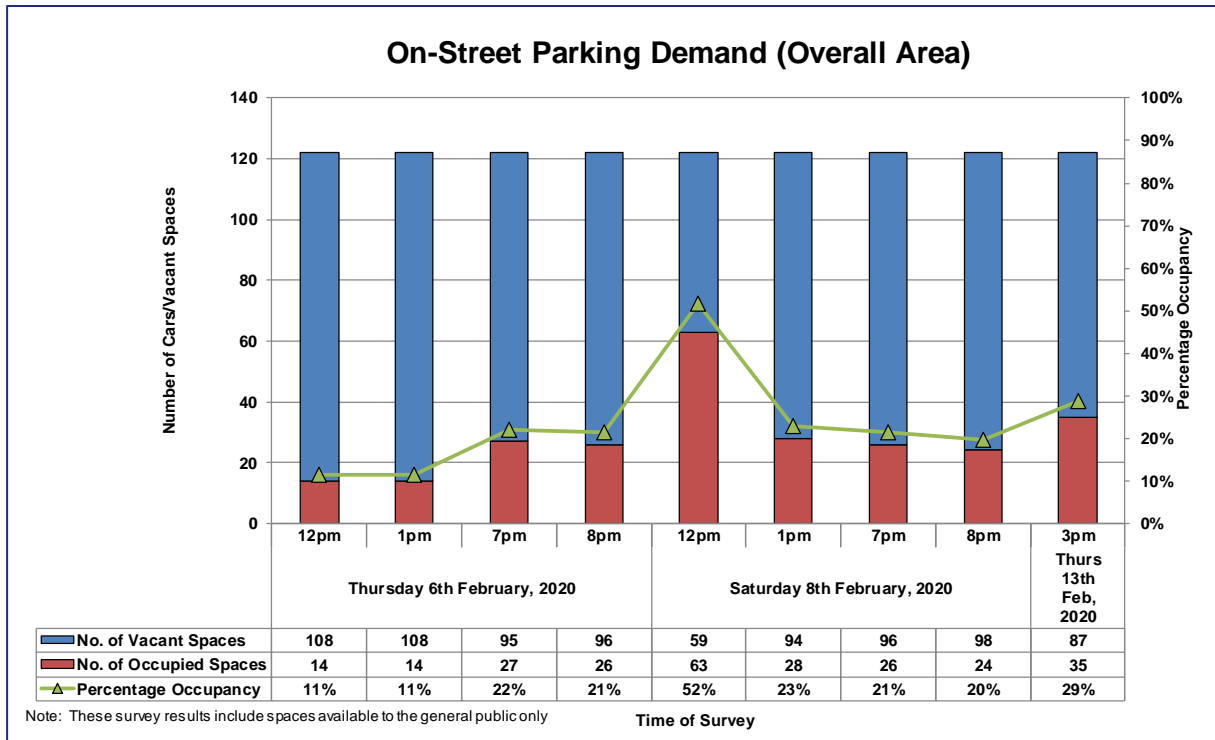


Figure 3: Profile of On-Street Parking Demand (Overall Area)

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 11-52% (59-108 vacant car spaces).

The minimum number of vacant spaces recorded across the survey period was 59 spaces at 12pm on Saturday 8<sup>th</sup> February, 2020 (52% occupancy).

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

**Reduced Survey Area**

It is acknowledged that any overflow parking demand associated with a proposed residential development on the site is likely to rely on parking along the site’s frontage within the ‘reduced area’ identified at Figure 2.

The profile of on-street parking demand for the ‘reduced area’ is provided at Figure 4.

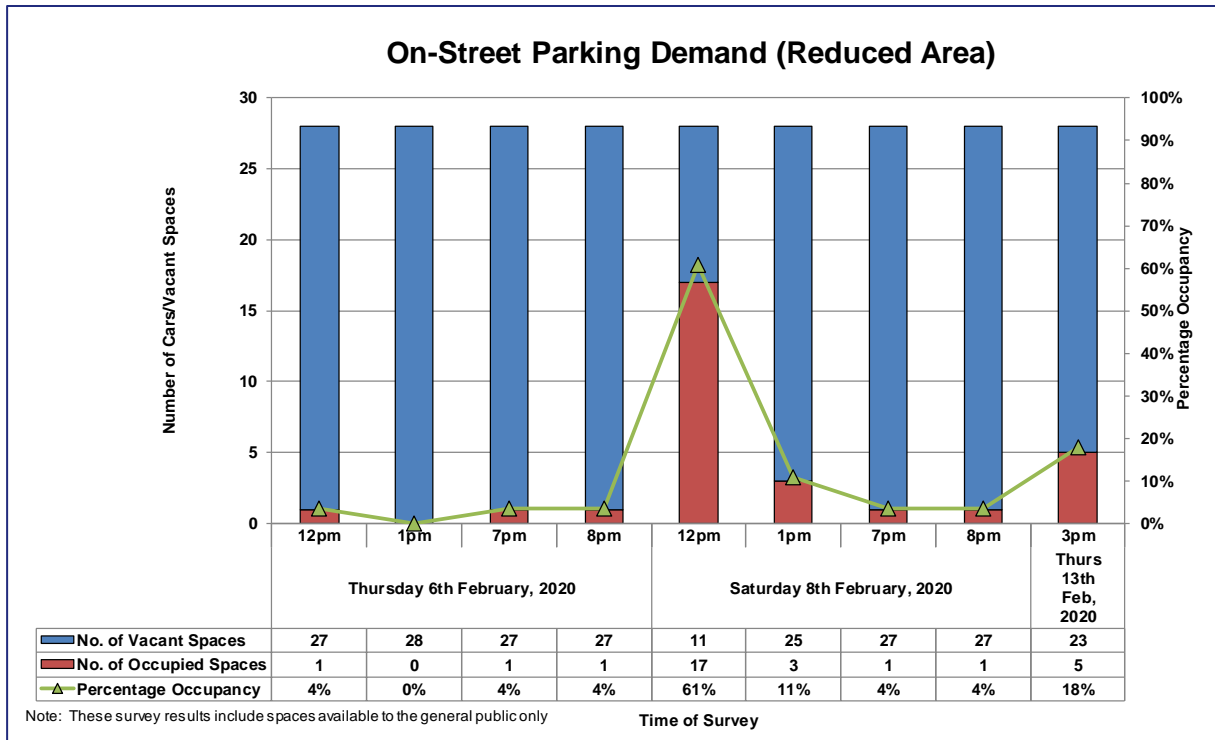


Figure 4: Profile of On-Street Parking Demand (Reduced Area)

The results of the surveys indicate that there is a low demand for car parking throughout the survey period, with a moderate demand recorded at 12pm on Saturday 8<sup>th</sup> February, 2020. As discussed above, this was due to an event at South Oakleigh Secondary College.

### 5.3. Public Transport

I provide the following diagrams detailing to the tribunal that the site is indeed located within the PPTN document. The first figure details the site within the context of the surrounding area and boundary of the PPTN area, and the second figure details the location of the boundary of the PPTN lying over the development site.

Further details of the public transport network are detailed at Table 4, including the operation times which are of relevance for occupiers of the townhouses and their visitors.

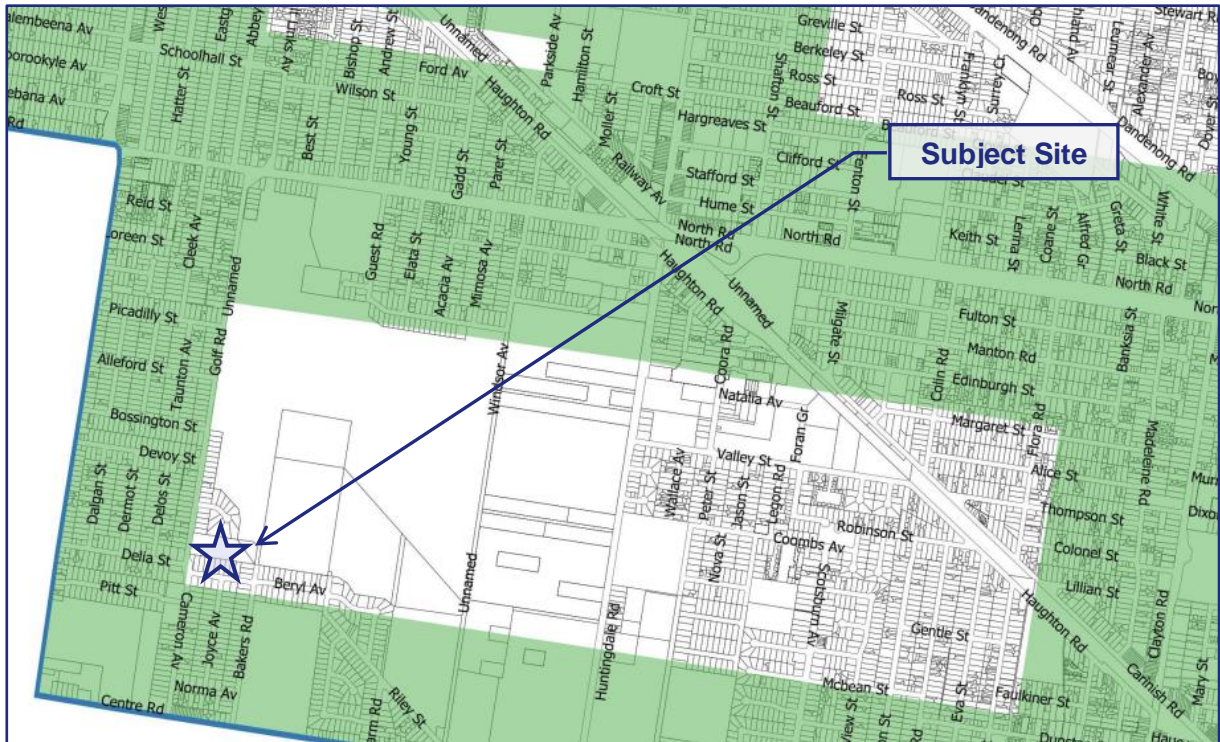


Figure 5: Principal Public Transport Network Map

Source: ptv.vic.gov.au



Figure 6: PPTN Map (Zoomed on Site)

Source: VicPlan

Table 4: Summary of Public Transport Services

| Service   | Between                             | Via   | Operating Times (Frequency)     |                                |                             |
|---|-------------------------------------|---|---------------------------------|--------------------------------|-----------------------------|
|   |                                     |   | Weekday                         | Saturday                       | Sunday                      |
| <b>Golf Road – approximately 100m walking distance north of the site</b>    |                                     |   |                                 |                                |                             |
| Bus Route 733   | Oakleigh Station & Box Hill Station | Clayton, Monash University & Mt Waverley  | 6:35am-9:50pm<br>30-40 minutes  | 7:45am-9:40m<br>30-40 minutes  | 9:40am-9:40m<br>60 minutes  |
| <b>Warrigal Road – approximately 500m walking distance west of the site</b> |                                     |   |                                 |                                |                             |
| Bus Route 903 (SmartBus)  | Altona & Mordialloc                 | Sunshine, Essendon, Coburg, Preston, Heidelberg, Doncaster, Box Hill & Oakleigh | 5:05am-12:20am<br>15-20 minutes | 5:25am-11:35pm<br>30 minutes   | 6:30am-9:20pm<br>30 minutes |
| <b>Centre Road – approximately 550m walking distance south of the site</b>  |                                     |   |                                 |                                |                             |
| Bus Route 703   | Middle Brighton & Blackburn         | Bentleigh, Clayton & Monash University  | 7:00am-10:30pm<br>15-30 minutes | 7:30am-9:50am<br>20-30 minutes | 9:45am-9:55pm<br>30 minutes |



## **6. Traffic Engineering Assessment**

### **6.1. Car Parking Assessment**

Whilst the development plan application does not trigger a car parking requirement, the traffic report prepared as part of the development sets out the car parking requirement should a planning application be required.

The traffic report submitted with the development plan indicates that an application on the site can provide the requisite number of car spaces, with the addition of 12 visitor spaces.

Notwithstanding the site's location within the PPTN area and subsequent zero requirement for visitor car parking, the development provides 12 spaces on site for visitors, at a rate of 0.13 visitor spaces per dwelling. In addition to on-site car parking, the site also has access to a total of 19 on-street car spaces along the site's combined frontages.

Accordingly, the development has access to a total of 31 spaces either on the site or along the site's frontage, at a rate of 0.34 car spaces per dwelling (1 space per 3 dwellings).

### **6.2. Bicycle Parking Assessment**

The traffic report submitted with the development plan indicates that a planning application for the site would not trigger a requirement for bicycle parking due to the height of development.

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

I am 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.

### **6.3. Review of Car Parking Layout and Access Arrangements**

Section 4.3 of the traffic report submitted with the development plans sets out a detailed review of the proposed parking layout and access arrangements under the relevant standards.

The traffic report states that car spaces had been checked for access by the B85 design car (specified at Appendix B of AS2890.1-2004) and found to be acceptable.

Swept path diagrams have been formalised and I attach these at Appendix D in order to provide the Tribunal confirmation of these checks.

## **6.4. Waste Collection & Emergency Vehicle Access**

### **Waste Collection**

The traffic report details the method of collection by private contractors for internally facing garages, and Council collection for externally facing garages. Additional details regarding collection within the laneways is provided as follows.

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 the 'niche for bin placement' areas, such that they are not stored on the vehicle accessway impacting upon vehicle access to garages.

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

### **Emergency Vehicle Access**

Further to the assessment of the waste collection vehicle, 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, I am satisfied that emergency vehicle access to the site is acceptable.

## **6.5. Traffic Impacts**

### **6.5.1. Traffic Generation**

The traffic report submitted with the development plan sets out the likely traffic generation of the proposal. This traffic generation discussion is set out at Section 5.5.1 of the traffic report and concludes that the development would generate 555 vehicle trip-ends per day, with 56 vehicle trip-ends occurring during the road network peak hours.

The traffic report also sets out the peak hour entry and exit movements at Table 4.

### **6.5.2. Traffic Impacts to Local Roads**

The traffic report did not set out an assessment of the traffic impacts upon the local road network, as the traffic data was not available at the time of preparation. The following sets out my detailed assessment of the traffic impacts of the proposed development plan.

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.

I am 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, I note that the subject site formerly operated as a primary school, which would have generated more than 56 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.

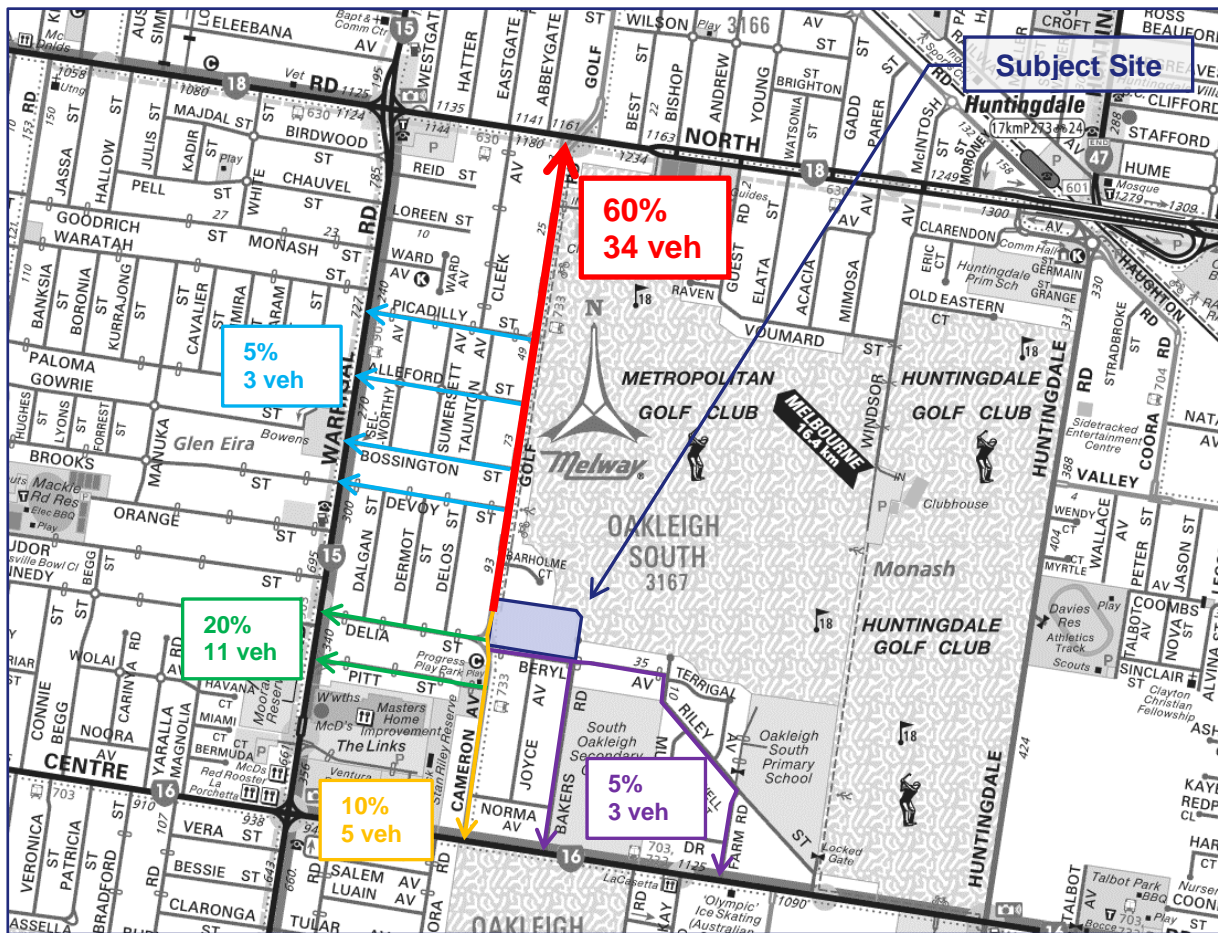


Figure 7: Local Access

**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 36 vehicle trips per peak hour (361 movements per day) to Golf Road, north of the site access, and 20 vehicle trips per peak hour (194 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 un-interrupted 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 361 vehicles per day to the north of the site represents 5.2% of the capacity of Golf Road, and 6.2% of the existing weekday volume recorded during my

survey. Further, post development, the environmental capacity of Golf Road will not be exceeded by traffic generated from this site.

I am 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.

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. Accordingly, 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 Golf Road, and 2.2% of the existing weekday volume recorded during my 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 eight 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.

I am 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, I am 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.

## 7. Conclusions

Having undertaken a detailed traffic engineering assessment for the proposed development plan for 52 Golf Road, Oakleigh South, I am of the opinion that:

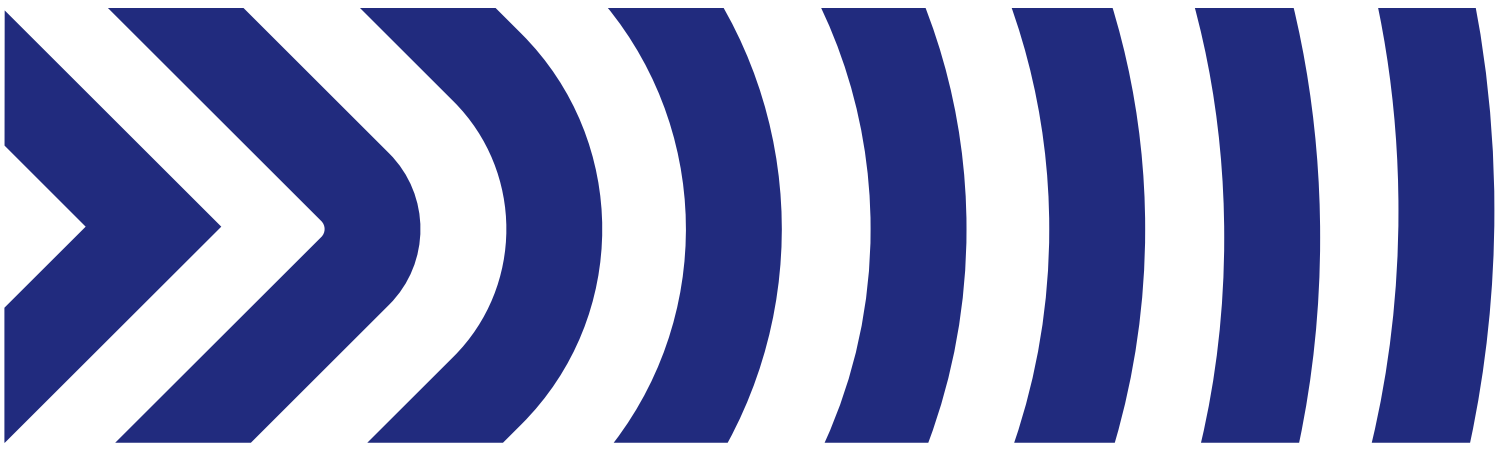
- a) a proposed residential development on the site consistent with this development plan would have a statutory car parking requirement of 160 car spaces for residents only, under Clause 52.06-5. No visitor car spaces would be required,
- b) the provision of 172 car spaces, including 160 resident car spaces and 12 visitor car spaces, would exceed the car parking requirements under Clause 52.06-5 of the Planning Scheme and a car parking reduction would not be sought by the application,
- c) bicycle parking would not be required under Clause 52.34 of the Planning Scheme. Nonetheless, the provision of 24 bicycle spaces on-site would adequately provide for visitors. Additionally, bicycle parking for residents could be provided within individual garages,
- d) the proposed parking layout and vehicle access arrangements within the development plan accord with the relevant 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 the development plan at 52 Golf Road, Oakleigh South, should be refused, subject to appropriate conditions.

I have made all the inquiries that I believe are desirable and appropriate and that no matters of significance which I regard as relevant have to my knowledge been withheld from the Tribunal.



CHARMAINE CHALMERS DUNSTAN

B.E. (Civil) Hons., Masters of Traffic, M.IEAust., F.V.P.E.L.A



# Appendix A

**Practice Note – PNVCAT2 Expert Evidence**

## **STATEMENT OF WITNESS**

### **Name**

Charmaine Chalmers Dunstan

### **Position**

Director, Traffix Group

### **Address**

Level 28, 459 Collins Street  
Melbourne 3000

### **Qualifications and Experience**

My qualifications and membership of professional associations are as follows:

- Bachelor of Civil Engineering (honours), Monash University, Clayton
- Masters of Traffic, Monash University
- Masters of Transport (current), Monash University
- Member, Engineers Australia
- Fellow, Victorian Planning & Environmental Law Association

I have over 20 years' experience as a Traffic Engineering and Transport Planning consultant with Traffix Group Pty Ltd and formerly Turnbull Fenner Pty Ltd. My experience also includes a number of local government appointments which involved acting in the role of Council's Transport Co-ordinator or Senior Traffic Engineer. These appointments include the City of Moreland, City of Whittlesea and the City of Darebin.

### **Area of Expertise**

I have experience and expertise in traffic management, road safety planning and engineering, parking management and strategy development, and development impact assessment of a range of land-use developments.

### **Disclosure of Interests**

I disclose that I have no private relationship with the permit applicant. Traffix Group performed the traffic engineering assessment for the proposed development at town planning application stage (Ref: G25977R-02A). I acted in a supervisory role and had no involvement at that stage.

These relationships have not impacted on my ability to provide impartial Expert Evidence to the Tribunal.

### **Engagement and Scope of Report**

I was retained by MinterEllison to provide expert evidence in relation to an application for review by Golf Road Project Development Pty Ltd against Monash City Council's Failure to Determine within the Prescribed Time for a residential development at 52 Golf Road, Oakleigh South.

The scope of my engagement in relation to the Application for Review has included the following tasks:

- site inspection,
- review of Council policies and other relevant documents,
- collection and review of parking data,
- review of road accident statistics,
- review of parking and traffic generation impacts of the proposal,
- preparation of swept path diagrams, and
- preparation and giving of Expert Evidence in accordance with VCAT Practice Note No. 2 for Expert Evidence.

I have reviewed the following documents as part of my assessment:

- Development Plan prepared by Plus Architects(dated February, 2020),
- Traffic Report prepared by Traffix Group (dated February, 2019),
- Application Plans prepared by Plus Architecture (dated December, 2018),
- Council Officer's Delegate Report (dated 24<sup>th</sup> September, 2019),
- Traffic Report prepared by Traffix Group (dated May, 2019),
- Waste Management Plan prepared by Sustainability House (dated January, 2020),
- Australian Standards (AS2890.1-2004 and AS2890.6-2009), and
- relevant sections of the Monash Planning Scheme.

### **Facts and Assumptions**

As detailed in evidence.

### **Reference Documents**

As detailed above and in evidence.

### **Experiments**

I have visited the site to observe traffic and parking activity within the nearby area.

Parking surveys have been undertaken for on-street and off-street parking in the nearby area as follows:

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

Traffix Group also undertook 7 day automatic tube counts of Golf Road and Beryl Avenue at the proposed site access. The surveys were undertaken between Monday 3<sup>rd</sup> February, 2020 and Sunday 9<sup>th</sup> February, 2020.

### **Summary of Opinions**

Refer to evidence.

### **Provisional Opinions**

Not applicable.



**Other members of Traffix Group involved in the preparation of Evidence**

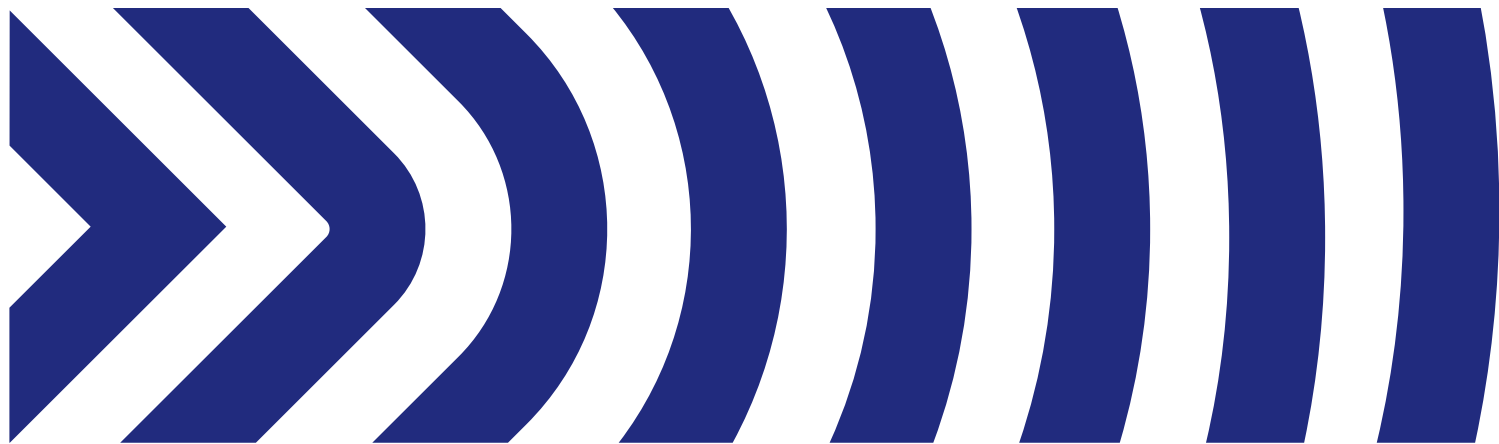
Matthew Woollard (Associate) assisted with the preparation of this report.

Yvonne Leow (Traffic Engineer) assisted with the preparation of this report, site inspection, supervision of parking survey and preparation of swept path diagrams.

Experienced survey staff members and technical officers employed by Traffix Group assisted with the parking and traffic surveys detailed in this report.

**Report Completeness**

Final report.



# Appendix B

**Traffic Report (dated February, 2020)**



*Traffic Engineers and Transport Planners*

# Traffic Engineering Assessment

**Proposed Residential Development  
at  
52 Golf Road, Oakleigh South**

**Prepared for  
Golf Road Project Development Pty Ltd**

**February, 2020  
G25977R-03A**

## Traffic Engineering Assessment

52 Golf Road, Oakleigh South: Proposed Residential Development

# Traffic Engineering Assessment

## Proposed Residential Development

at

52 Golf Road, Oakleigh South

### Document Control

| Issue No. | Type  | Date      | Prepared By | Approved By |
|-----------|-------|-----------|-------------|-------------|
| A         | Final | 3/02/2020 | Y. Leow     | M. Woollard |
|           |       |           |             |             |
|           |       |           |             |             |

**Our Reference: G25977R-03A**

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## Traffic Engineering Assessment

52 Golf Road, Oakleigh South: Proposed Residential Development

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## Traffic Engineering Assessment

52 Golf Road, Oakleigh South: Proposed Residential Development

# 1 Introduction

Traffix Group has been engaged by Golf Road Project Development Pty Ltd to prepare a traffic engineering assessment 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 90 townhouses. A development summary is provided as follows:

**Table 1: Development Summary**

| Use                     | Size/No.     | Car Parking Allocation | Resultant Car Parking Rate      |
|-------------------------|--------------|------------------------|---------------------------------|
| Two-bedroom Townhouse   | 20           | 20                     | 1 car space per dwelling        |
| Three-bedroom Townhouse | 18           | 36                     | 2 car spaces per dwelling       |
| Four-bedroom Townhouse  | 52           | 104                    | 2 car spaces per dwelling       |
| <i>Subtotal</i>         | <i>90</i>    | <i>160</i>             | <i>1.78 spaces per dwelling</i> |
| Visitor Car Parking     | 90 dwellings | 12                     | 0.13 spaces per dwellings       |
| <b>Total</b>            |              | <b>172</b>             | -                               |

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

Post development, a total of 19 on-street car spaces will be maintained along the site's combined frontages (i.e. net loss of 10 spaces).

A copy of the development plans prepared by Plus Architecture (dated 31<sup>st</sup> January, 2020) is attached at Appendix A to this report.

## 3 Existing Conditions

### 3.1 Subject Site

The subject site is located on the northeast corner of Golf Road and Beryl Avenue in Oakleigh South. A locality plan, aerial photograph and photograph of the site's frontages are provided at Figure 1 to Figure 5, respectively.

The site is irregular in shape, is currently vacant with a total area of approximately 18,300m<sup>2</sup>. The site has frontages to Golf Road, Beryl Avenue and Bakers Road of 63.8m, 169.8m and 42.7m respectively.

Vehicle access to the subject site is currently provided via a 3.0m crossover to Beryl Avenue and 4.6m wide crossover to Bakers Road.

The site is located within a General Residential Zone – Schedule 1 (GRZ1) under the Planning Scheme as presented at Figure 6. The site is also subject to Development Plan Overlay – Schedule 5 (DPO5). Land surrounding the site is predominantly residential.

The subject site is located within the Principal Public Transport Network Area under the *Principal Public Transport Network Area Maps*.

Significant nearby land uses and activity centres are detailed below:

- Bright Beginnings Child Care Centre – located approximately 50m walking distance southwest of the site,
- South Oakleigh College, located approximately 150m walking distance southeast of the site,
- Oakleigh South Primary School, located approximately 650m walking distance southeast of the site, and
- Olympic Ice Skating Centre, located approximately 800m walking distance southeast of the site.



# Traffic Engineering Assessment

## 52 Golf Road, Oakleigh South: Proposed Residential Development

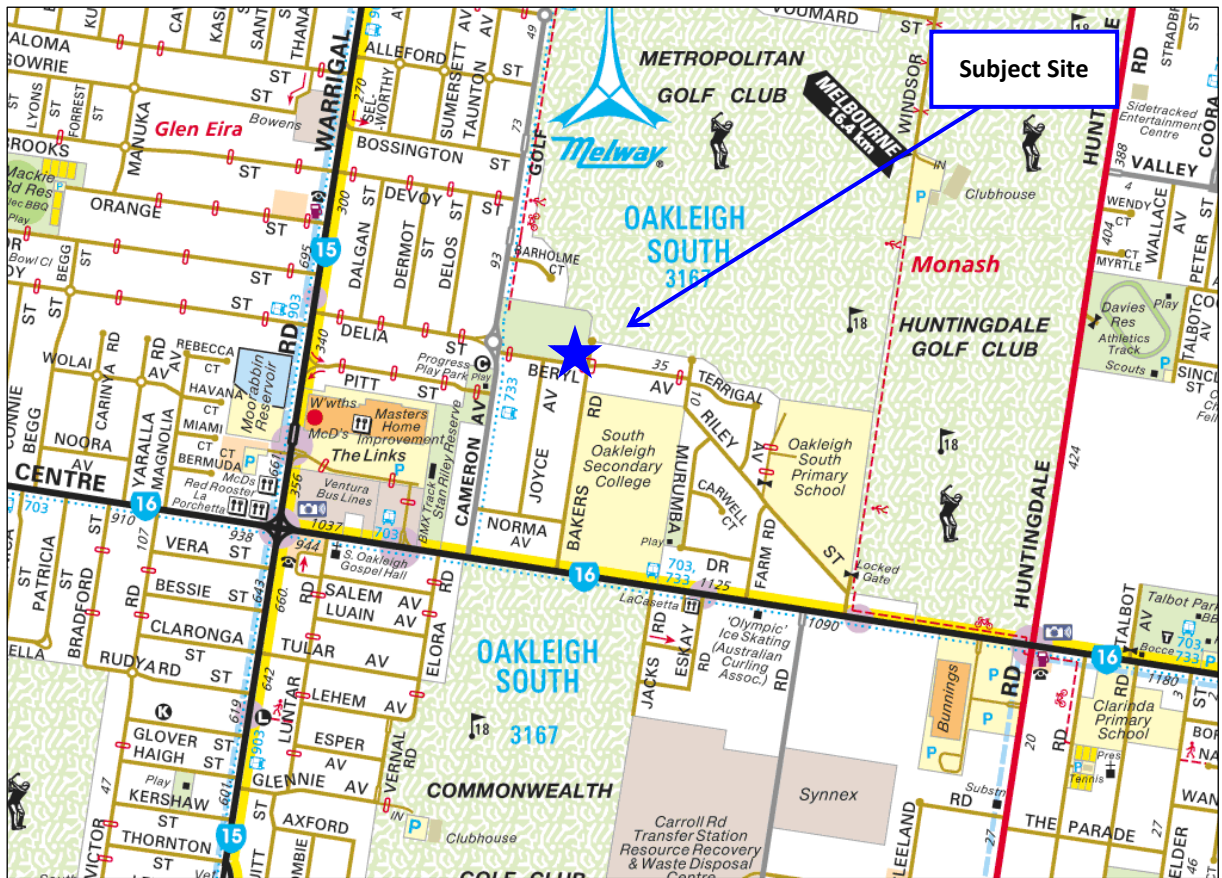


Figure 1: Locality Map

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**Traffic Engineering Assessment**

52 Golf Road, Oakleigh South: Proposed Residential Development

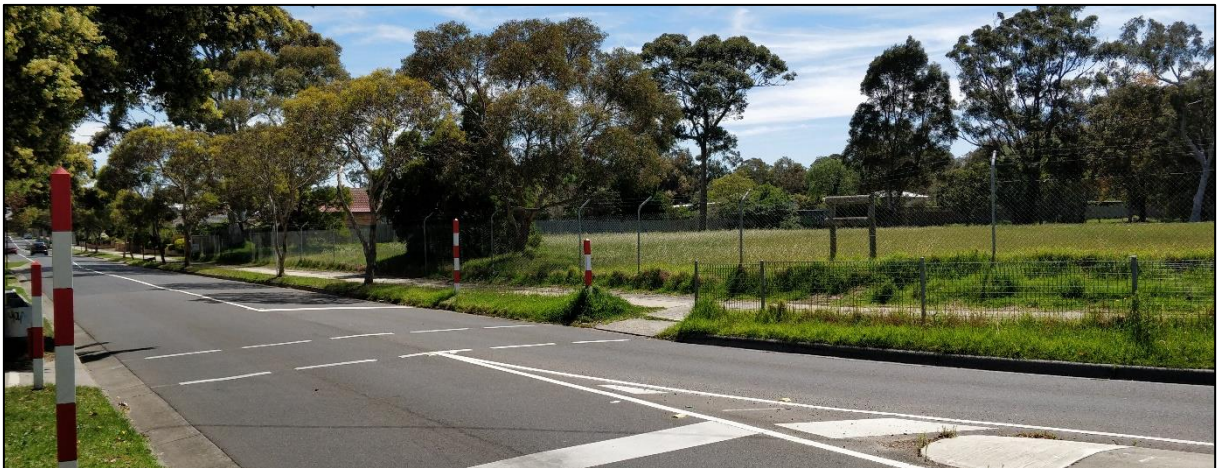


**Figure 2: Aerial Photograph**

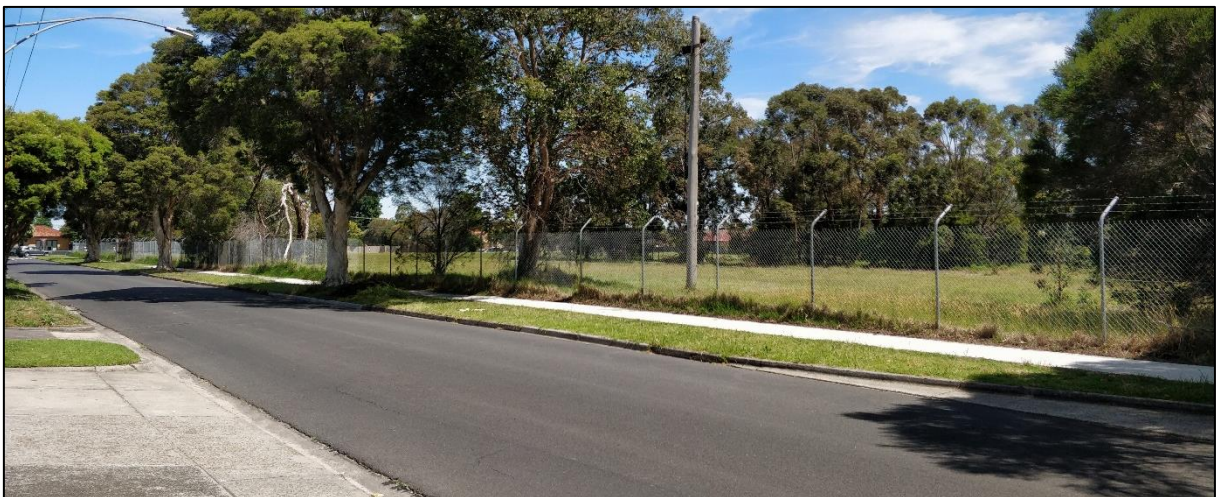
Source: [www.nearmap.com](http://www.nearmap.com)

**Traffic Engineering Assessment**

52 Golf Road, Oakleigh South: Proposed Residential Development



**Figure 3: Site Frontage to Golf Road**



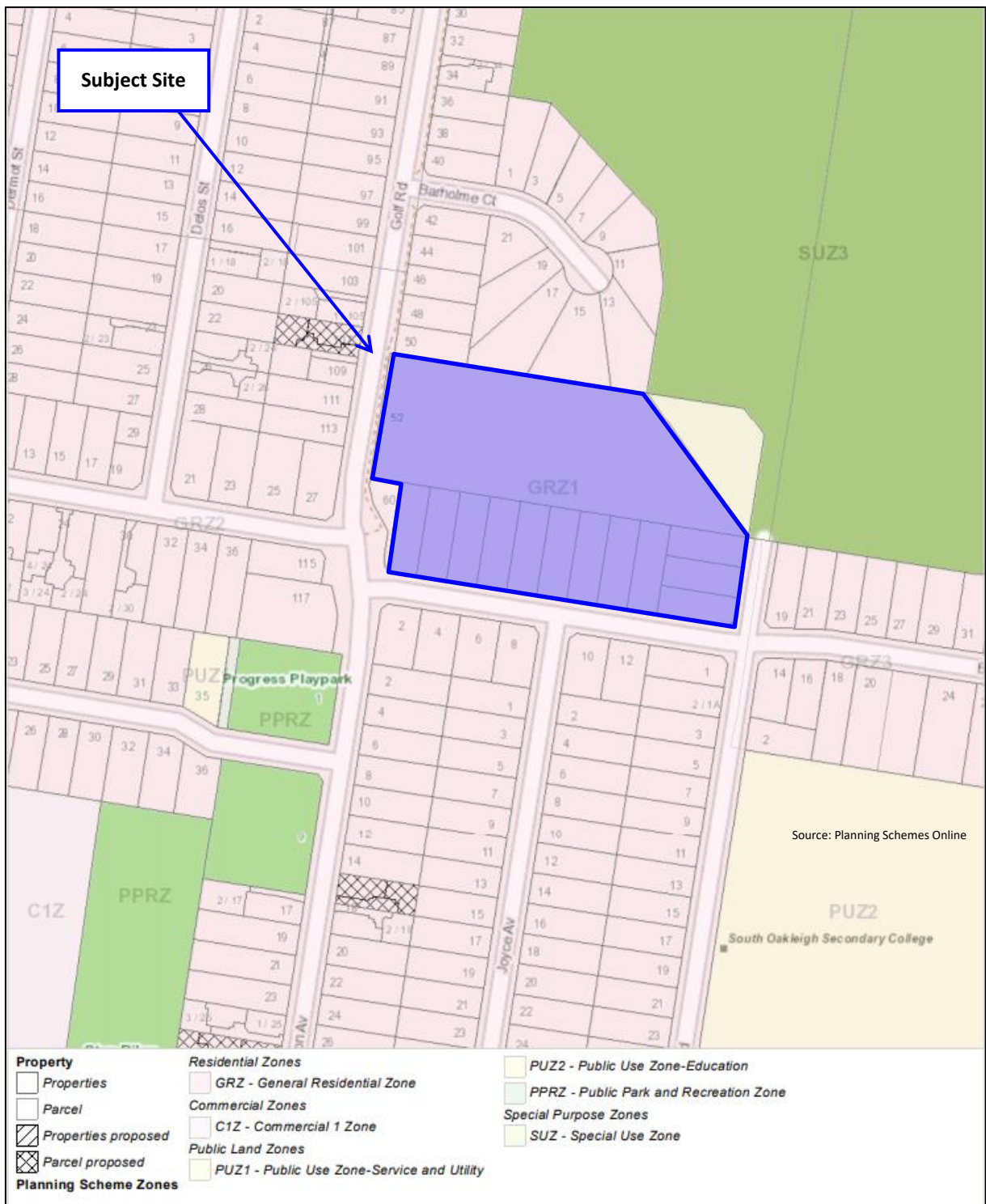
**Figure 4: Site Frontage to Beryl Avenue**



**Figure 5: Site Frontage to Bakers Road**

# Traffic Engineering Assessment

52 Golf Road, Oakleigh South: Proposed Residential Development



Source: Planning Schemes Online

Figure 6: Land Use Zoning Map

## Traffic Engineering Assessment

52 Golf Road, Oakleigh South: Proposed Residential Development

### 3.2 Road Network

**Golf Road** is a Council collector road, and is aligned in a north-south direction between Beryl Avenue in the south (where it continues as Cameron Avenue) and North Road to the north.

In vicinity of the site, Golf Road has a 7.8m wide carriageway accommodating a single traffic lane in both directions. Indented kerbside parking is provided to the north of the site along the west side.

The default urban speed limit of 50km/h applies to Golf Road.

**Beryl Avenue** is a local road aligned in an east-west direction between Cameron Avenue to west and Riley Street to the east.

Beryl Avenue has a carriageway width of approximately 6.8m in the vicinity of the site, which facilitates kerbside parking on both sides and a shared lane for through traffic.

It is noted that 6.8m (less than 7m) is generally considered insufficient for vehicles to park opposite one another and maintain a 3m clear width for through traffic. Accordingly, when assessing the supply of car parking, the capacity of one side has been included only.

The default urban speed limit of 50km/h applies to Beryl Avenue

The intersection between Beryl Avenue and Cameron Avenue is configured as an unsignalised T-intersection with priority given to Cameron Avenue via a Give-Way sign.

**Bakers Road** is a local road aligned in a north-south direction between South Road to the south and a court bowl to the north.

Bakers Road has a carriageway width of approximately 6.8m in the vicinity of the site, which facilitates kerbside parking on both sides and a shared lane for through traffic.

It is noted that 6.8m (less than 7m) is generally considered insufficient for vehicles to park opposite one another and maintain a 3m clear width for through traffic. Accordingly, when assessing the supply of car parking, the capacity of one side has been included only.

The default urban speed limit of 50km/h applies to Bakers Road.

The intersection between Bakers Road and Beryl Avenue is configured as an unsignalised four-way intersection with priority given to Beryl Avenue via a Give-Way sign.

Photographs depicting the surrounding road network are presented in Figure 7 and Figure 12.

**Traffic Engineering Assessment**

52 Golf Road, Oakleigh South: Proposed Residential Development



**Figure 7: Golf Road – view north**



**Figure 8: Golf Road – view south**



**Figure 9: Beryl Avenue – view east**



**Figure 10: Beryl Avenue – view west**



**Figure 11: Bakers Road – view north**



**Figure 12: Bakers Road – view south**

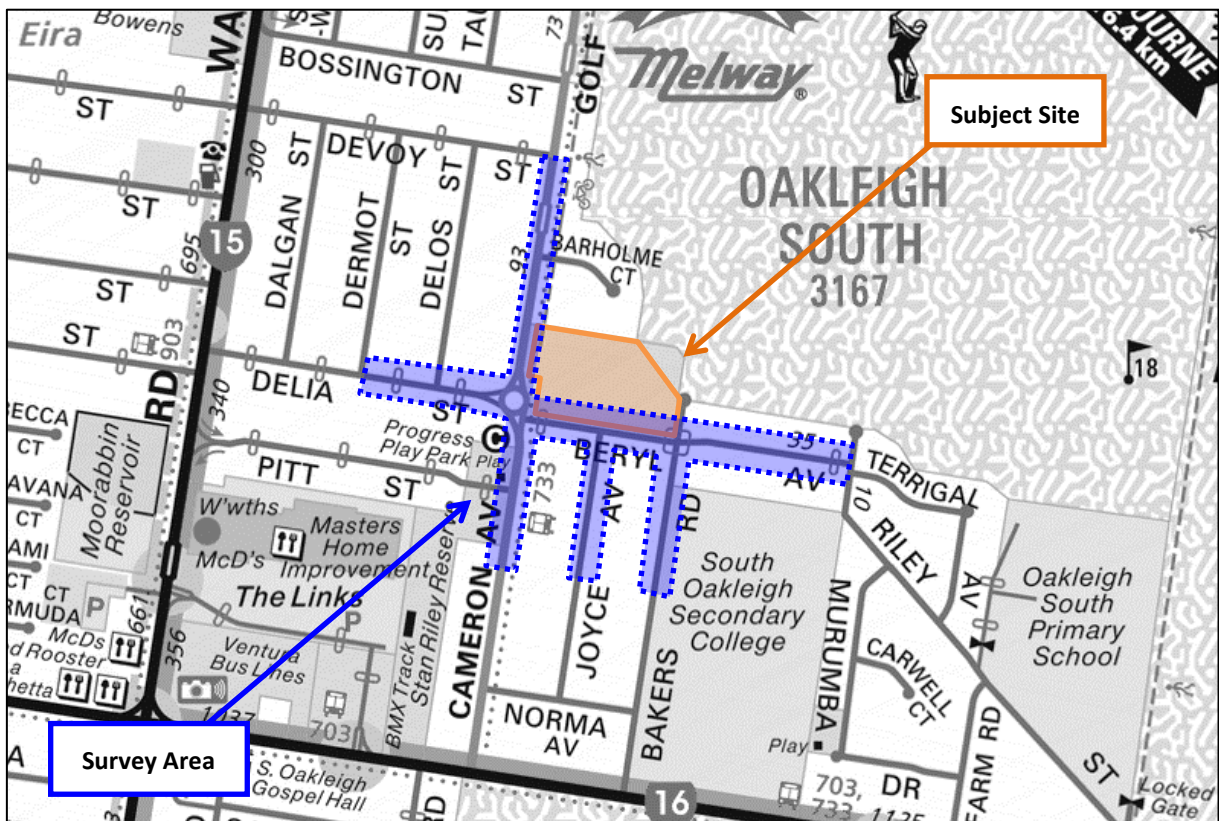
## Traffic Engineering Assessment

52 Golf Road, Oakleigh South: Proposed Residential Development

### 3.3 Car 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 inventory survey to determine the existing car parking conditions for the area surrounding the site. The survey was conducted on Thursday 6<sup>th</sup> December, 2018 at 10am.

The area surveyed is shown in Figure 13 and the detailed results of the surveys are provided at Appendix B.



Source: Melway Publishing

**Figure 13: Parking Survey Area**

A total of 158 publicly available on-street car parking spaces are located within the inventory area.

On-street parking is generally unrestricted, with small areas controlled by 'Permit Zone' restrictions.

There is a total of 26 unrestricted car spaces located along the site's frontage to Beryl Avenue and 3 spaces along Bakers Road.

Kerbside parking is not available along the site's frontage to Golf Road.

The inventory indicated that on-street parking is in low demand with a total of 133 vacant spaces (25 cars parked, 16% occupancy).

## **Traffic Engineering Assessment**

52 Golf Road, Oakleigh South: Proposed Residential Development

### **3.4 Public Transport**

The site is served by a number of public transport services, including several bus services located within walking distance of the site.

The public transport network surrounding the site is shown in Figure 14. The key facilities located within the nearby area are detailed in the following table.

The closest railway station (walking distance) is Huntingdale Station, located 2.3km from the site. Oakleigh and Clayton Railway Stations are both accessible via bus routes mentioned below.

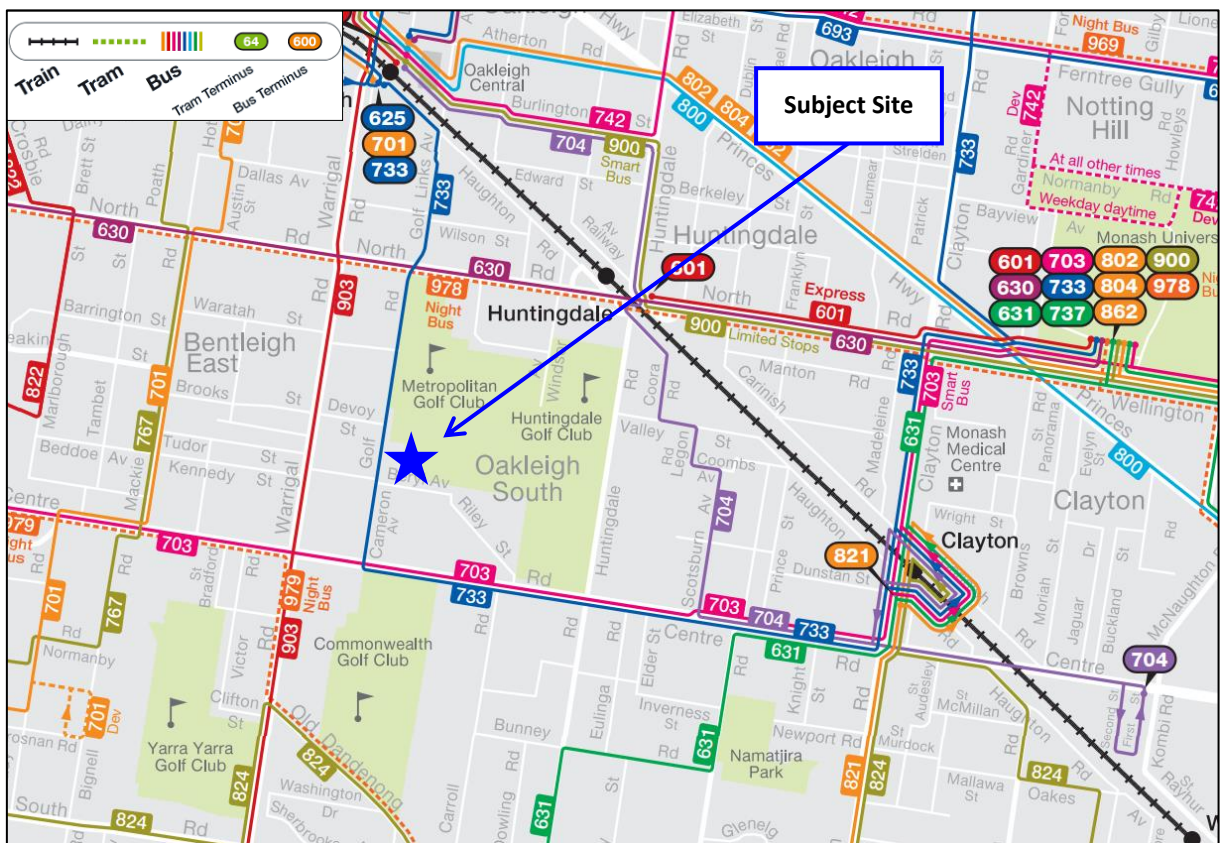


## Traffic Engineering Assessment

### 52 Golf Road, Oakleigh South: Proposed Residential Development

**Table 2: Summary of Public Transport Services**

| Service   | Between                             | Via   |
|---|-------------------------------------|---|
| <b>Golf Road – approximately 100m walking distance north of the site</b>    |                                     |   |
| Bus Route 733   | Oakleigh Station & Box Hill Station | Clayton, Monash University & Mt Waverley  |
| <b>Warrigal Road – approximately 550m walking distance west of the site</b> |                                     |   |
| Bus Route 903 (SmartBus)  | Altona & Mordialloc                 | Sunshine, Essendon, Coburg, Preston, Heidelberg, Doncaster, Box Hill & Oakleigh |
| <b>Centre Road – approximately 550m walking distance south of the site</b>  |                                     |   |
| Bus Route 703   | Middle Brighton & Blackburn         | Bentleigh, Clayton & Monash University  |



**Figure 14: 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 74 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 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.*

Clause 52.06-5 states that:

- *Column B rates apply if any part of the land is identified as being within the Principal Public Transport Network Area as shown on the Principal Public Transport Network Area Maps (State Government of Victoria, 2018).*

As the site is located within the Principal Public Transport Network Area, the Column B rates apply to the site.

The car parking requirements for the proposed use are set out under Clause 52.06 and the car parking table at Clause 52.06-5 of the Planning Scheme.

The assessment of the car parking requirements associated with the proposed development is set out in Table 3.

## Traffic Engineering Assessment

52 Golf Road, Oakleigh South: Proposed Residential Development

**Table 3: Statutory Car Parking Assessment – Clause 52.06**

| Use                        | Size/No.        | Statutory Parking Rate<br>(Column B)        | Car Parking<br>Requirement<br>(Note 1) | Car<br>Parking<br>Provision | Shortfall/<br>Surplus |
|----------------------------|-----------------|---|--|-----------------------------|-----------------------|
| Two-bedroom<br>Townhouse   | 20              | 1 space per one or two-<br>bedroom dwelling | 20                                     | 20                          | 0                     |
| Three-bedroom<br>Townhouse | 18              | 2 spaces per 3 or more<br>bedroom dwelling  | 36                                     | 36                          | 0                     |
| Four-bedroom<br>Townhouse  | 52              |   | 104                                    | 104                         | 0                     |
| Residential visitors       | 90<br>dwellings | No Requirement                              | 0                                      | 12                          | +12                   |
| <b>TOTAL</b>               |                 |   | <b>160</b>                             | <b>172</b>                  | <b>+12</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 3 indicates that the statutory car parking requirement for the development is 160 car spaces allocated to residents. No visitor car spaces are required under Column B of Clause 52.06-5.

The proposed car parking provision of 172 car spaces including 160 resident spaces and 12 shared visitor spaces meets the resident requirement and provides 12 additional visitor car spaces.

Accordingly, a car parking reduction is not required under Clause 52.06.

### 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.

As detailed in Section 3.3, Traffix Group has undertaken a parking inventory survey of the surrounding area.

The results of these surveys highlight that there is a very low demand for on-street parking in the nearby area on weekdays during the day, with 133 vacant spaces (16% occupancy) in the survey area.

Post-development, a total of 19 car spaces will be available along the site's frontage to Beryl Avenue, which could accommodate overflow demands.

## Traffic Engineering Assessment

52 Golf Road, Oakleigh South: Proposed Residential Development

### 4.2 Bicycle Parking Assessment

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 accommodated within garages or elsewhere on the properties.

### 4.3 Review of Car Parking Layout and Access Arrangements

Traffix 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 of the Planning Scheme, and
- AS2890.1-2004 – Part 1: Off-Street car parking, where relevant.

The key elements of the design include:

#### ***Clause 52.06-9 Design Standard 1 – Accessways & Clause 55.03-9/10***

- Access to the development is provided via a 5.8m wide accessway (with landscaping on both sides) to Golf Road, which facilitates two-lanes accommodating simultaneous two-way movements and accords with Clause 52.06-9 (Design Standard 1) and AS2890.1-2004.
- Internal accessways are at least 5.5m wide with landscaping on both sides allowing for two-way traffic flow and accords with Clause 52.06-9 (Design Standard 1) and AS2890.1-2004.
- Vehicles will be able to enter and exit the site in a forwards direction in accordance with Clause 52.06-9.
- Full pedestrian sight triangles can be achieved on both sides of the accessway in accordance with Clause 52.06-9.
- 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 2 – Car parking spaces***

- Visitor parallel car spaces are shown as 6.7m long and 2.3m wide satisfying the requirements of Clause 52.06-9 (Design Standard 2) and exceeding the requirements of AS2890.1-2004.

## Traffic Engineering Assessment

### 52 Golf Road, Oakleigh South: Proposed Residential Development

- 90° visitor car space dimensions are shown as 4.9m long and 2.8m wide with a minimum 6.2m wide access aisle in accordance with Clause 52.06-9 (Design Standard 2).
- Garage dimensions are in accordance with Planning Scheme requirements. We note that:
  - single garages are at least 6m long x 3.5m wide when measured inside the garage, meeting the Planning Scheme requirements;
  - single tandem garages are at generally 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.
  - double garages are at least 6m long x 5.5m wide when measured inside the garage, meeting the Planning Scheme requirements;
- Open spaces provided in tandem to single garages are at least 5.4m long, which complies with Clause 52.06-9, providing a 4.9m long space with 0.5m offset (to the garage door) for tandem parking.
- Access has been checked to and from car spaces for the B85 design car presented in AS2890.1-2004 and is 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.

#### **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, 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.

#### **Other Considerations**

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.

**Table 6: Response to Clause 56.06 Requirements**

| Planning Scheme Requirement                                    | Development Response   |
|--|--|
| Clause 56.06-2 – Walking and Cycling Network Objectives        | The site has three street frontages and accordingly, the dwellings located around the east, south and west boundaries of the site have access to a footpath.   |
| Clause 56.06-5 – Walking and Cycling Network Detail Objectives | The dwellings located within the centre of the site have access to footpaths which extend in a north-south direction through the site.<br><br>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. |

## Traffic Engineering Assessment

52 Golf Road, Oakleigh South: Proposed Residential Development

| Planning Scheme Requirement  | Development Response   |
|--|--|
|  | <p>Further, the internal access roads will function as a low speed 'shared zone' and will be able to facilitate bicycle, pedestrian and vehicle movements within the site.</p> <p>Connections to the broader pedestrian and bicycle networks will be facilitated via the existing infrastructure on Golf Road and Beryl Avenue.</p> <p>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</p> <p>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.</p> <p>The accessway reduces to a width of 3.6m in one location 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.</p> <p>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.</p> <p>The development meets the objectives of the Planning Scheme in regards to neighbourhood street network objectives.</p> |
| <p>Clause 56.06-8 – Lot Access Objective</p>   | <p>Vehicle access to each garage and visitor spaces has been reviewed and is satisfactory.</p>   |

Based on the above, 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 Generation & Impact

### 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

## Traffic Engineering Assessment

### 52 Golf Road, Oakleigh South: Proposed Residential Development

- 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 555 vehicle trip-ends per day, with in the order of 56 vehicle trip-ends occurring during the road network peak hours.

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

#### 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 56 vehicle trip ends for each peak hour, based on the key assumptions listed above.

**Table 4: Expected Development Peak Hour Traffic Volumes**

| Peak Hour    | Entry Movements                             | Exit Movements                              |
|--------------|---|---|
| AM Peak Hour | 11 veh movement<br>(1 car per 5-6 minutes)  | 45 veh movement<br>(1 car per 1-2 minutes)  |
| PM Peak Hour | 39 veh movements<br>(1 car per 1-2 minutes) | 17 veh movements<br>(1 car per 3-4 minutes) |

Based on the above, 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.

#### 4.5 Waste Collection

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

Waste bins will be stored within each individual garages. It is proposed that waste collection will occur on-site within the internal road network. A private waste contractor will be engaged to collect waste via a medium rigid vehicle (typically 8.8m long, 4.5m high) for all the dwellings with vehicle access to the internal road network.

## Traffic Engineering Assessment

### 52 Golf Road, Oakleigh South: Proposed Residential Development

The waste for dwellings with vehicle access to Beryl Avenue will be collected via Council's existing waste collection service.

Swept path diagrams demonstrating the 8.8m medium rigid vehicle circulating the internal road network are provided at Appendix C.

## 5 Conclusions

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 car parking provision accords with the statutory requirements for residents,
- b) this site is located within the PPTN area and accordingly, does not have a requirement to provide any residential visitor car parking on the site,
- c) some visitor car spaces (12 spaces) are provided on the site, with any overflow demands accommodate on-street as per the intention of the Column B car parking rates,
- d) accordingly, a reduction of the standard car parking requirements is not required under Clause 52.06-7,
- e) the proposed parking layout and vehicle arrangements accords with the relevant requirements of the Planning Scheme, AS2890.1:2004 (where relevant) and current practice,
- f) the site is adequately accessible for waste collection,
- g) traffic generated by the proposed development can be accommodated by the surrounding road network and intersections without any adverse impacts, and
- h) there are no traffic engineering reasons why a permit should not be granted for the proposed development located at 52 Golf Road in Oakleigh South.




**Traffic Engineering Assessment**


52 Golf Road, Oakleigh South: Proposed Residential Development


# Appendix A Development Plans





### LEGEND


- 


MODERATE TREES TO BE RETAINED
- 


OTHER EXISTING TREES TO BE RETAINED
- 


RECOMMENDED BUILDING SETBACK FROM TREE AS PER ARBORIST'S ADVICE
- 


TH 01
- 

TH 02
- 

TH 03
- 

TH 04
- 

TH 05
- 

TH 06
- 

TH 07

52 Golf Road Oakleigh South

NO:12737 DATE:31/01/2020 REVISION: 2 SCALE: 1:750

WITHOUT PREJUDICE DRAFT FOR REVIEW



**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
- TH 01
- TH 02
- TH 03
- TH 04
- TH 05
- TH 06
- TH 07

WITHOUT PREJUDICE DRAFT FOR REVIEW

**Traffic Engineering Assessment**

52 Golf Road, Oakleigh South: Proposed Residential Development

# Appendix B

## Car Parking Inventory

Surveyed By: Matthew Huynh

Survey Dates & Times: See below

| Location  | Restriction                          | Capacity<br>Min - Max | Thursday 6th December, 2018 |
|---|--------------------------------------|-----------------------|-----------------------------|
|   |                                      |                       | 10am                        |
| <b>ON-STREET CARPARKING</b>                       |                                      |                       |                             |
| <b>GOLF ROAD</b>                                  |                                      |                       |                             |
| <b>East Side</b>                                  |                                      |                       |                             |
| No. 28 (NB) to Barholme Court                     | Unrestricted                         | 7                     | 3                           |
|   | No Stopping                          | 0                     | 0                           |
| Barholme Court to No. 52 (WB)                     | No Stopping                          | 0                     | 0                           |
|   | Bus Zone                             | -                     | 0                           |
|   | No Stopping                          | 0                     | 0                           |
| <b>No. 52 (WB) to Beryl Avenue (Subject Site)</b> | <b>No Stopping</b>                   | <b>0</b>              | <b>0</b>                    |
| <b>West Side</b>                                  |                                      |                       |                             |
| Delia Street to No. 97 (NB)                       | No Stopping                          | 0                     | 0                           |
|   | Unrestricted (Indented Parking)      | 1                     | 0                           |
|   | Bus Zone                             | -                     | 0                           |
|   | Unrestricted (Indented Parking)      | 2                     | 1                           |
|   | No Stopping                          | 0                     | 0                           |
| No. 97 (NB) to Deroy Street                       | No Stopping                          | 0                     | 0                           |
|   | Bus Zone                             | -                     | 0                           |
| <b>GOLF ROAD</b>                                  | <b>Capacity</b>                      | <b>10 - 10</b>        | <b>10</b>                   |
|   | <b>Total Number of Cars Parked</b>   |                       | <b>4</b>                    |
|   | <b>Total Number of Vacant Spaces</b> |                       | <b>6</b>                    |
|   | <b>Percentage Occupancy</b>          |                       | <b>40%</b>                  |
| <b>CAMERON AVENUE</b>                             |                                      |                       |                             |
| <b>East Side</b>                                  |                                      |                       |                             |
| Beryl Avenue to No. 16 (SB)                       | No Stopping                          | 0                     | 0                           |
|   | Bus Zone                             | -                     | 0                           |
|   | No Stopping 7-9am & 4-6pm Mon-Fri    | 11                    | 0                           |
| <b>West Side</b>                                  |                                      |                       |                             |
| No. 17 (NB) to Pitt Street                        | Unrestricted                         | 10                    | 0                           |
| Pitt Street to Roundabout                         | Unrestricted                         | 2                     | 0                           |
|   | Bus Zone                             | -                     | 0                           |
|   | No Stopping                          | 0                     | 0                           |
| <b>CAMERON AVENUE</b>                             | <b>Capacity</b>                      | <b>23</b>             | <b>23</b>                   |
|   | <b>Total Number of Cars Parked</b>   |                       | <b>0</b>                    |
|   | <b>Total Number of Vacant Spaces</b> |                       | <b>23</b>                   |
|   | <b>Percentage Occupancy</b>          |                       | <b>0%</b>                   |
| <b>DELIA STREET</b>                               |                                      |                       |                             |
| <b>North Side</b>                                 |                                      |                       |                             |
| Dermot Street to Delos Street                     | Unrestricted                         | 7                     | 0                           |
| Delos Street to Golf Road                         | Unrestricted                         | 8                     | 0                           |
| <b>South Side</b>                                 |                                      |                       |                             |
| Golf Road to No. 32 (WB)                          | Unrestricted                         | 9                     | 0                           |
| No. 32 (WB) to No. 18 (WB)                        | Unrestricted                         | 13                    | 5                           |
| <b>DELIA STREET</b>                               | <b>Capacity</b>                      | <b>37</b>             | <b>37</b>                   |
|   | <b>Total Number of Cars Parked</b>   |                       | <b>5</b>                    |
|   | <b>Total Number of Vacant Spaces</b> |                       | <b>32</b>                   |
|   | <b>Percentage Occupancy</b>          |                       | <b>14%</b>                  |

Surveyed By: Matthew Huynh

Survey Dates & Times: See below

| Location   | Restriction                           | Capacity<br>Min - Max | Thursday 6th December, 2018 |
|--|---------------------------------------|-----------------------|-----------------------------|
|  |                                       |                       | 10am                        |
| <b>BERYL AVENUE</b>  |                                       |                       |                             |
| <b>North Side</b>  |                                       |                       |                             |
| Cameron Avenue to Bakers Road (Subject Site)   | Unrestricted                          | 24                    | 0                           |
|  | Unrestricted                          | 2                     | 0                           |
| Bakers Road to Riley Street  | Unrestricted                          | 21                    | 3                           |
| <b>West Side</b>   |                                       |                       |                             |
| Riley Street to Bakers Road  | Unrestricted                          | 19                    | 1                           |
| Bakers Road to Joyce Avenue  | Unrestricted                          | 8                     | 0                           |
| Joyce Avenue to Cameron Avenue   | Unrestricted                          | 7                     | 1                           |
| <b>BERYL AVENUE</b>  | <b>Capacity</b>                       | <b>66</b>             | <b>66</b>                   |
|  | <b>Total Number of Cars Parked</b>    |                       | <b>5</b>                    |
|  | <b>Total Number of Vacant Spaces</b>  |                       | <b>61</b>                   |
|  | <b>Percentage Occupancy</b>           |                       | <b>8%</b>                   |
| <b>Note:</b> 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. |                                       |                       |                             |
| <b>BAKERS ROAD</b>   |                                       |                       |                             |
| <b>East Side</b>   |                                       |                       |                             |
| END to Beryl Avenue  | Unrestricted                          | 2                     | 1                           |
| Beryl Avenue to opposite No. 17 (NB)   | No Stopping                           | 0                     | 0                           |
|  | Permit Zone                           | 4                     | 0                           |
|  | P 2minute 8am-9am & 3-4pm School Days | 6                     | 0                           |
|  | Bus Zone                              | -                     | 0                           |
|  | No stopping                           | 0                     | 0                           |
| <b>West Side</b>   |                                       |                       |                             |
| No. 17 (NB) to Beryl Avenue  | Permit zone                           | 14                    | 3                           |
|  | No Stopping                           | 0                     | 0                           |
| Beryl Avenue to END  | Unrestricted                          | 3                     | 1                           |
| <b>BAKERS ROAD</b>   | <b>Capacity</b>                       | <b>3</b>              | <b>3</b>                    |
|  | <b>Total Number of Cars Parked</b>    |                       | <b>2</b>                    |
|  | <b>Total Number of Vacant Spaces</b>  |                       | <b>1</b>                    |
|  | <b>Percentage Occupancy</b>           |                       | <b>67%</b>                  |
| <b>Note:</b> 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. |                                       |                       |                             |

Surveyed By: Matthew Huynh

Survey Dates & Times: See below

| Location   | Restriction                          | Capacity<br>Min - Max | Thursday 6th December, 2018 |
|--|--------------------------------------|-----------------------|-----------------------------|
|  |                                      |                       | 10am                        |
| <b>JOYCE AVENUE</b>  |                                      |                       |                             |
| <b>West Side</b>   |                                      |                       |                             |
| No. 15 (SB) to Beryl Avenue  | Unrestricted                         | 19                    | 5                           |
|  | No Stopping                          | 0                     | 0                           |
| <b>East Side</b>   |                                      |                       |                             |
| Beryl Avenue to No. 14 (SB)  | No Stopping                          | 0                     | 0                           |
|  | Unrestricted                         | 17                    | 4                           |
| <b>JOYCE AVENUE</b>  | <b>Capacity</b>                      | <b>19</b>             | <b>19</b>                   |
|  | <b>Total Number of Cars Parked</b>   |                       | <b>9</b>                    |
|  | <b>Total Number of Vacant Spaces</b> |                       | <b>10</b>                   |
|  | <b>Percentage Occupancy</b>          |                       | <b>47%</b>                  |
| <b>Note:</b> 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. |                                      |                       |                             |
| <b>SUMMARY =&gt; ON-STREET CARPARKING</b>  |                                      |                       |                             |
| <b>Car Parking Supply</b>  |                                      | <b>158 - 158</b>      | <b>158</b>                  |
| <b>Total Number of Cars Parked</b>   |                                      |                       | <b>25</b>                   |
| <b>Total Number of Vacant Spaces</b>   |                                      |                       | <b>133</b>                  |
| <b>Percentage Occupancy</b>  |                                      |                       | <b>16%</b>                  |

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

Not Available, illegally parked cars included in analysis  
 No Stopping/  
 Other No Parking

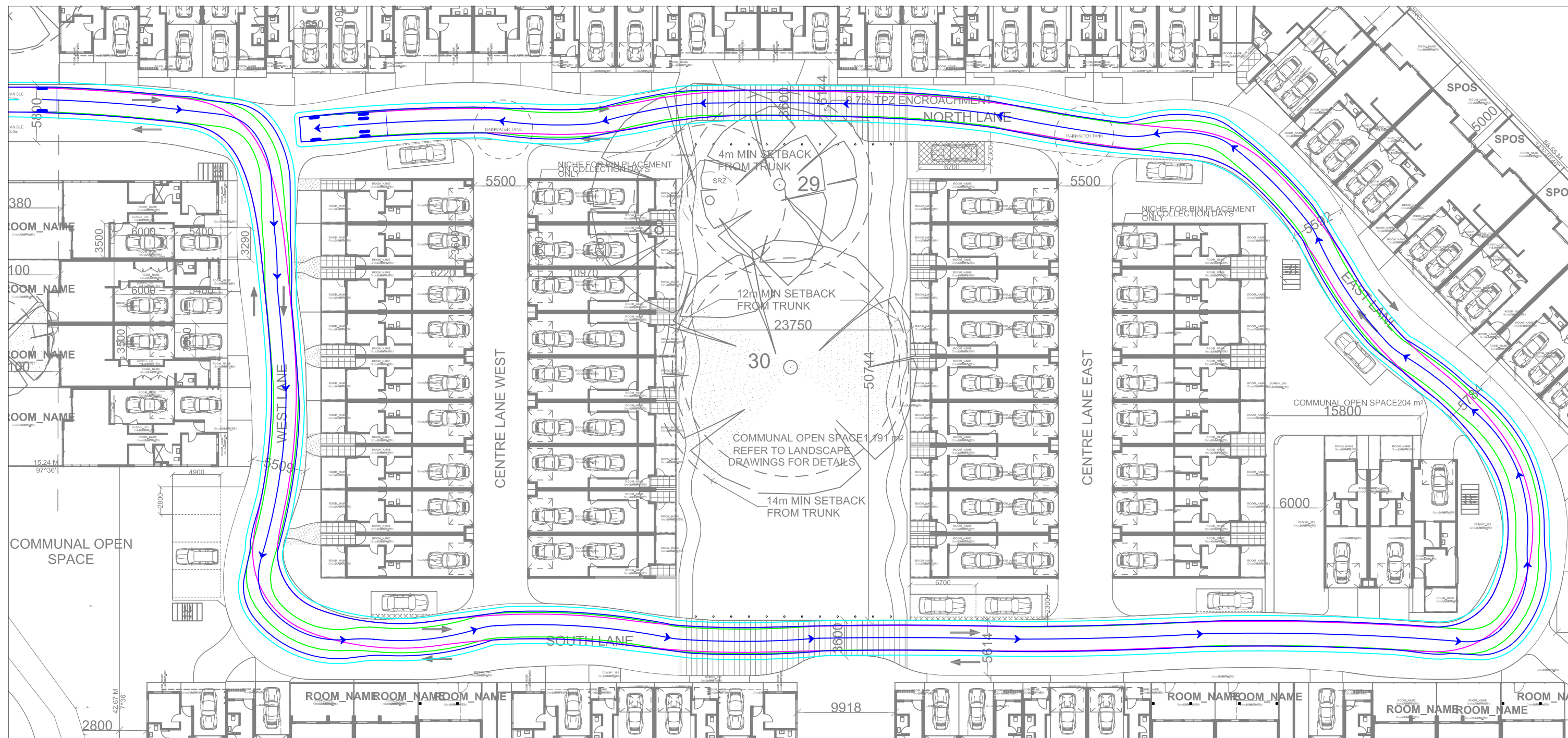
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# Appendix C

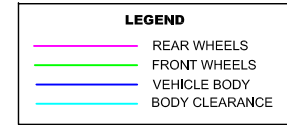
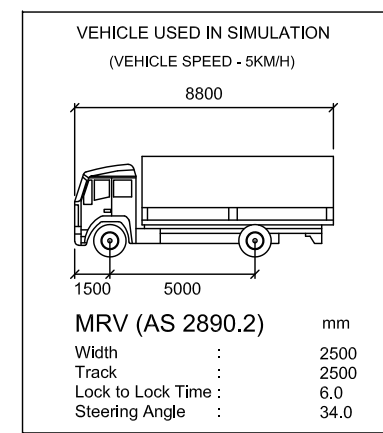
## Swept Path Diagram



8.8m MRV - CIRCULATING SITE



PRELIMINARY ONLY  
NOT FOR CONSTRUCTION



| REV. | REVISION NOTES | REVISION DATE |
|------|----------------|---------------|
|      |                |               |
|      |                |               |
|      |                |               |

GENERAL NOTES:  
 INFORMATION BASED ON "12737 200131 4.23 MASTER PLAN - TRAFFIC.dwg"  
 PREPARED BY PLUS ARCHITECTURE , RECEIVED ON 31 JAN 2020

DESIGNED BY:  
 Y. LEOW 03/02/2020

CHECKED BY:  
 M. WOOLLARD 03/02/2020

FILE NAME:  
 G25977-03

ISSUE:  
 A

**Traffix Group**

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

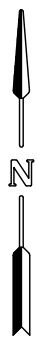
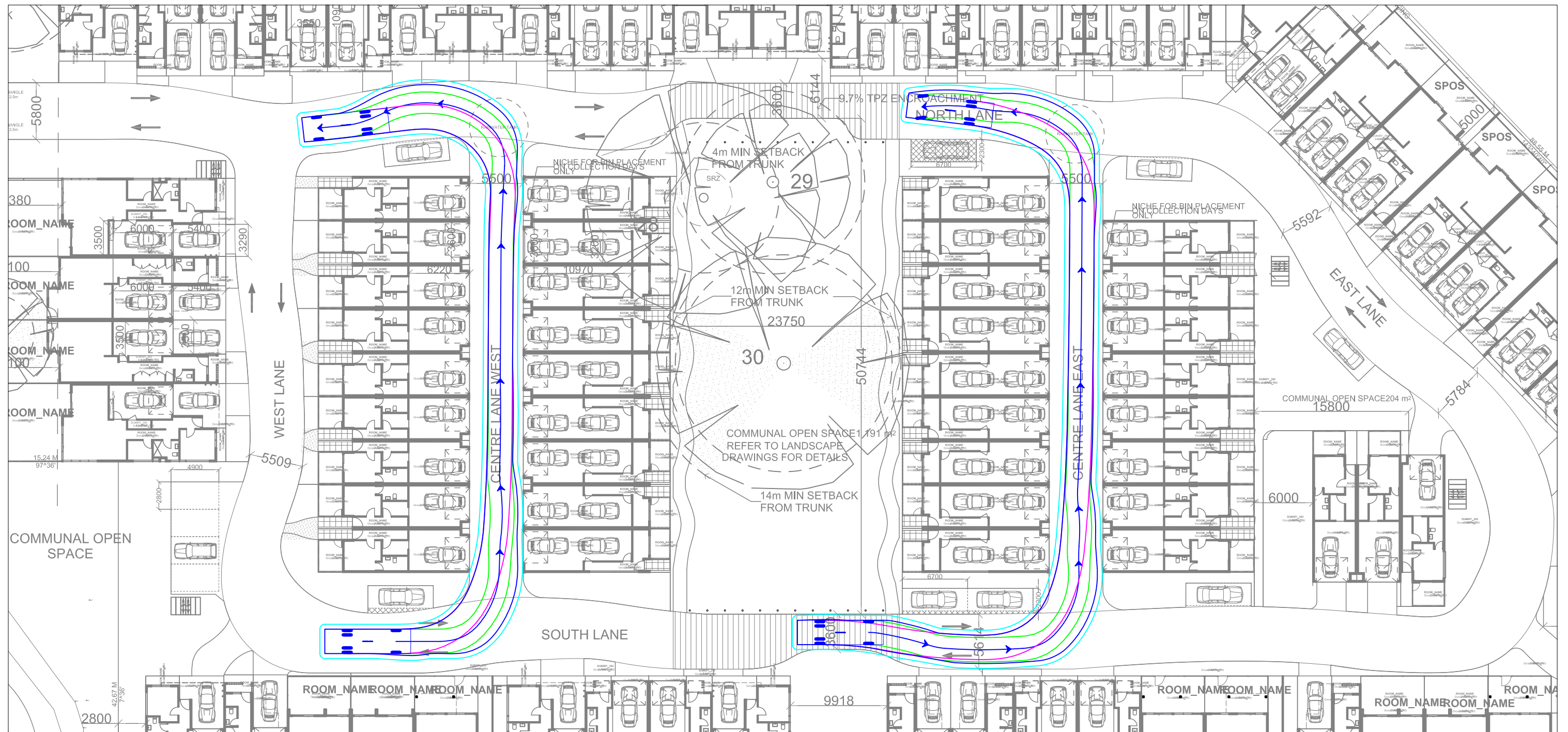
**50 GOLF ROAD, OAKLEIGH SOUTH**  
 8.8M MRV DESIGN CAR SWEEP PATHS  
 PROPOSED RESIDENTIAL DEVELOPMENT

SCALE: 1:400 (A3)

SHEET NO.: 01/01

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 "12737 200131 4.23 MASTER PLAN - TRAFFIC.dwg"  
 PREPARED BY PLUS ARCHITECTURE , RECEIVED ON 31 JAN 2020

DESIGNED BY:  
 Y. LEOW 03/02/2020

CHECKED BY:  
 M. WOOLLARD 03/02/2020

FILE NAME:  
 G25977-03

ISSUE:  
 A

**Traffix Group**

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

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

SCALE: 1:400 (A3)

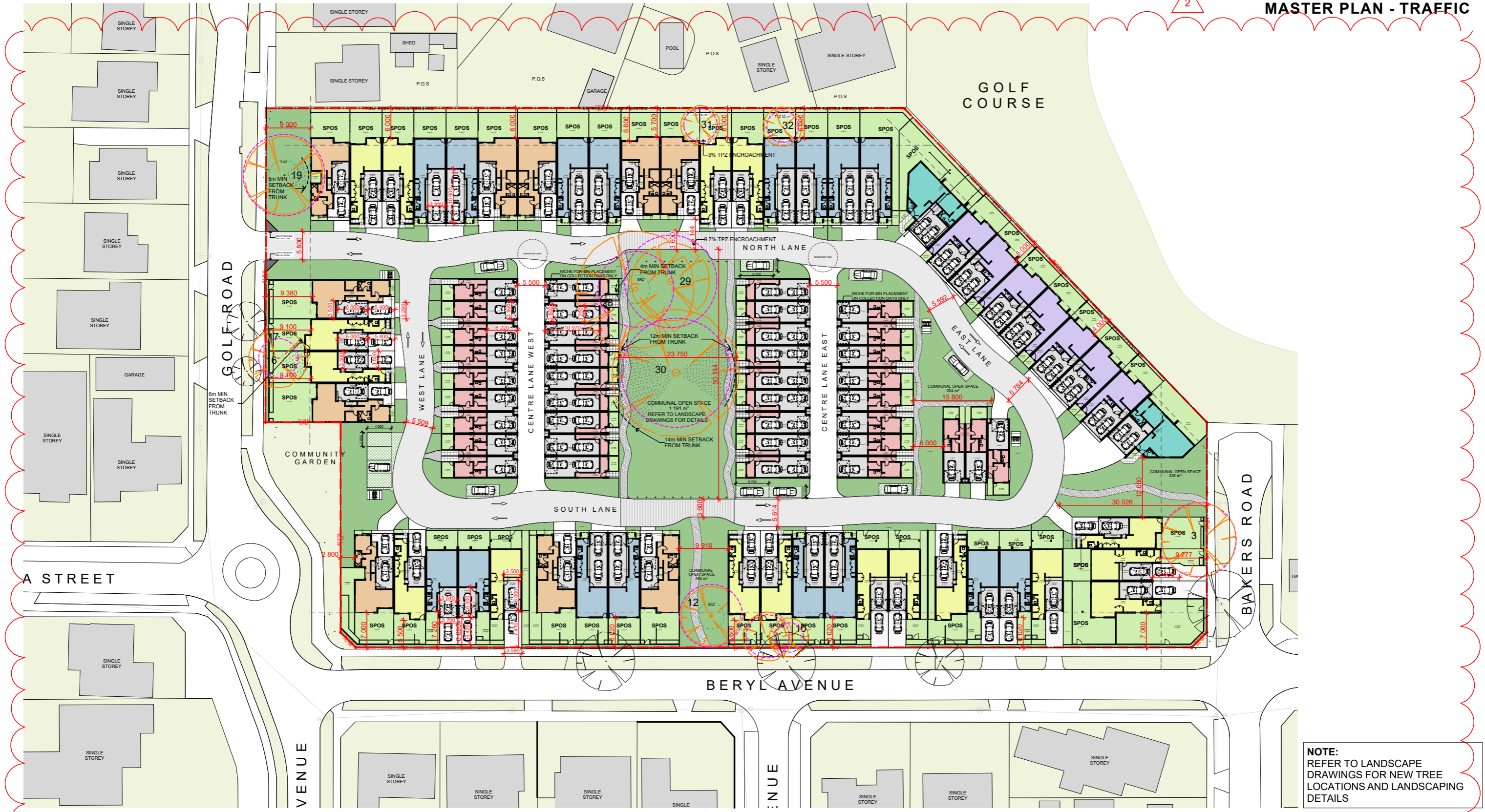
SHEET NO.: 02/02

JOB NO.: G25977



# Appendix C

**Amended Development Plan (Masterplan)**



LEGEND

- MODERATE TREES TO BE RETAINED
- OTHER EXISTING TREES TO BE RETAINED
- RECOMMENDED BUILDING SETBACK FROM TREE AS PER ARBORIST'S ADVICE
- TH 01
- TH 02
- TH 03
- TH 04
- TH 05
- TH 06
- TH 07

FOR VCAT





# Appendix D

## 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                  |
| <b>ON-STREET CARPARKING</b>                |                                      |                      |                    |                             |            |            |            |                             |            |            |            |                      |
| <b>GOLF ROAD</b>                           |                                      |                      |                    |                             |            |            |            |                             |            |            |            |                      |
| <b>East Side</b>                           |                                      |                      |                    |                             |            |            |            |                             |            |            |            |                      |
| 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                    |
| <b>West Side</b>                           |                                      |                      |                    |                             |            |            |            |                             |            |            |            |                      |
| 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 Deroey 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                    |
| <b>GOLF ROAD</b>                           | <b>Capacity</b>                      |                      | <b>10 - 10</b>     | <b>10</b>                   | <b>10</b>  | <b>10</b>  | <b>10</b>  | <b>10</b>                   | <b>10</b>  | <b>10</b>  | <b>10</b>  | <b>10</b>            |
|  | <b>Total Number of Cars Parked</b>   |                      |                    | <b>1</b>                    | <b>1</b>   | <b>4</b>   | <b>5</b>   | <b>5</b>                    | <b>6</b>   | <b>5</b>   | <b>5</b>   | <b>3</b>             |
|  | <b>Total Number of Vacant Spaces</b> |                      |                    | <b>9</b>                    | <b>9</b>   | <b>6</b>   | <b>5</b>   | <b>5</b>                    | <b>4</b>   | <b>5</b>   | <b>5</b>   | <b>7</b>             |
|  | <b>Percentage Occupancy</b>          |                      |                    | <b>10%</b>                  | <b>10%</b> | <b>40%</b> | <b>50%</b> | <b>50%</b>                  | <b>60%</b> | <b>50%</b> | <b>50%</b> | <b>30%</b>           |

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                  |
| <b>CAMERON AVENUE</b>       |                                      |                      |                    |                             |           |           |            |                             |           |           |           |                      |
| <b>East Side</b>            |                                      |                      |                    |                             |           |           |            |                             |           |           |           |                      |
| 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                    |
| <b>West Side</b>            |                                      |                      |                    |                             |           |           |            |                             |           |           |           |                      |
| 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                    |
| <b>CAMERON AVENUE</b>       | <b>Capacity</b>                      | <b>21 - 21</b>       | <b>21</b>          | <b>21</b>                   | <b>21</b> | <b>21</b> | <b>21</b>  | <b>21</b>                   | <b>21</b> | <b>21</b> | <b>21</b> | <b>21</b>            |
|                             | <b>Total Number of Cars Parked</b>   |                      | <b>1</b>           | <b>2</b>                    | <b>1</b>  | <b>1</b>  | <b>2</b>   | <b>1</b>                    | <b>0</b>  | <b>0</b>  | <b>1</b>  |                      |
|                             | <b>Total Number of Vacant Spaces</b> |                      | <b>20</b>          | <b>19</b>                   | <b>20</b> | <b>20</b> | <b>19</b>  | <b>20</b>                   | <b>21</b> | <b>21</b> | <b>20</b> |                      |
|                             | <b>Percentage Occupancy</b>          |                      | <b>5%</b>          | <b>10%</b>                  | <b>5%</b> | <b>5%</b> | <b>10%</b> | <b>5%</b>                   | <b>0%</b> | <b>0%</b> | <b>5%</b> |                      |

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                  |
| <b>DELIA STREET</b>  |                                      |                      |                    |                             |            |            |            |                             |            |            |            |                      |
| <b>North Side</b>  |                                      |                      |                    |                             |            |            |            |                             |            |            |            |                      |
| 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          |                      |
| <b>South Side</b>  |                                      |                      |                    |                             |            |            |            |                             |            |            |            |                      |
| 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          |                      |
| <b>DELIA STREET</b>  | <b>Capacity</b>                      | <b>19 - 19</b>       | <b>19</b>          | <b>19</b>                   | <b>19</b>  | <b>19</b>  | <b>19</b>  | <b>19</b>                   | <b>19</b>  | <b>19</b>  | <b>19</b>  |                      |
|  | <b>Total Number of Cars Parked</b>   |                      | <b>5</b>           | <b>6</b>                    | <b>13</b>  | <b>12</b>  | <b>7</b>   | <b>5</b>                    | <b>14</b>  | <b>13</b>  | <b>5</b>   |                      |
|  | <b>Total Number of Vacant Spaces</b> |                      | <b>14</b>          | <b>13</b>                   | <b>6</b>   | <b>7</b>   | <b>12</b>  | <b>14</b>                   | <b>5</b>   | <b>6</b>   | <b>14</b>  |                      |
|  | <b>Percentage Occupancy</b>          |                      | <b>26%</b>         | <b>32%</b>                  | <b>68%</b> | <b>63%</b> | <b>37%</b> | <b>26%</b>                  | <b>74%</b> | <b>68%</b> | <b>26%</b> |                      |
| <b>Note:</b> 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                  |
| <b>BERYL AVENUE</b>  |                         |                      |                    |                             |           |           |            |                             |           |           |            |                      |
| <b>North Side</b>  |                         |                      |                    |                             |           |           |            |                             |           |           |            |                      |
| 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                    |
| <b>West Side</b>   |                         |                      |                    |                             |           |           |            |                             |           |           |            |                      |
| 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                    |
| <b>Capacity</b>  |                         |                      | <b>46 - 46</b>     | <b>46</b>                   | <b>46</b> | <b>46</b> | <b>46</b>  | <b>46</b>                   | <b>46</b> | <b>46</b> | <b>46</b>  | <b>46</b>            |
| <b>Total Number of Cars Parked</b>   |                         |                      | <b>1</b>           | <b>0</b>                    | <b>1</b>  | <b>1</b>  | <b>25</b>  | <b>5</b>                    | <b>2</b>  | <b>2</b>  | <b>7</b>   |                      |
| <b>Total Number of Vacant Spaces</b>   |                         |                      | <b>45</b>          | <b>46</b>                   | <b>45</b> | <b>45</b> | <b>21</b>  | <b>41</b>                   | <b>44</b> | <b>44</b> | <b>39</b>  |                      |
| <b>Percentage Occupancy</b>  |                         |                      | <b>2%</b>          | <b>0%</b>                   | <b>2%</b> | <b>2%</b> | <b>54%</b> | <b>11%</b>                  | <b>4%</b> | <b>4%</b> | <b>15%</b> |                      |
| <b>Note:</b> 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                  |
| <b>BAKERS ROAD</b>   |                                       |                      |                    |                             |           |            |            |                             |            |            |            |                      |
| <b>East Side</b>   |                                       |                      |                    |                             |           |            |            |                             |            |            |            |                      |
| 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                    |
| <b>West Side</b>   |                                       |                      |                    |                             |           |            |            |                             |            |            |            |                      |
| 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                    |
| <b>BAKERS ROAD</b>   | <b>Capacity</b>                       |                      | <b>9 - 9</b>       | <b>9</b>                    | <b>9</b>  | <b>9</b>   | <b>9</b>   | <b>9</b>                    | <b>9</b>   | <b>9</b>   | <b>9</b>   | <b>9</b>             |
|  | <b>Total Number of Cars Parked</b>    |                      |                    | <b>1</b>                    | <b>0</b>  | <b>1</b>   | <b>1</b>   | <b>11</b>                   | <b>5</b>   | <b>1</b>   | <b>1</b>   | <b>9</b>             |
|  | <b>Total Number of Vacant Spaces</b>  |                      |                    | <b>8</b>                    | <b>9</b>  | <b>8</b>   | <b>8</b>   | <b>-2</b>                   | <b>4</b>   | <b>8</b>   | <b>8</b>   | <b>0</b>             |
|  | <b>Percentage Occupancy</b>           |                      |                    | <b>11%</b>                  | <b>0%</b> | <b>11%</b> | <b>11%</b> | <b>122%</b>                 | <b>56%</b> | <b>11%</b> | <b>11%</b> | <b>100%</b>          |
| <b>Note:</b> 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                  |
| <b>JOYCE AVENUE</b>         |                                      |                      |                    |                             |     |     |     |                             |     |     |     |                      |
| <b>West Side</b>            |                                      |                      |                    |                             |     |     |     |                             |     |     |     |                      |
| 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                    |
| <b>East Side</b>            |                                      |                      |                    |                             |     |     |     |                             |     |     |     |                      |
| 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                    |
| <b>JOYCE AVENUE</b>         | <b>Capacity</b>                      |                      | 17 - 17            | 17                          | 17  | 17  | 17  | 17                          | 17  | 17  | 17  | 17                   |
|                             | <b>Total Number of Cars Parked</b>   |                      |                    | 5                           | 5   | 7   | 6   | 13                          | 6   | 4   | 3   | 10                   |
|                             | <b>Total Number of Vacant Spaces</b> |                      |                    | 12                          | 12  | 10  | 11  | 4                           | 11  | 13  | 14  | 7                    |
|                             | <b>Percentage Occupancy</b>          |                      |                    | 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% |

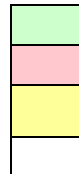
Note: Public parking includes spaces that are available to the general public and excludes 'No Stopping', 'Loading Zones' and 'No Parking' areas, etc., during the relevant enforcement periods

**LEGEND: Public Parking**

Not available to the general public

Illegally parked cars on nature strip included in analysis

No Stopping/  
Other No Parking





# Appendix E

## 7-day Tube Count Results

# TRANS TRAFFIC SURVEY

trafficsurvey.com.au

T. 1300 82 88 82 - F. 1300 83 88 83 - E. [traffic@trafficsurvey.com.au](mailto:traffic@trafficsurvey.com.au) - W. [www.trafficsurvey.com.au](http://www.trafficsurvey.com.au)

## AUTOMATIC COUNT SUMMARY

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

| GPS information                        | Lat 37° 55' 11.56 South<br>Long 145° 5' 15.57 East | Direction of Travel |            |            |
|--|--|---------------------|------------|------------|
|  |  | Both directions     | Northbound | Southbound |
| <b>Traffic Volume : (Vehicles/Day)</b> | Weekdays Average                                   | 5,807               | 3,361      | 2,446      |
|  | 7 Day Average                                      | 5,235               | 3,029      | 2,206      |
| <b>Weekday</b>                         | <b>AM</b> 08:00                                    | 822                 | 452        | 370        |
| <b>Peak hour starts</b>                | <b>PM</b> 15:00                                    | 619                 | 353        | 267        |
| <b>Speeds : (Km/Hr)</b>                | 85th Percentile                                    | 47.6                | 49.3       | 45.9       |
|  | Average  | 42.1                | 43.6       | 40.5       |
| <b>Classification % :</b>              | 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<br>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          |
| <b>Total</b>   | <b>3266</b>  | <b>3326</b>  | <b>3430</b>  | <b>3392</b>  | <b>3381</b>  | <b>2612</b>  | <b>1811</b>  | <b>21218</b> | <b>3029</b> | <b>16795</b> | <b>3361</b> | <b>4423</b>  | <b>2216</b> |
| <b>% Heavy</b> | <b>4.75%</b> | <b>4.51%</b> | <b>4.31%</b> | <b>4.22%</b> | <b>4.70%</b> | <b>4.17%</b> | <b>3.20%</b> | <b>4.35%</b> |             | <b>4.50%</b> |             | <b>3.78%</b> |             |



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| Day<br>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<br>PM Peak | 08:00<br>15:00 | 08:00<br>15:00 | 08:00<br>17:00 | 08:00<br>15:00 | 08:00<br>15:00 | 08:00<br>12:00 | 11:00<br>13:00 | N/A<br>N/A   | 08:00<br>15:00 | N/A<br>N/A   | 08:00<br>15:00 | N/A<br>N/A  | 11:00<br>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             |
| <b>Total</b>       | <b>2290</b>    | <b>2452</b>    | <b>2460</b>    | <b>2457</b>    | <b>2570</b>    | <b>1926</b>    | <b>1289</b>    | <b>15444</b> | <b>2206</b>    | <b>12229</b> | <b>2446</b>    | <b>3215</b> | <b>1615</b>    |
| % Heavy            | 4.45%          | 4.89%          | 4.72%          | 5.21%          | 4.28%          | 3.32%          | 2.33%          | 4.34%        |                | 4.71%        |                | 2.92%       |                |



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| Day<br>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          |
| <b>Total</b>   | <b>5556</b>  | <b>5778</b>  | <b>5890</b>  | <b>5849</b>  | <b>5951</b>  | <b>4538</b>  | <b>3100</b>  | <b>36662</b> | <b>5238</b> | <b>29024</b> | <b>5805</b> | <b>7638</b>  | <b>3826</b> |
| <b>% Heavy</b> | <b>4.63%</b> | <b>4.67%</b> | <b>4.48%</b> | <b>4.63%</b> | <b>4.52%</b> | <b>3.81%</b> | <b>2.84%</b> | <b>4.34%</b> |             | <b>4.59%</b> |             | <b>3.42%</b> |             |



# TRANS TRAFFIC SURVEY

trafficsurvey.com.au

T. 1300 82 88 82 - F. 1300 83 88 83 - E. [traffic@trafficsurvey.com.au](mailto:traffic@trafficsurvey.com.au) - W. [www.trafficsurvey.com.au](http://www.trafficsurvey.com.au)

## AUTOMATIC COUNT SUMMARY

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

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

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| Day<br>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<br>PM Peak | 08:00<br>15:00 | 08:00<br>15:00 | 08:00<br>15:00 | 08:00<br>15:00 | 08:00<br>15:00 | 09:00<br>12:00 | 10:00<br>12:00 | N/A<br>N/A   | 08:00<br>15:00 | N/A<br>N/A   | 08:00<br>15:00 | N/A<br>N/A   | 09:00<br>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              |
| <b>Total</b>       | <b>1294</b>    | <b>1291</b>    | <b>1362</b>    | <b>1323</b>    | <b>1460</b>    | <b>1093</b>    | <b>588</b>     | <b>8411</b>  | <b>1200</b>    | <b>6730</b>  | <b>1347</b>    | <b>1681</b>  | <b>849</b>     |
| <b>% Heavy</b>     | <b>0.85%</b>   | <b>0.70%</b>   | <b>0.66%</b>   | <b>0.45%</b>   | <b>1.03%</b>   | <b>0.73%</b>   | <b>0.51%</b>   | <b>0.73%</b> |                | <b>0.74%</b> |                | <b>0.65%</b> |                |



Site Beryl Ave

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| Day<br>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<br>PM Peak | 08:00<br>15:00 | 08:00<br>15:00 | 08:00<br>15:00 | 08:00<br>15:00 | 08:00<br>15:00 | 08:00<br>12:00 | 11:00<br>12:00 | N/A<br>N/A   | 08:00<br>15:00 | N/A<br>N/A   | 08:00<br>15:00 | N/A<br>N/A   | 08:00<br>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              |
| <b>Total</b>       | <b>972</b>     | <b>1003</b>    | <b>1008</b>    | <b>1036</b>    | <b>1104</b>    | <b>876</b>     | <b>384</b>     | <b>6383</b>  | <b>910</b>     | <b>5123</b>  | <b>1024</b>    | <b>1260</b>  | <b>637</b>     |
| <b>% Heavy</b>     | <b>0.72%</b>   | <b>1.20%</b>   | <b>0.89%</b>   | <b>0.77%</b>   | <b>0.82%</b>   | <b>0.46%</b>   | <b>0.78%</b>   | <b>0.81%</b> |                | <b>0.88%</b> |                | <b>0.56%</b> |                |



Site Beryl Ave

Direction  ▼

[Back to Site Summary Page](#)

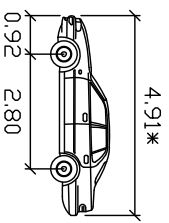
| Day<br>Date        | Monday         | Tuesday        | Wednesday      | Thursday       | Friday         | Saturday       | Sunday         | 7 days       |                | Weekday      |                | Weekend      |                |
|--------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|
|                    | 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<br>PM Peak | 08:00<br>15:00 | 08:00<br>15:00 | 08:00<br>15:00 | 08:00<br>15:00 | 08:00<br>15:00 | 09:00<br>12:00 | 11:00<br>12:00 | N/A<br>N/A   | 08:00<br>15:00 | N/A<br>N/A   | 08:00<br>15:00 | N/A<br>N/A   | 09:00<br>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             |
| <b>Total</b>       | <b>2266</b>    | <b>2294</b>    | <b>2370</b>    | <b>2359</b>    | <b>2564</b>    | <b>1969</b>    | <b>972</b>     | <b>14794</b> | <b>2114</b>    | <b>11853</b> | <b>2370</b>    | <b>2941</b>  | <b>1475</b>    |
| <b>% Heavy</b>     | <b>0.79%</b>   | <b>0.92%</b>   | <b>0.76%</b>   | <b>0.59%</b>   | <b>0.94%</b>   | <b>0.61%</b>   | <b>0.62%</b>   | <b>0.76%</b> |                | <b>0.80%</b> |                | <b>0.61%</b> |                |



# Appendix F

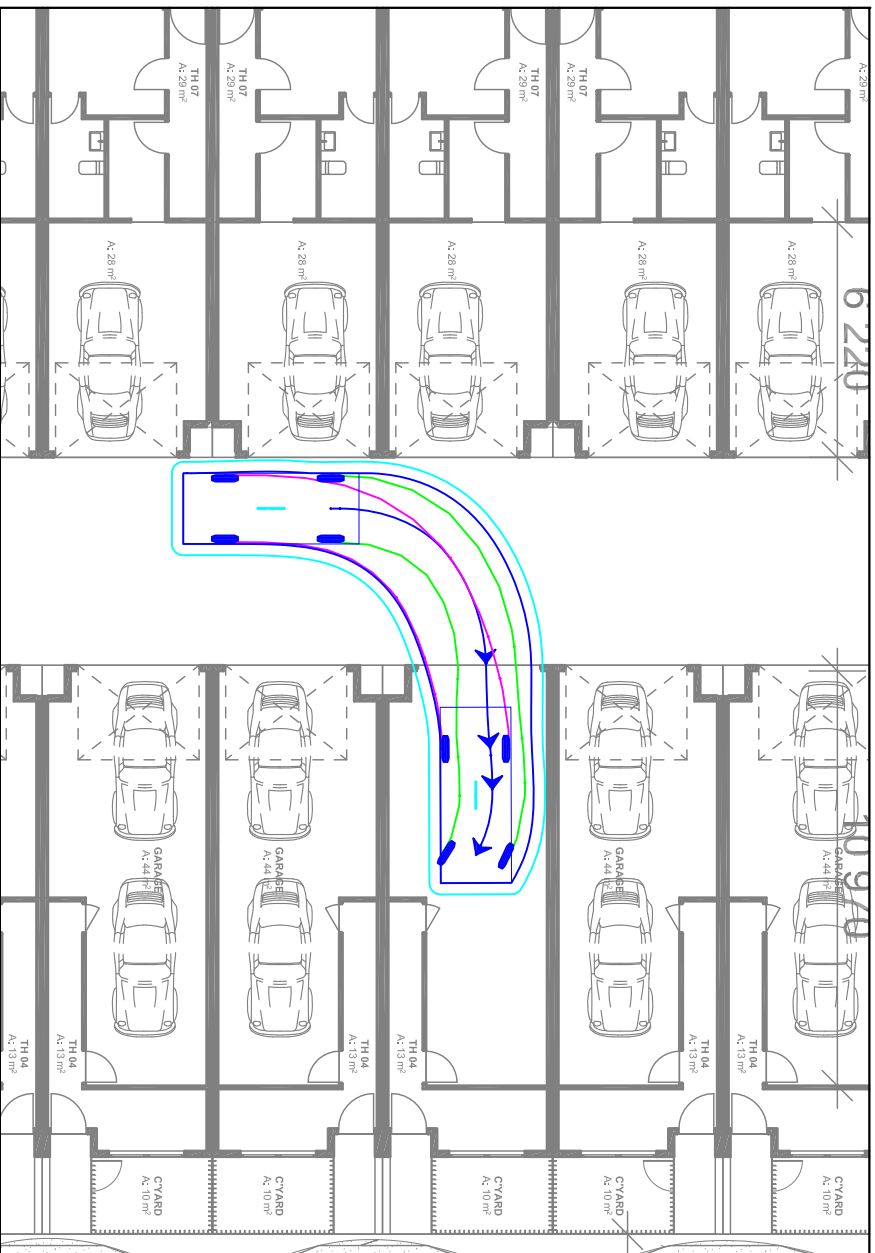
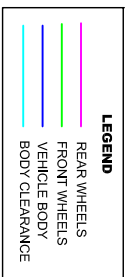
## Swept Path Diagrams

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

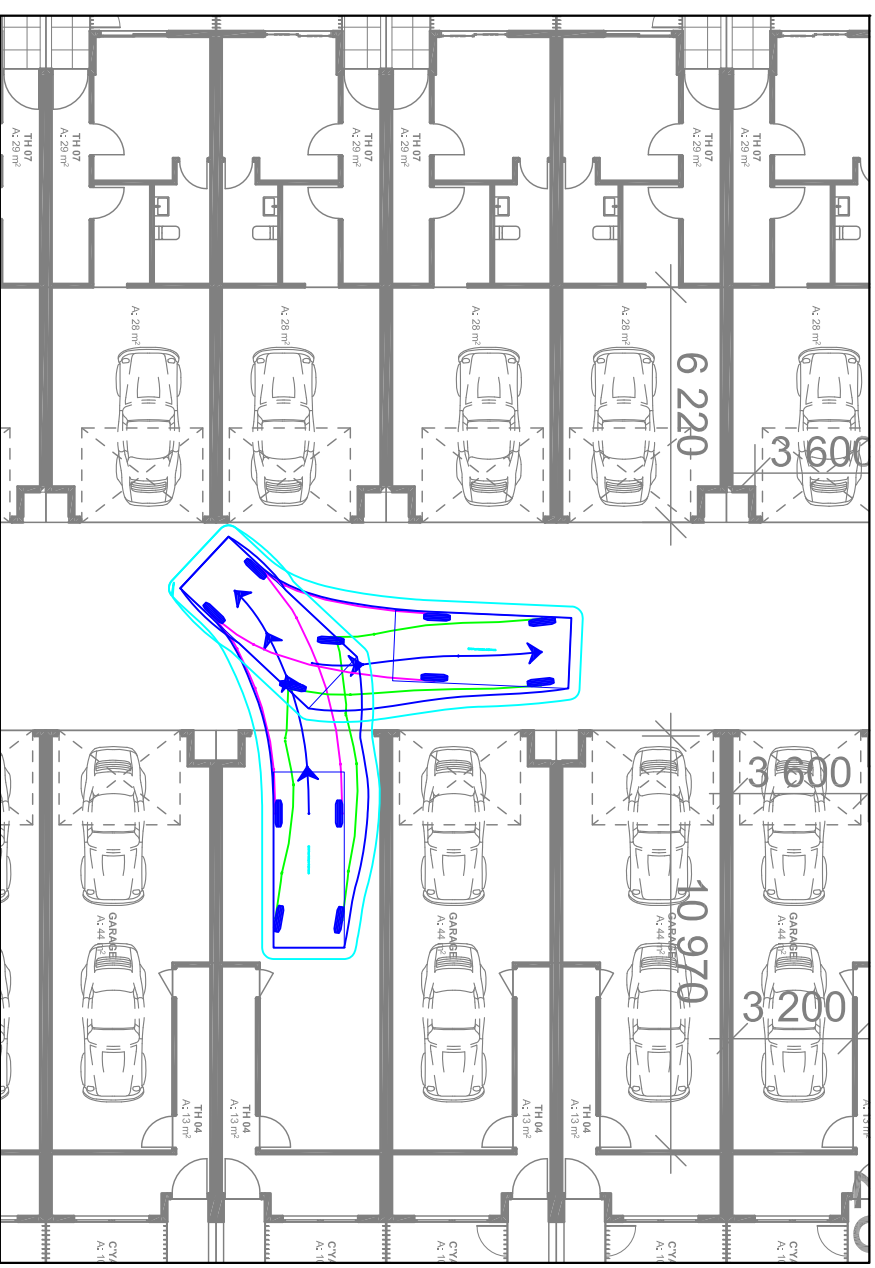


85th Percentile  
(AS/NZS 2890.1:2004)

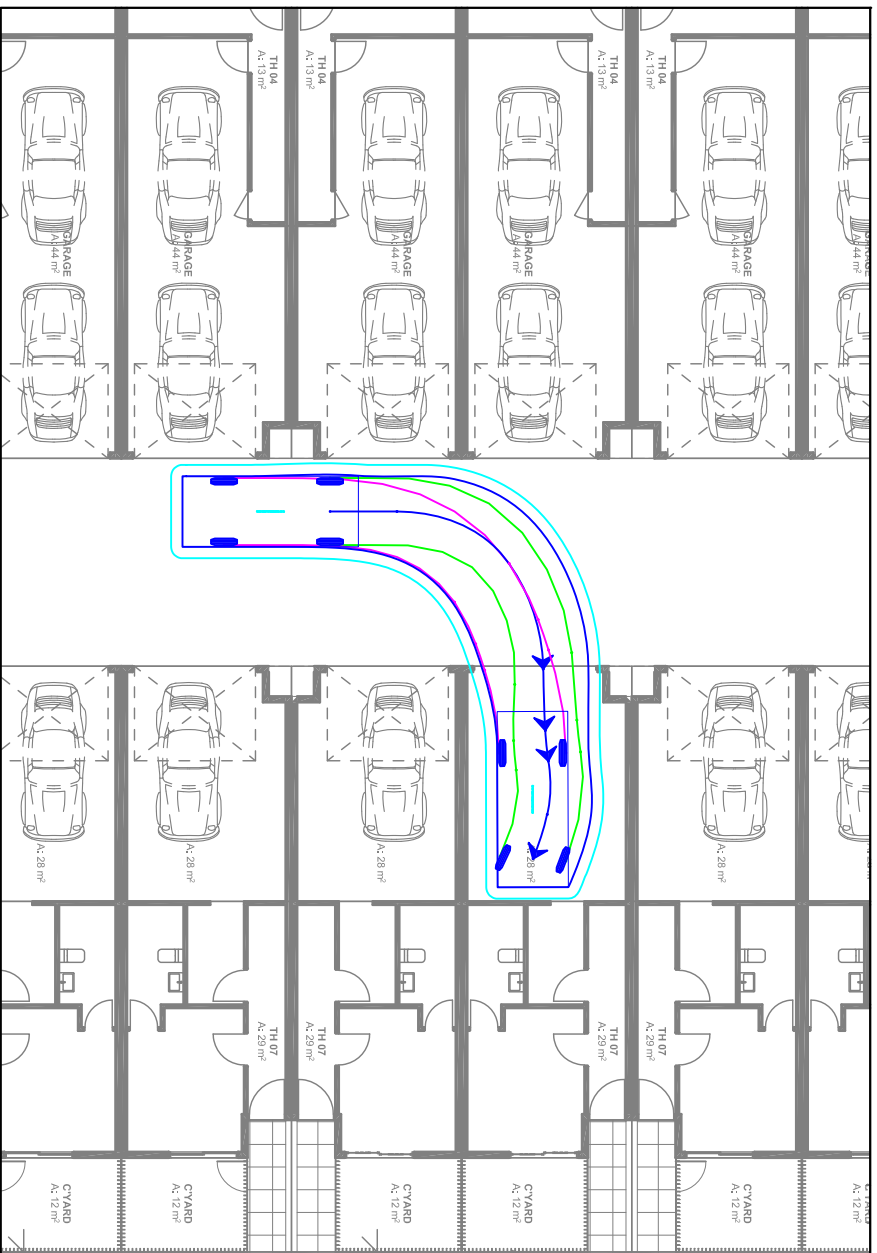
- Width : 1.87m
- Track : 1.77m
- Kerb to Kerb Radius: 5m
- Actual template based on 'relevant' longitudinal dimensions that affect swept path' as set out in Section 32.1 of AS/NZS 2890.1:04



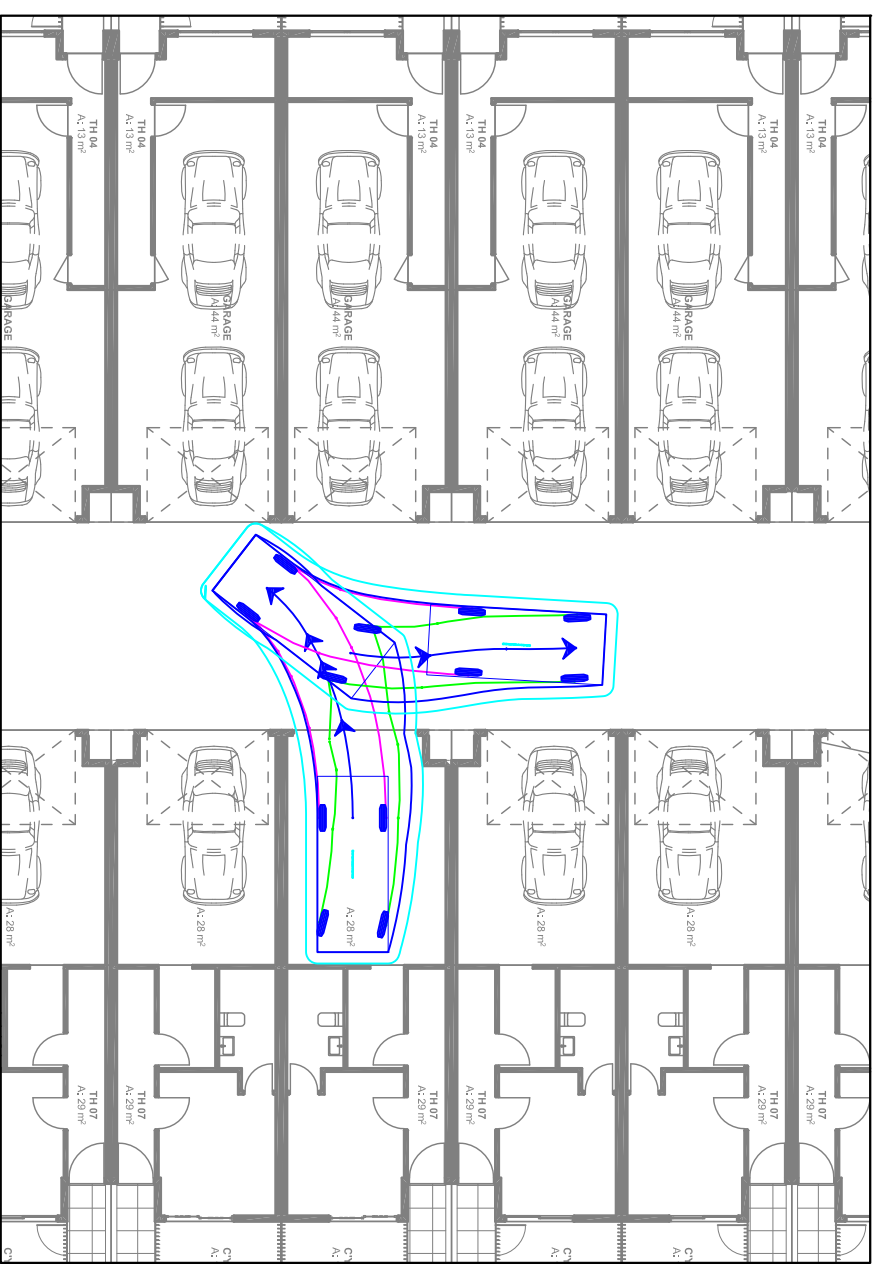
GARAGE SPACE 1 - INGRESS



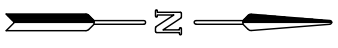
GARAGE SPACE 1 - EGRESS



GARAGE SPACE 2 - INGRESS



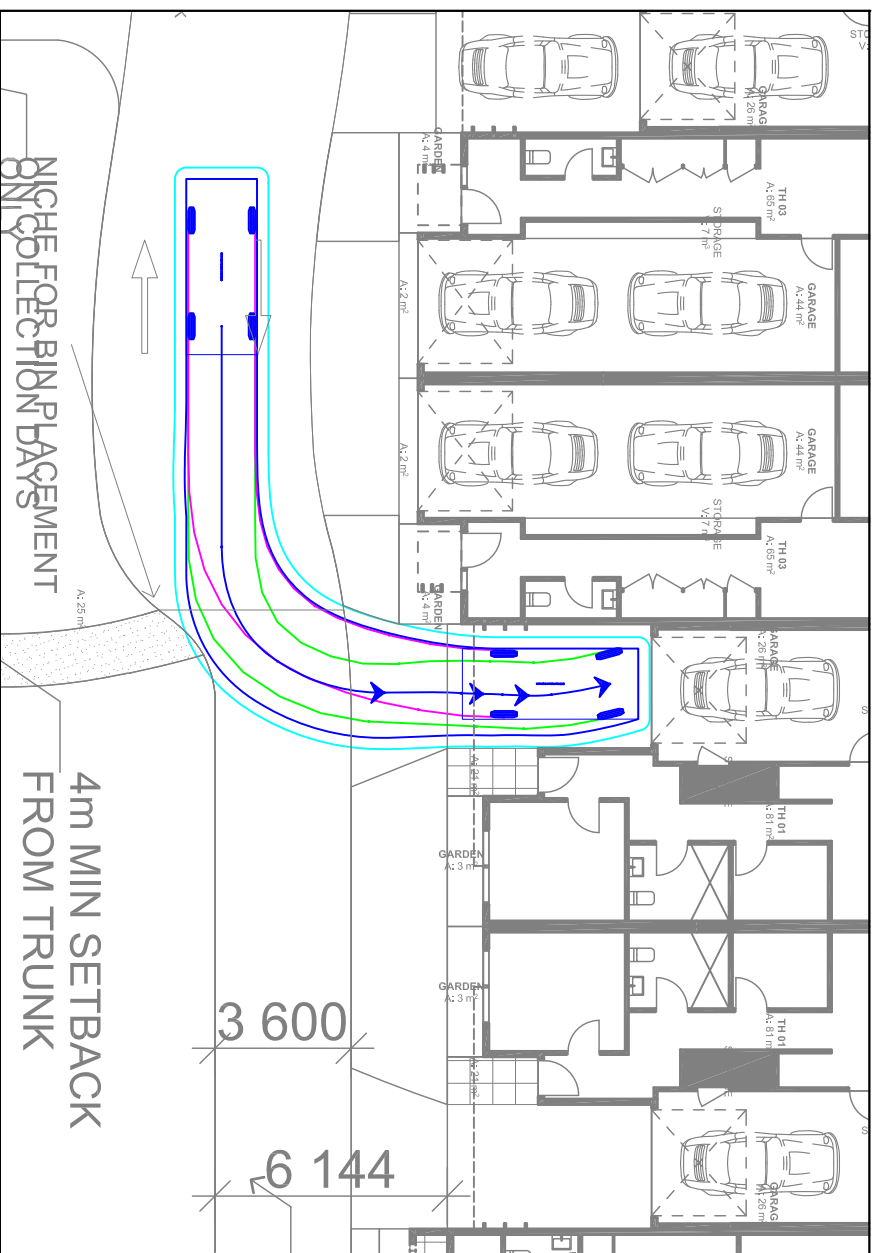
GARAGE SPACE 2 - EGRESS



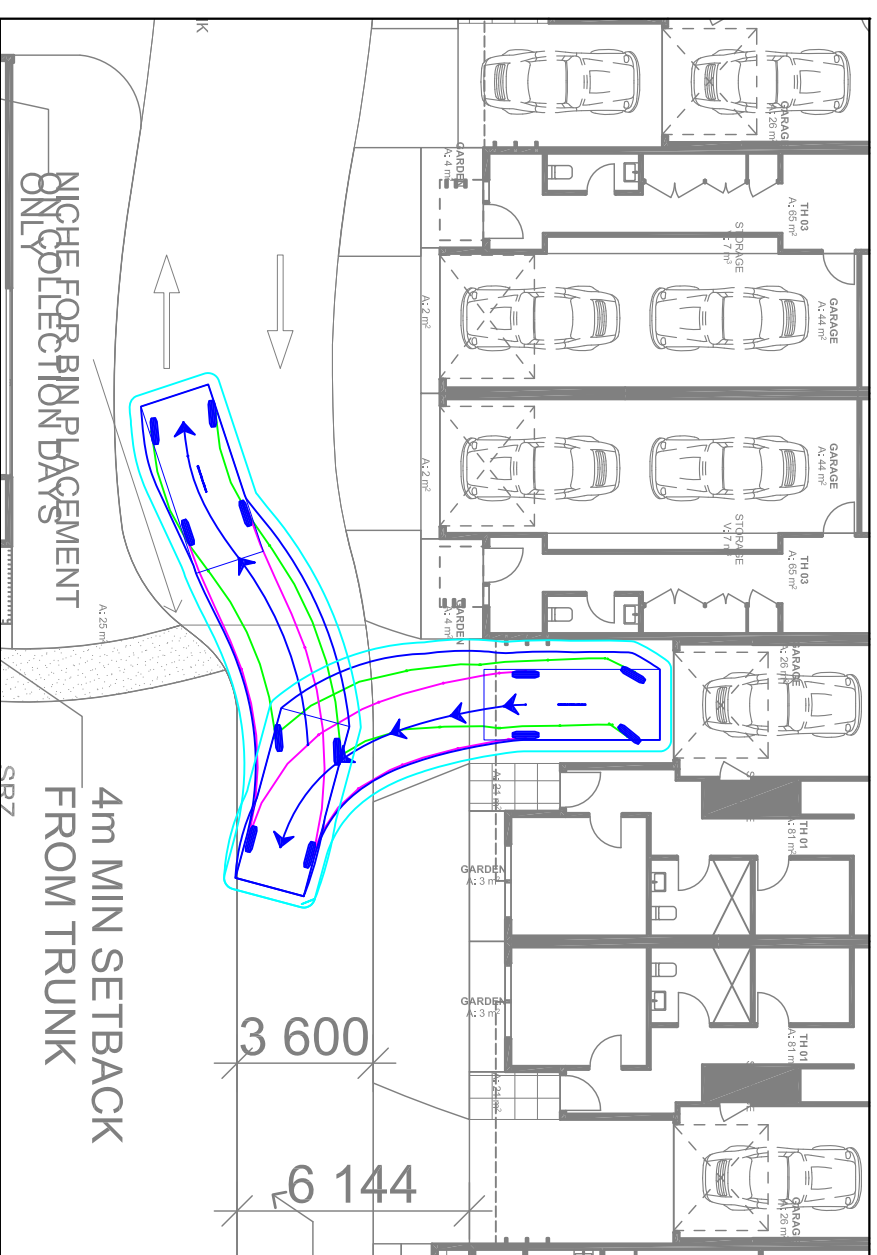
**PRELIMINARY ONLY**  
**NOT FOR CONSTRUCTION**

|      |   |               |               |             |   |   |
|------|---|---------------|---------------|-------------|---|---|
| REV. | REVISION NOTES  | REVISION DATE | DESIGNED BY:  | 13 FEB 2020 | <p>Lavel 28, 459 Collins Street<br/>MELBOURNE VICTORIA 3000<br/>TEL: (03) 9822-2888</p> | <p>52 GOLF ROAD, OAKLEIGH SOUTH<br/>B85 DESIGN CAR SWEEP PATHS<br/>PROPOSED RESIDENTIAL DEVELOPMENT</p> |
|      |   |               | Y. LEOW       |             |   |   |
|      | GENERAL NOTES:<br>INFORMATION BASED ON "4.23 MASTER PLAN - TRAFFIC.dwg"<br>PREPARED BY PLUS ARCHITECTURE, RECEIVED ON 12 FEB 2020 |               | CHECKED BY:   | 13 FEB 2020 | <p>SCALE: 0 2 4<br/>1:200 (A3)</p>  | <p>SHEET NO.: 0105</p>  |
|      |   |               | M. WOOLLARD   |             |   |   |
|      |   |               | FILE NAME:    | ISSUE:      |   |   |
|      |   |               | G25977-04.dwg | A           |   |   |
|      |   |               | JOB NO.:      | G25977      |   |   |

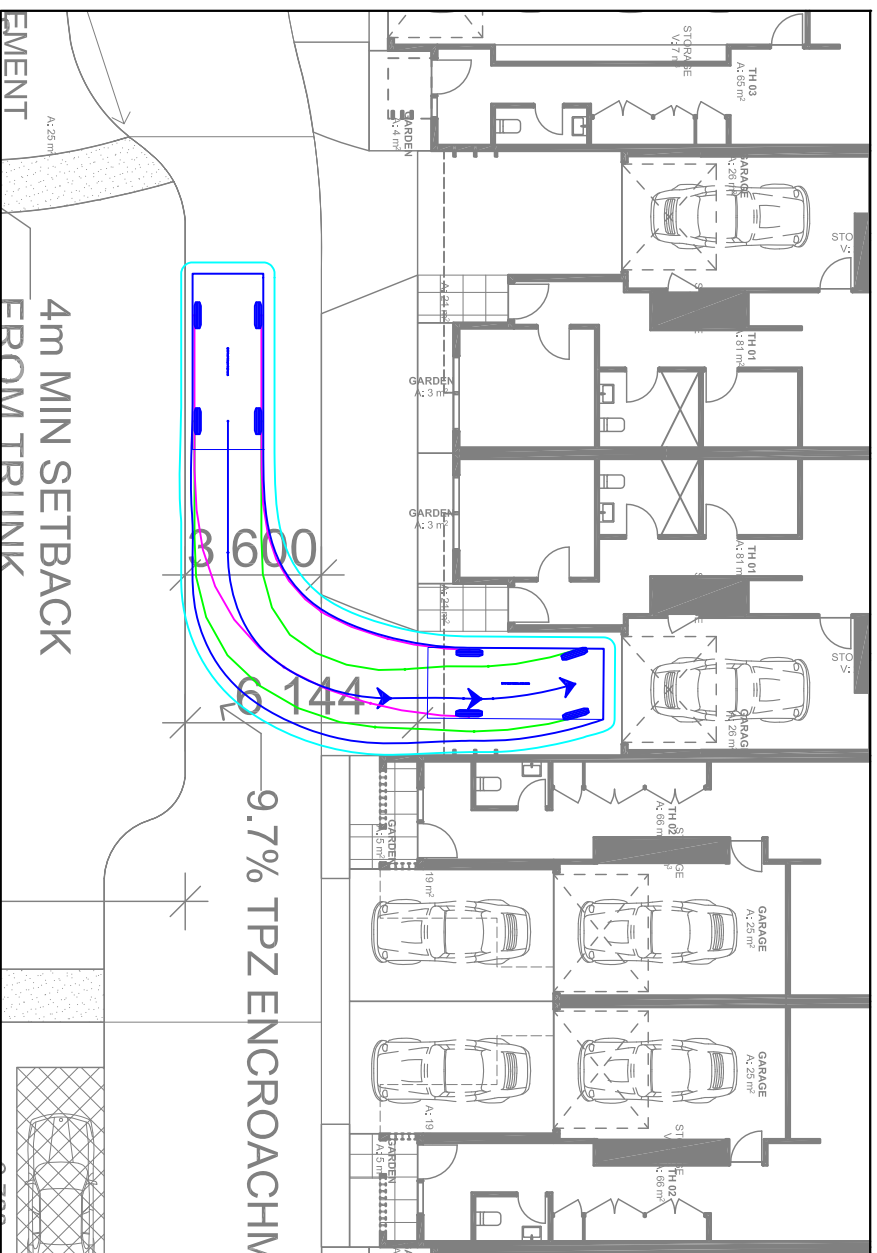
GARAGE SPACE 3 - INGRESS



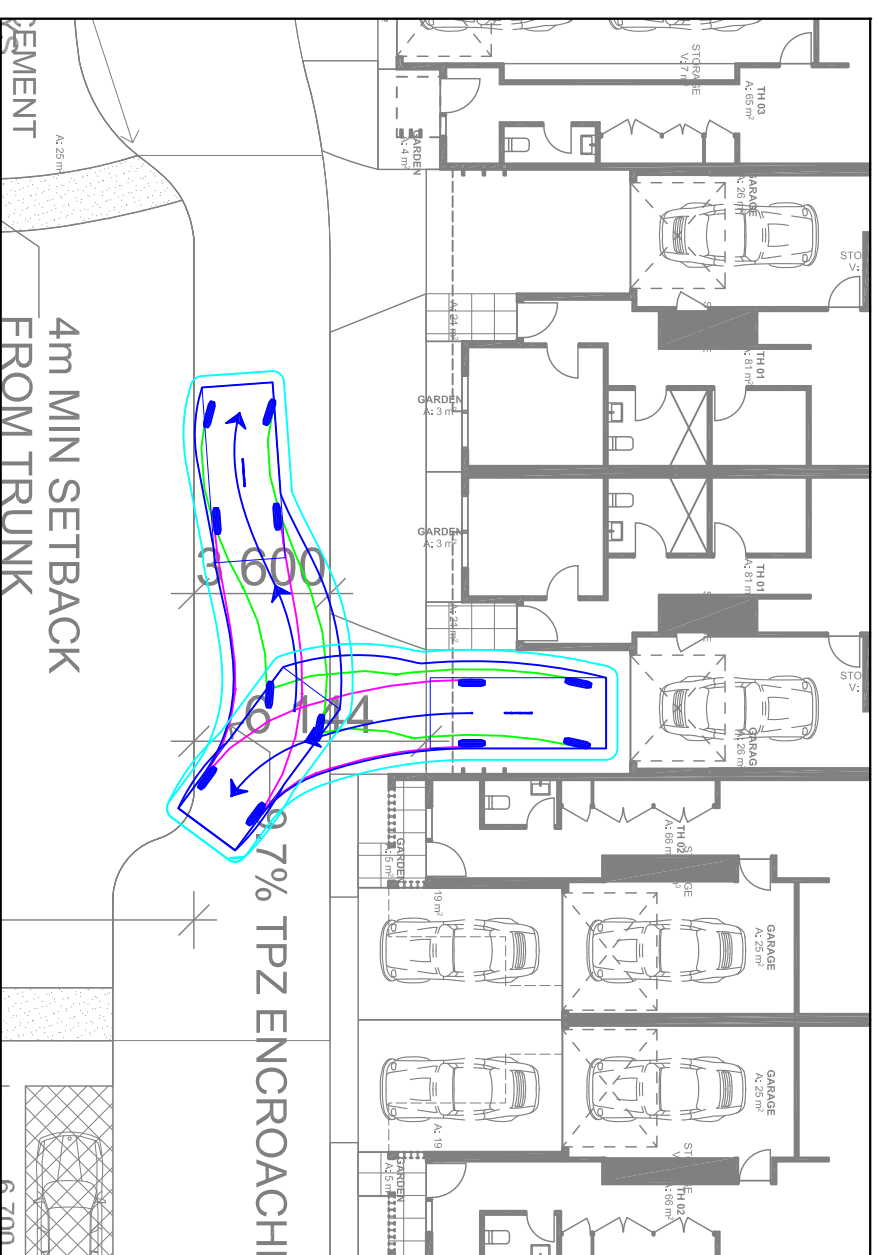
GARAGE SPACE 3 - EGRESS



GARAGE SPACE 2 - INGRESS



GARAGE SPACE 2 - EGRESS



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

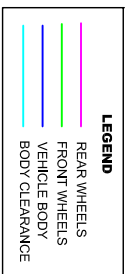
4.91m\*

0.92 2.80

85th percentile  
(AS/NZS 2890.1:2004)

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

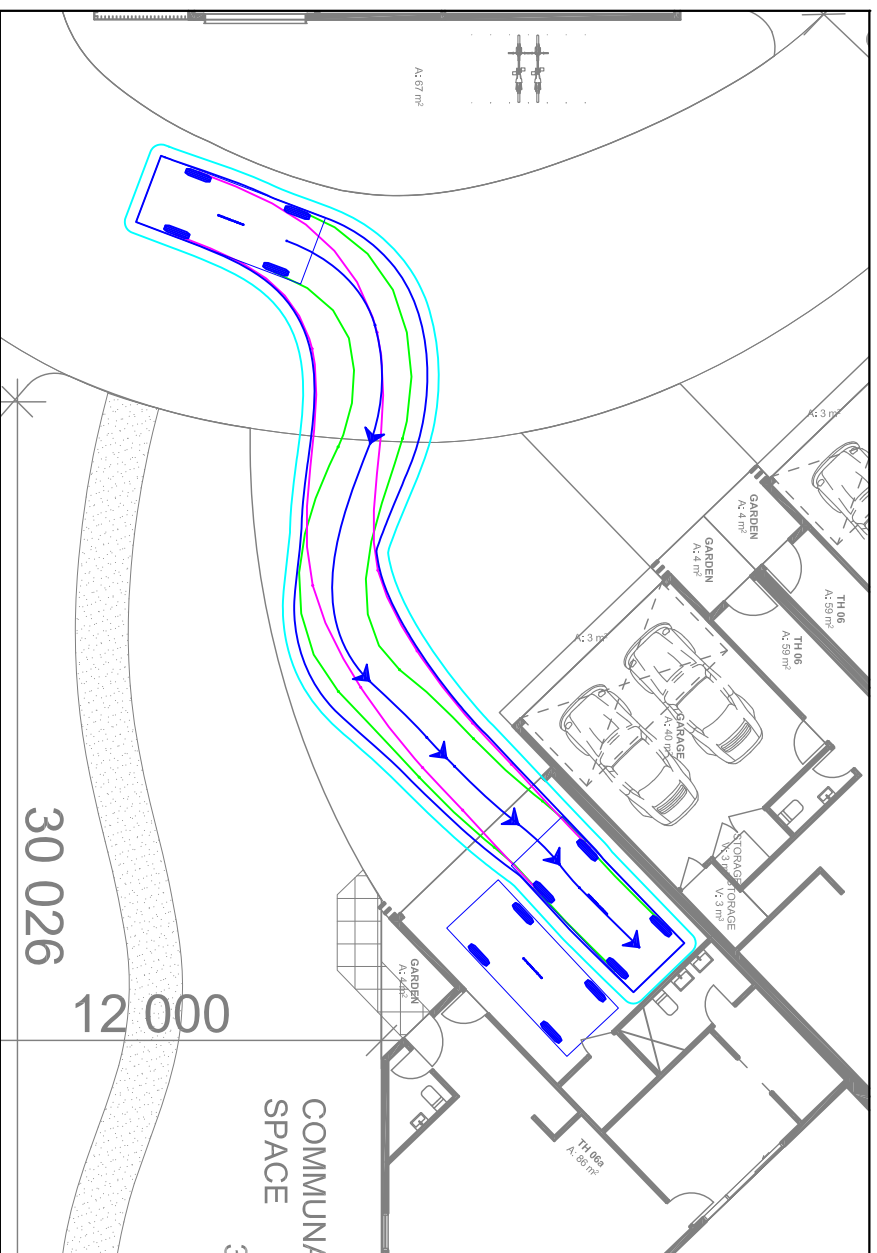
\* actual template based on 'relevant' lengthened operations that affect swept path' as set out in Section 321 of AS/NZS 2890:2004



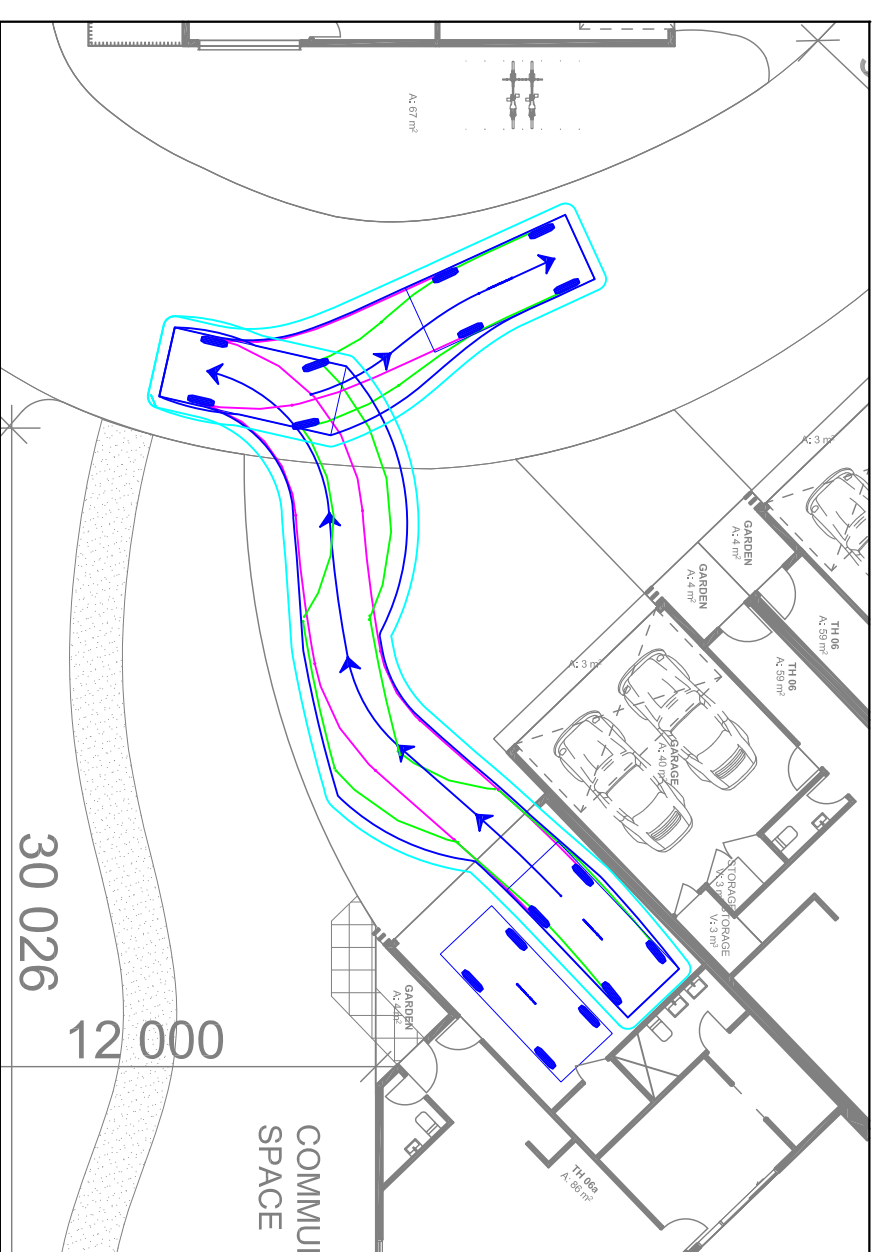
**PRELIMINARY ONLY**  
**NOT FOR CONSTRUCTION**

|      |                |               |   |               |             |  |  |
|------|----------------|---------------|---|---------------|-------------|--|--|
| REV. | REVISION NOTES | REVISION DATE | GENERAL NOTES   | DESIGNED BY:  | 13 FEB 2020 | <p>Lavel 28, 459 Collins Street<br/>MELBOURNE VICTORIA 3000<br/>TEL : (03) 9822-2888</p> | <p><b>52 GOLF ROAD, OAKLEIGH SOUTH</b><br/>B85 DESIGN CAR SWEEP PATHS<br/>PROPOSED RESIDENTIAL DEVELOPMENT</p> |
|      |                |               | <p>INFORMATION BASED ON "4.23 MASTER PLAN - TRAFFIC.dwg"<br/>PREPARED BY PLUS ARCHITECTURE, RECEIVED ON 12 FEB 2020</p> | Y. LEOW       | 13 FEB 2020 |  |  |
|      |                |               |   | CHECKED BY:   | 13 FEB 2020 |  |  |
|      |                |               |   | M. WOOLLARD   | 13 FEB 2020 |  |  |
|      |                |               |   | FILE NAME:    | ISSUE:      |  |  |
|      |                |               |   | G25977-04.dwg | A           |  |  |

GARAGE SPACE 5 - INGRESS



GARAGE SPACE 5 - EGRESS



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

4.91m

85th percentile  
(AS/NZS 2890.1:2004)

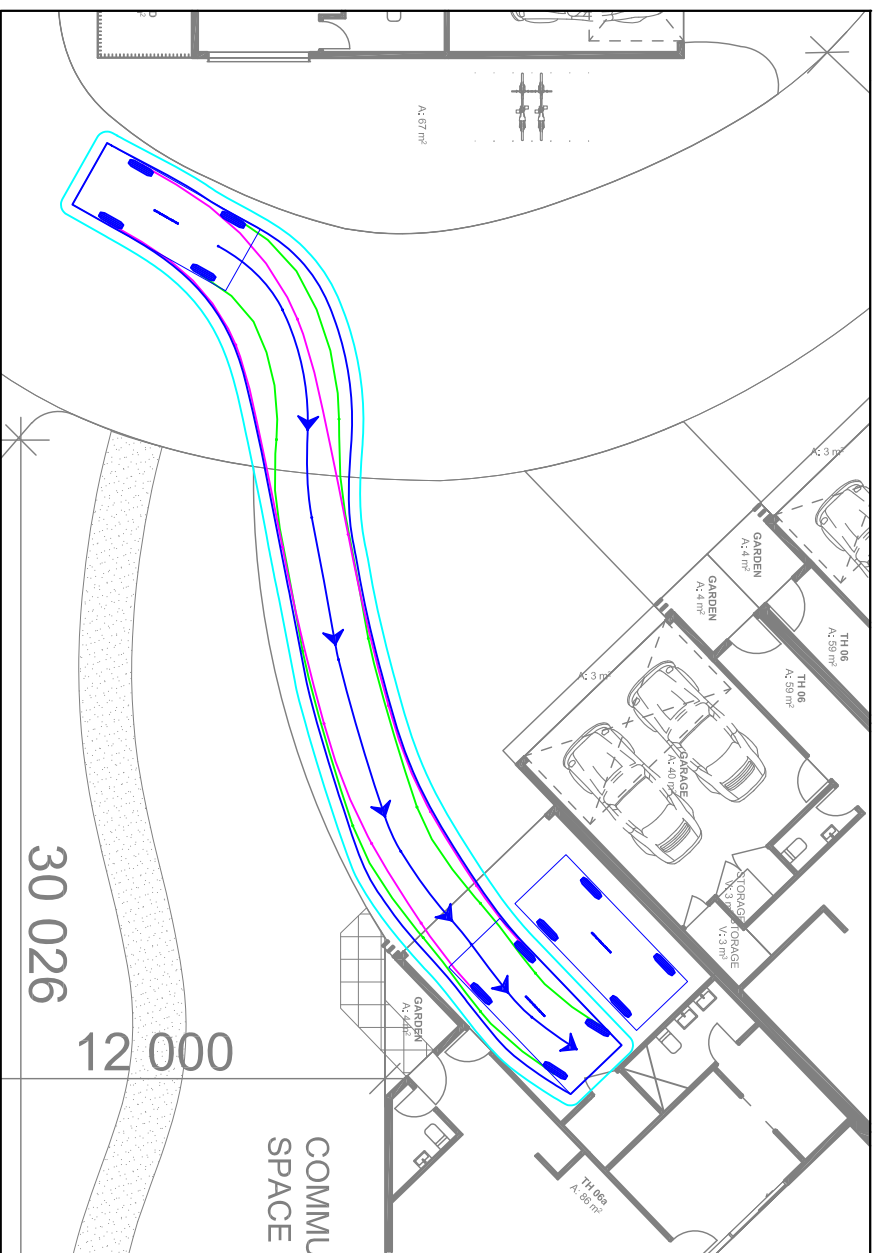
Width : 1.87m  
Track : 1.77m  
Kerb to Kerb Radius: 5m

Actual template based on relevant lengthened operations that affect swept path as set out in Section 321 of AS/NZS 2890:2004

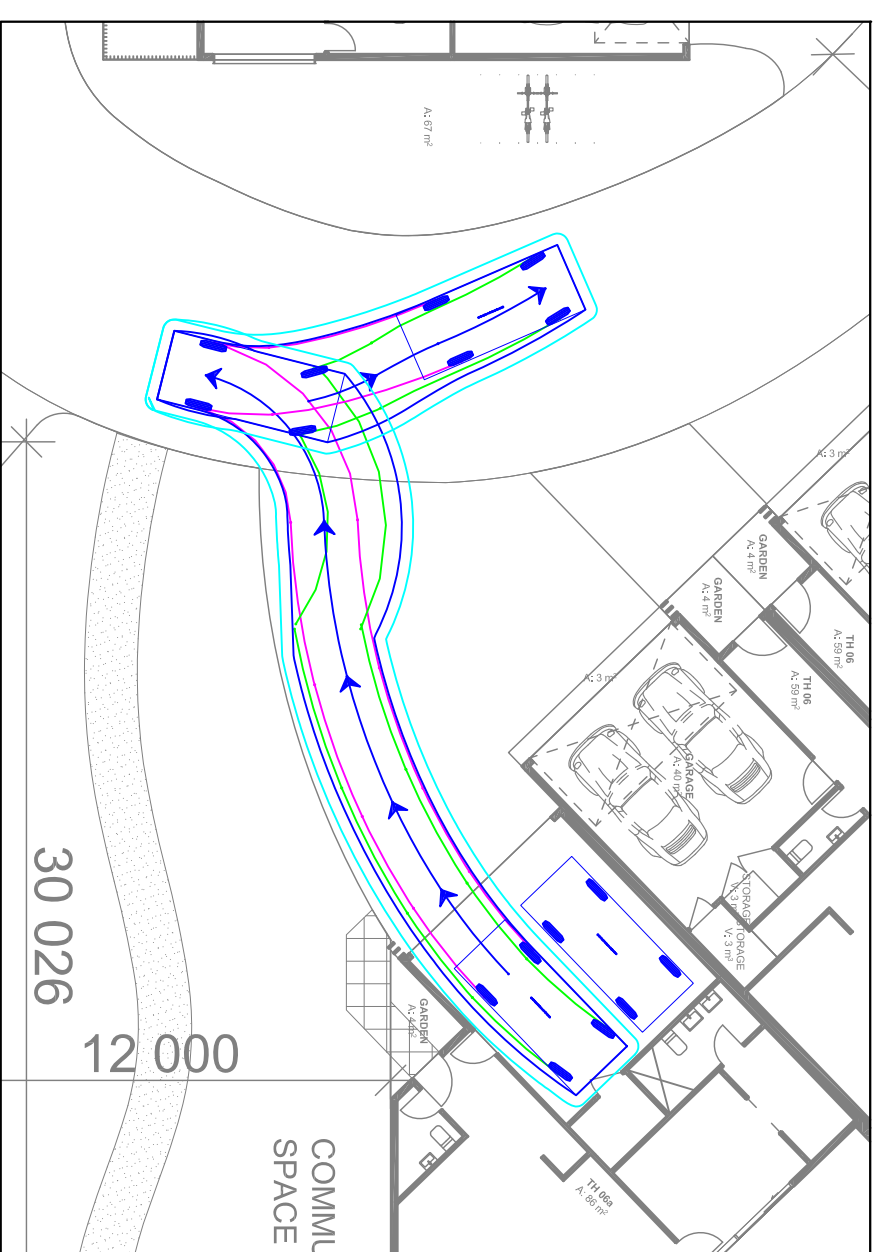
**LEGEND**

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

GARAGE SPACE 6 - INGRESS



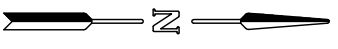
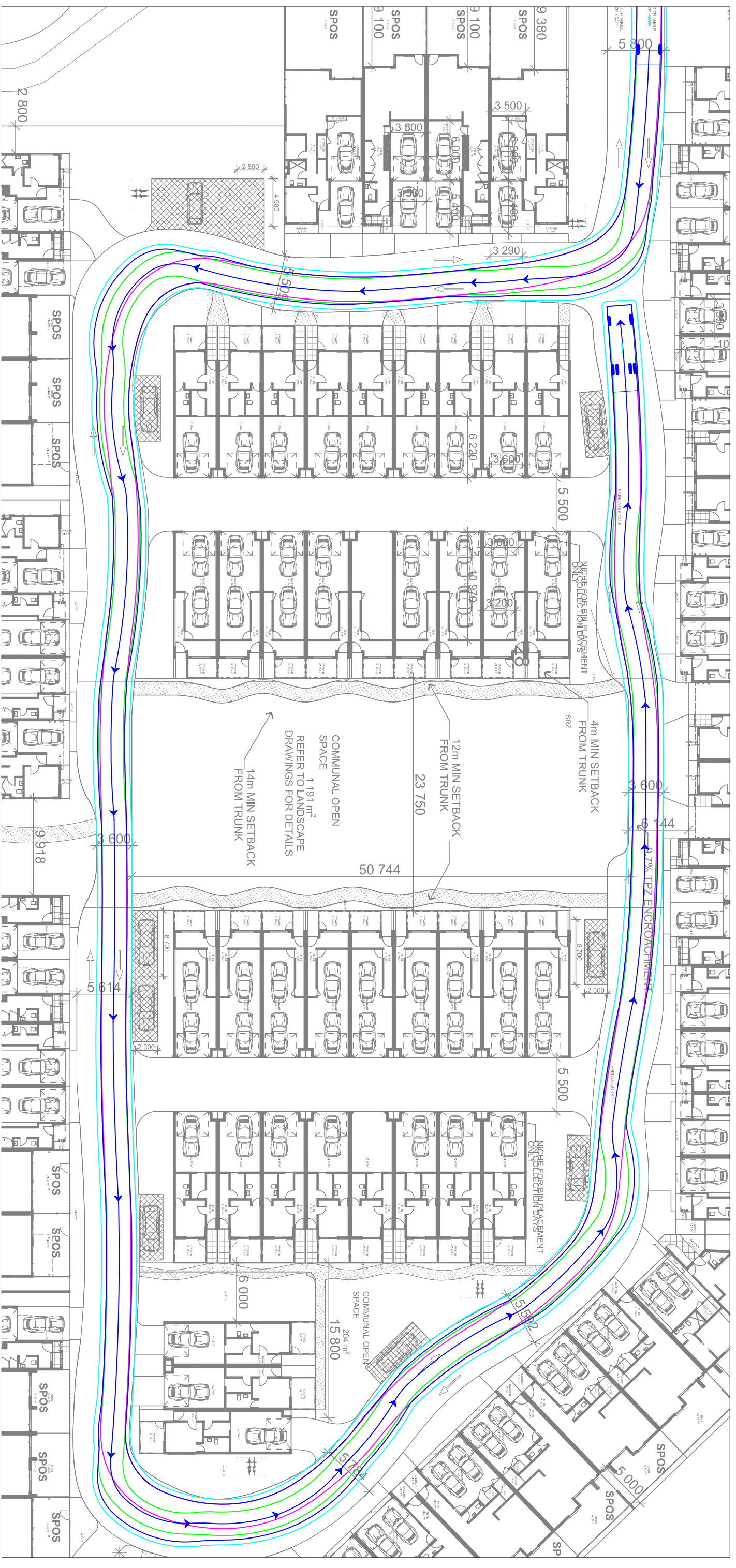
GARAGE SPACE 6 - EGRESS



**PRELIMINARY ONLY**  
**NOT FOR CONSTRUCTION**

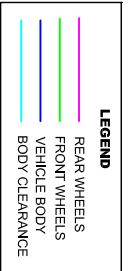
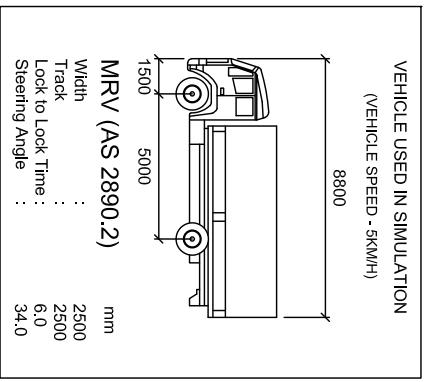
|                |   |               |               |             |   |  |
|----------------|---|---------------|---------------|-------------|---|--|
| REV.           | REVISION NOTES  | REVISION DATE | DESIGNED BY:  | 13 FEB 2020 | <p>Level 28, 459 Collins Street<br/>MELBOURNE VICTORIA 3000<br/>TEL: (03) 9822-2888</p> | <p><b>52 GOLF ROAD, OAKLEIGH SOUTH</b><br/>B85 DESIGN CAR SWEPT PATHS<br/>PROPOSED RESIDENTIAL DEVELOPMENT</p> |
| GENERAL NOTES: | <p>INFORMATION BASED ON "4.23 MASTER PLAN - TRAFFIC.dwg"<br/>PREPARED BY PLUS ARCHITECTURE, RECEIVED ON 12 FEB 2020</p> |               | CHECKED BY:   | 13 FEB 2020 |   |  |
|                |   |               | Y. LEOW       |             |   | 1:200 (A3)   |
|                |   |               | M. WOOLLARD   |             |   | SHEET NO.: 0305  |
|                |   |               | FILE NAME:    | ISSUE:      |   | JOB NO.: G28977  |
|                |   |               | G25977-04.dwg | A           |   |  |





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| REV. | REVISION NOTES  | REVISION DATE | DESIGNED BY:            | 13 FEB 2020 | TRAFFIX GROUP   | SCALE:       | 1:400 (A3)             | SHEET NO.:             | 0405 | JOB NO.: | G25977 |
|------|---|---------------|-------------------------|-------------|---|--------------|------------------------|------------------------|------|----------|--------|
|      | GENERAL NOTES:<br>INFORMATION BASED ON "4.23 MASTER PLAN - TRAFFIC.dwg"<br>PREPARED BY PLUS ARCHITECTURE, RECEIVED ON 12 FEB 2020 |               | Y. LEOW                 | 13 FEB 2020 | <p>Level 28, 459 Collins Street<br/>MELBOURNE VICTORIA 3000<br/>TEL: (03) 9822-2888</p> | <p>0 4 8</p> | <p>SHEET NO.: 0405</p> | <p>JOB NO.: G25977</p> |      |          |        |
|      |   |               | M. WOOLLARD             | 13 FEB 2020 |   |              |                        |                        |      |          |        |
|      |   |               | FILE NAME:<br>G25977-04 | ISSUE:<br>A |   |              |                        |                        |      |          |        |



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

