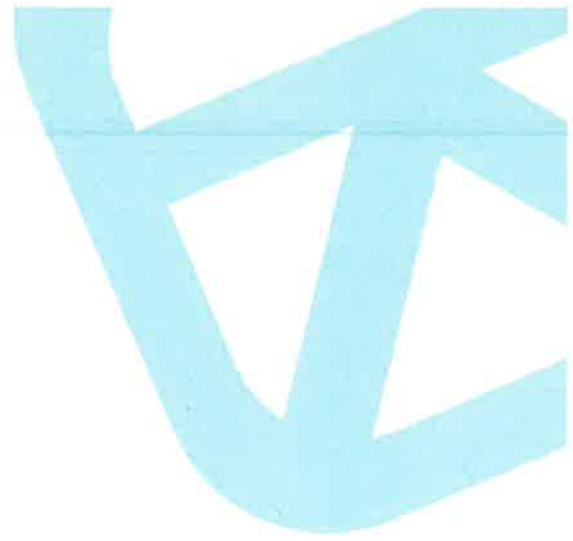


Annexure D: Traffic Impact Assessment



Traffic Statement

Proposed Boat Showroom and Office

Prepared for

Ride Australia Pty Limited

Site address

Lot 393

DP 1144727

5c Creston Grove, Bomaderry NSW 2541

Date

28 April 2015

allen, price & associates
land and development consultants

Surveying



Town Planning



Civil Engineering



Project Management



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Traffic Statement

Proposed Boat Showroom and Office

Prepared for

Ride Australia Pty Limited

Location

Lot 393 DP 1144727
5c Creston Grove
BOMADERRY NSW 2541

Prepared by

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Appendices

Table of Revisions

Rev	Date	Details
P0	April 2015	Issued to client for review and input
0	28 April 2015	Issue for review by RMS

Introduction

This report has been prepared to support a Planning Proposal on behalf of Ride Australia Pty Ltd for the rezoning (and future Development Application) over land known as 5C Creston Grove, Bomaderry.

Ride Australia intends to develop the site as a boat showroom for both Supra and Moomba Boats.

Allen, Price & Associates have been engaged to prepare this Traffic Statement in order to address those matters considered to be of relevance to the traffic impacts associated with the proposed development including traffic generation impacts, parking, on-site manoeuvring, access/egress, including the impacts of this proposal on the local and regional street network.

Site & Locality

The subject land, Lot 393 DP 1144727, known as 5C Creston Grove Bomaderry, is located northerly adjacent the Kel Campbell Caltex service station on the Princes Highway, Bomaderry. The site locality is shown below in Figure 1.



Figure 1 - Location Plan – 5C Creston Grove, Bomaderry

The site is rectangular in shape, approximately 80.5m x 42m and has an area of 3340m². The land is currently vacant.

Direct access to the site is currently off the head of the Creston Grove cul-de-sac via a right of carriageway approximately 100m long, not the Princes Highway. A restriction on the land prohibits direct access to the Princes Highway.

Proposed development

This proposal involves the construction of a boat showroom and associated offices, parts storage and associated access/egress and car parking.

The site is currently zoned R2 – low density residential and has a frontage to the Princes Highway that is identified for future road widening. The land will need to be re-zoned before development of this nature can proceed. Access to the site is currently via a right of carriageway over adjoining and established residential properties. If the rezoning and subsequent development application is approved, the proponent would agree to extinguish the right of carriageway subject to negotiation with the adjoining landowner (if necessary). It is proposed that the future development would have direct access to the Princes Highway.

From a traffic perspective, the proposal includes:

- An ingress/egress off the Princes Highway;
- 7 parking spaces, including one accessible space;
- Manoeuvring areas to enable a service vehicle to enter and leave the site in a forward direction
- Turning circle to enable car/trailers to turn in a forward movement on site, and exit in a forward direction.

A copy of the site plan prepared by Vision Tech Design is attached in Appendix A showing the proposed development.

Traffic Generation Estimations

The RTA's Guide to Traffic Generating Development (Version 2.2 – October 2002) does not provide peak hour traffic volumes for boat showrooms, and therefore cannot be relied upon for this data.

The proponent currently operates the business at South Nowra. Normal operating hours are 8.30am to 5.30pm Monday to Friday, and 8.00am to 2.00pm on Saturday. This traffic assessment is based upon the following data provided by the proponent that is typical of the traffic generation at the South Nowra site. This is representative of the high-end, high value nature of the products with specialised boats in excess of \$200K attracting specific buyers to a narrow market.

Expected daily traffic movements for normal operational activities:

Trip type	Average daily vehicle movements	Weekly total
Staff – 2 permanent – 6 days	4 movements	24 movements
Staff – 1 casual – 2 days only	0.67 movements	4 movements
Staff – errands	1.3 movements	8 movements
Staff – boat and trailer	0.67 movements	4 movements
Customers – single vehicle	3 movements	18 movements
Customers – boat and trailer	1 movement	6 movements
Deliveries	3.33 movements	20 movements
Total	14 movements	84 movements

Peak hour movements are typically 10% of the daily vehicle movements. On that basis, during normal operation, peak hour movements are 1.4 (say 2) movements in a peak hour. This is a very small traffic generator and provides a negligible increase to existing traffic flows.

In the period until the proposed highway upgrade, it is expected the majority of the manoeuvres will be from/to Nowra, being a right turn into the site and left turn out of the site.

Site Access Location and Sight Distances

Access to the site is currently via a right of carriageway off Creston Grove, a cul-de-sac directly east of the site. The rezoning application would likely include the removal of the right of the subject land to utilise the right of carriageway over neighbouring residential properties subject to agreement with affected property owners. The proposal would be to have direct access to the Princes Highway.

The speed limit of The Princes Highway in the adjacent the site is 70km/hr. Directly north of the site the speed limit is 100km/hr with the transition from 100km/hr to 70km/hr being at the northern boundary of the subject site.

Sight distances from the proposed site egress, taken from 5m back from the edge line (as per Austroads) were measured using a trundle wheel and sight distance observation markers by the author and were found to be:

- North – approximately 360m;
- South – exceeding 450m. i.e. to the Cambewarra Rd roundabout

The required safe intersection sight distances as per Austroads Part 4A Table 3.2 are 151m for a 70km/hr road with 2.0s reaction time, which are easily complied with at the proposed egress location, even with minor corrections for grade.

As increased speeds could be expected on the Princes Highway given the site is directly adjacent the 70km/hr / 100km/hr speed limit transition zone, even with a 100km/hr speed vehicle the required safe intersection sight distance is 262m with a minimum reaction time of 2.5s, which are still easily complied with at the proposed egress location.

Sight distances are therefore adequate at the proposed egress location.



Sight distance looking north – 360m



Sight distance looking south - >450m

Existing traffic volumes and traffic impacts from the proposed development on the road network

Peak hour traffic volumes have been taken from RMS publication; *Berry to Bomaderry Princes Highway upgrade – Technical paper: Traffic and Transport, November 2013*.

Daily and peak period traffic volume summary (2013)

Location	AM peak (veh/h)	PM peak (veh/h)	AM peak southbound (veh/h)	PM peak northbound (veh/h)
Princes Highway, south of Abernethys Lane	865 veh/h	950 veh/h	470 veh/h	550 veh/h

Graphical representation of this data is provided in Appendix B.

The traffic volumes on the Princes Highway are an important determinant for intersection performance at the proposed development. From the above table, two-way traffic volumes on the Princes Highway are between 865 veh/h and 950 veh/h in the vicinity of the site. The proposed development would only increase peak hour traffic by approximately 0.2%.

Based on the warrants contained in Figure 4.9(b) of *Austroads - Guide to Road Design Part 4A: Unsignalised and Signalised Intersections (Austroads)*, the required intersection treatments are:

- BAL – for left-turn manoeuvres - based on a turning peak movement of 2 veh/h
- BAR – for right-turn manoeuvres - based on a turning peak movement of 2 veh/h

A copy of the intersection warrants are included in Appendix C, which show the abovementioned figures.

Proposed Operation – interim prior to Princes Highway upgrade

It is proposed to provide the following treatments at the access point:

- Left turn (subject site side of the road) – shoulder widening with kerb and gutter to match alignment of adjacent kerb and gutter
- BAR – for right-turn manoeuvres – extension of existing sealed shoulder widening

A concept sketch of the proposed interim access (pre highway upgrade) is included in Appendix D.

Proposed Princes Highway upgrade

Detailed design of the Berry to Bomaderry upgrade is not yet complete or available however the “Concept” status drawings for the Berry to Bomaderry Upgrade (prepared by AECOM – 60021933-DRG-10-03-RD1022-Rev 07 and 60021933-DRG-10-03-RD3026-Rev 06) has been reviewed to assess the proposed upgrade works fronting the subject site.

The concept design of the upgrade includes a central median across the frontage of the subject site that will limit access to the site to left in / left out only. Utilisation of U-turn facilities at the Cambewarra Road roundabout to the south and a proposed U-turn facility at Abernethys Lane to the north will be required by vehicles not able to enter or exit the site from or to their desired direction.

The timing of this upgrade is not confirmed and is subject to budgetary constraints of the state government. The upgrade is however likely to be provided in the medium term though the timing would not preclude the development proceeding given the very low traffic generation.

The long term 'bypass' of Bomaderry and Nowra altogether will see traffic volumes reduce in the area significantly.

Vehicle Parking Requirements – Chapter G21 DCP2014: Car Parking and Traffic

Neither Chapter G21 of Council's DCP2014 nor the RTA's Guide to Traffic Generating Development (Version 2.2 – October 2002) provides suitable car parking requirements for a development of this nature.

Given the traffic generation outlined above is extremely low, it is not appropriate to apply parking space requirements for bulky goods or motor showroom developments. The business simply does not have the through traffic of traditional bulky goods or motor showrooms as the boats are high-end products aimed at a relatively narrow market. The provision of 20 to 25 spaces is clearly excessive.

Given the above, the proposal provides:

- 7 parking spaces, including one accessible space;
- Parking sufficient for staff
- Adequate manoeuvring areas for all vehicles

Parking layout and dimensions – Section 5.2 Chapter G21 DCP2014

A review of the site parking arrangements has been undertaken in accordance with Section 5.2 of Chapter G21 of Council's DCP2014 and is outlined below:

Acceptable solutions	Comments
Carparking spaces shall be provided on-site and be readily accessible from the road frontage of the development	All carparking is on site and is readily accessible from the public road system.
Entrance to parking area shall not be accessed through buildings or carports	This situation does not exist.
Parking spaces located adjacent to an obstruction shall be of a larger dimension	This situation does not exist.
Dead-end parking aisles longer than 15m are not permitted unless used in situations of low vehicle turnover, such as employee parking, and are to be signposted accordingly.	This situation does not exist.

The minimum car space and aisle dimensions are shown in Figure 1.	The spaces will all comply with DCP2014 requirements
Stack parking of vehicles is not supported by Council	There is no stack parking proposed.

Access – Section 5.3 Chapter G21 DCP2014

A review of the site access has been undertaken in accordance with Section 5.3 of DCP2014 and is outlined below:

Acceptable solutions	Comments
Development must be designed so that vehicles enter and leave the premises in a forward direction.	Vehicles will be able to enter and exit the site in a forward direction;
Where more than one access point is proposed to a site, the first driveway reached by traffic shall be the entrance	There is only one access point to the site;
Each site shall minimise the number of ingress and egress points at any street frontage.	There is only one access point to the site;
Vehicular access to parking areas will not be permitted in close proximity to traffic signals, major intersections or where sight distance is considered inadequate. Site distance requirements must comply with Figure 3.2 AS2890.1.	Vehicular access is not proposed in close proximity to traffic signals, major intersections or where sight distance is inadequate. Sight distance complies with the requirements of AS 2890.1.
Driveways shall be located a minimum of six (6) metres from the corner of a building located on corner lots. See Figure 2.	The driveway is more than 6m from the corner of any building.
Buildings must be designed to ensure that there is adequate sight distance at intersections and driveways. In some instances this may require the provision of splay corners on buildings.	There is adequate sight distance at the intersection location in all directions.
A building splay will be required where a driveway adjoins.	No driveways are adjacent to buildings.
Turning paths for vehicles will be based upon the largest vehicles likely to utilise the premises.	Turning paths have been assessed separately and can be seen in Appendix D.
Driveways shall be a minimum 1m from the side boundary.	The driveway is more than 1m from the side boundary.

Where car parking exceeds 50 spaces separate provision shall be made for ingress and egress.	Car parking does not exceed 50 spaces
Treatments such as threshold treatment or the provision of speed humps should be provided where a driveway crosses a footpath to ensure the safety of pedestrians.	The driveway does not cross a footpath;
Prohibited driveway locations and driveway orientation are indicated in Figure 2.	The driveway location is not in a prohibited location.
Ramps must not extend across the footpath.	Ramps are not proposed to extend across the footpath.

Manoeuvrability – Section 5.4 Chapter G21 DCP2014

A review of the site manoeuvrability has been undertaken in accordance with Section 5.4 of DCP2014.

Due to the nature of the proposed development, a service vehicle has been adopted as the largest vehicle likely to enter the site. Cars and trailers are also catered for by the provision of a full forward turning circle within the site. Turning paths are shown in Appendix D and demonstrate adequate manoeuvring area is available.

Service – Section 5.5 Chapter G21 DCP2014

Service vehicles will enter the site for supply of certain goods however no loading docks as such are required or proposed. Service vehicles can enter and leave the site in a forward direction as shown in Appendix D.

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (SEPP Infrastructure) specifies the following:

104 Traffic-generating development

- (1) *This clause applies to development specified in Column 1 of the Table to Schedule 3 that involves:*
 - (a) *new premises of the relevant size or capacity, or*
 - (b) *an enlargement or extension of existing premises, being an alteration or addition of the relevant size or capacity.*
- (2) *In this clause, relevant size or capacity means:*
 - (a) *in relation to development on a site that has direct vehicular or pedestrian access to any road—the size or capacity specified opposite that development in Column 2 of the Table to Schedule 3, or*
 - (b) *in relation to development on a site that has direct vehicular or pedestrian access to a classified road or to a road that connects to a classified road where the access (measured along the alignment*

of the connecting road) is within 90m of the connection—the size or capacity specified opposite that development in Column 3 of the Table to Schedule 3.

(3) Before determining a development application for development to which this clause applies, the consent authority must:

(a) give written notice of the application to the RTA within 7 days after the application is made, and

(b) take into consideration:

(i) any submission that the RTA provides in response to that notice within 21 days after the notice was given (unless, before the 21 days have passed, the RTA advises that it will not be making a submission), and

(ii) the accessibility of the site concerned, including:

(A) the efficiency of movement of people and freight to and from the site and the extent of multi-purpose trips, and

(B) the potential to minimise the need for travel by car and to maximise movement of freight in containers or bulk freight by rail, and

(iii) any potential traffic safety, road congestion or parking implications of the development.

(4) The consent authority must give the RTA a copy of the determination of the application within 7 days after the determination is made.

Schedule 3 of the SEPP contains the following table:

Column 1	Column 2	Column 3
Purpose of development Note: The development may be the erection of new premises or the enlargement or extension of existing premises	Size or capacity-site with access to any road	Size or capacity-site with access to classified road or to road that connects to classified road (if access within 90m of connection, measured along alignment of connecting road)
Commercial premises	10,000m ² in area	2,500m ² in area
Motor showrooms	200 or more motor vehicles	50 or more motor vehicles

As the proposed development does not meet the requirements of Column 3, a future DA does not need to be referred to RMS for comment. Clause 101 of the SEPP states:

101 Development with frontage to classified road

(1) The objectives of this clause are:

(a) to ensure that new development does not compromise the effective and ongoing operation and function of classified roads, and

(b) to prevent or reduce the potential impact of traffic noise and vehicle emission on development adjacent to classified roads.

(2) The consent authority must not grant consent to development on land that has a frontage to a classified road unless it is satisfied that:

(a) where practicable, vehicular access to the land is provided by a road other than the classified road, and

(b) the safety, efficiency and ongoing operation of the classified road will not be adversely affected by the development as a result of:

(i) the design of the vehicular access to the land, or

(ii) the emission of smoke or dust from the development, or

- (iii) the nature, volume or frequency of vehicles using the classified road to gain access to the land, and*
- (c) the development is of a type that is not sensitive to traffic noise or vehicle emissions, or is appropriately located and designed, or includes measures, to ameliorate potential traffic noise or vehicle emissions within the site of the development arising from the adjacent classified road.*

The above report sets out the appropriate methodology, to allow Council and the RMS to make a determination on the above matters.

In short, with the intersection treatments proposed:

- Vehicular access to the proposed development can only be provided via a classified road;
- The proposed development will not adversely impact upon the safety, efficiency and ongoing operation of the classified road;
- The proposed development is not of a type that is sensitive to traffic noise or vehicle emissions;
- The proposed development is appropriately located and designed, and will include measures, to ameliorate potential traffic noise within the site of the development (and surrounding residential properties) from the classified road;

In light of the above, it is the author's opinion that:

- The proposed development will not compromise the effective and ongoing operation and function of a classified road;
- The proposed development does not have the potential to be impacted upon by traffic noise or vehicle emissions

Conclusions

The proposed development will generate additional traffic movements to and from the site.

The development is not defined as a Traffic Generating use (under SEPP Infrastructure 2007) and a future DA does not need to be referred to the RMS for comment prior to determination.

Generally, traffic numbers are very low (< 14 movements per day) with approximately 2 movements in the peak hour of the Princes Highway.

The existing site access off Creston Grove is not suitable for the proposed development. Direct access will be required to the Princes Highway. Adequate sight distances are available in both directions.

Intersection warrants suggest that a BAL/BAR is required for normal operation. It is proposed to provide the following treatments at the access point in the interim period till the highway upgrade is undertaken;

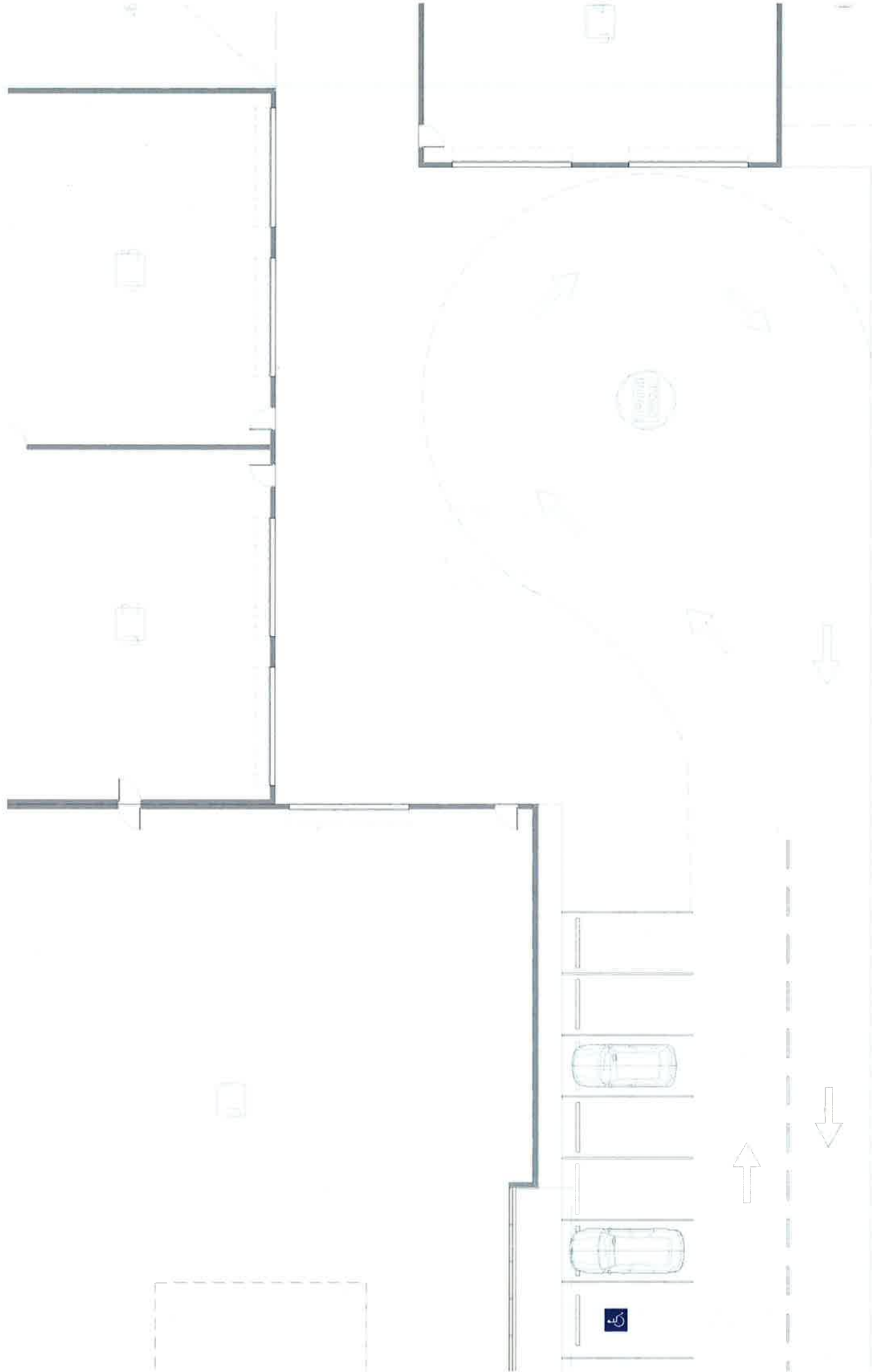
- Left turn (subject site side of the road) – shoulder widening with kerb and gutter to match alignment of adjacent kerb and gutter
- BAR – for right-turn manoeuvres – extension of existing sealed shoulder widening

The proposed site parking facilities are adequate for the required parking requirements.

The site manoeuvring areas are adequate for the proposed use.

Appendix A

Site Plan



BOUNDARY 80.54M
276° 53' 05"

Appendix B

Traffic Data

As a result, the probability of congestion and delays is typically higher during weekend peak hours than AM peak and PM peak hours through the week.

Daily traffic volume profiles for the surveyed Princes Highway and 'Sandtrack' locations listed in **Table 2.5** are shown in **Figures 2.7** to **Figure 2.11**.

The profiles for all of the survey sites (shown in **Figure 2.7** to **Figure 2.11**) show a steady increase in traffic throughout the day, generally peaking at around 3pm-4pm before subsiding in the early evening. Traffic volumes tend to grow gradually throughout the morning and into the early afternoon; there is however a noticeable peak in morning southbound traffic, particularly on Meroo Road, south of the Princes Highway and Bolong Road ('Sandtrack'), north of Meroo Road.

The general traffic patterns in the proposal area are dissimilar to denser urban areas, which generally peak early in the morning with commuter traffic, subsiding in the inter-peak period, before growing again to a peak in the afternoon. The early afternoon peak (3pm) suggests a significant level of after school pickup and resultant social and commercial activity in the proposal area.

Table 2.5: Daily and peak period traffic volume summary (2012-2013)

Location	Year	Two-way traffic flows				
		AM peak (veh/h)	PM peak (veh/h)	100 HH (veh/h)	AADT	
					Volume (veh/day)	% heavy vehicles
Princes Highway, north of Rose Valley Road	2012	1570	1850	2570	22,125	8.0 %
Princes Highway, south of Mullers Lane	2013	910	1015	1460	12,560	15.7 %
Princes Highway, south of Abernethys Lane	2013	865	950	1380	11,870	14.9 %
Meroo Road, south of Princes Highway	2013	135	150	210	1800	20.4 %
Bolong Road ('Sandtrack'), north of Meroo Road	2013	730	825	1140	9800	8.7 %
Local Roads²						
Andersons Lane	2011	5	5	6	50	-
Mullers Lane	2011	12	12	13	115	-
Croziars Road	2011	25	25	28	245	-
O'Keefe's Lane	2011	11	11	12	105	-
Jaspers Brush Road	2011	12	12	14	120	-

² Local roads: AADT shown is ADT for September 2011; AM & PM peak hour volumes estimated as ten per cent of ADT, consistent with Guide to Traffic Generating Developments (RMS 2002); 100HH volumes estimated as 11.6 per cent of ADT, consistent with local traffic survey data for 100HH periods.

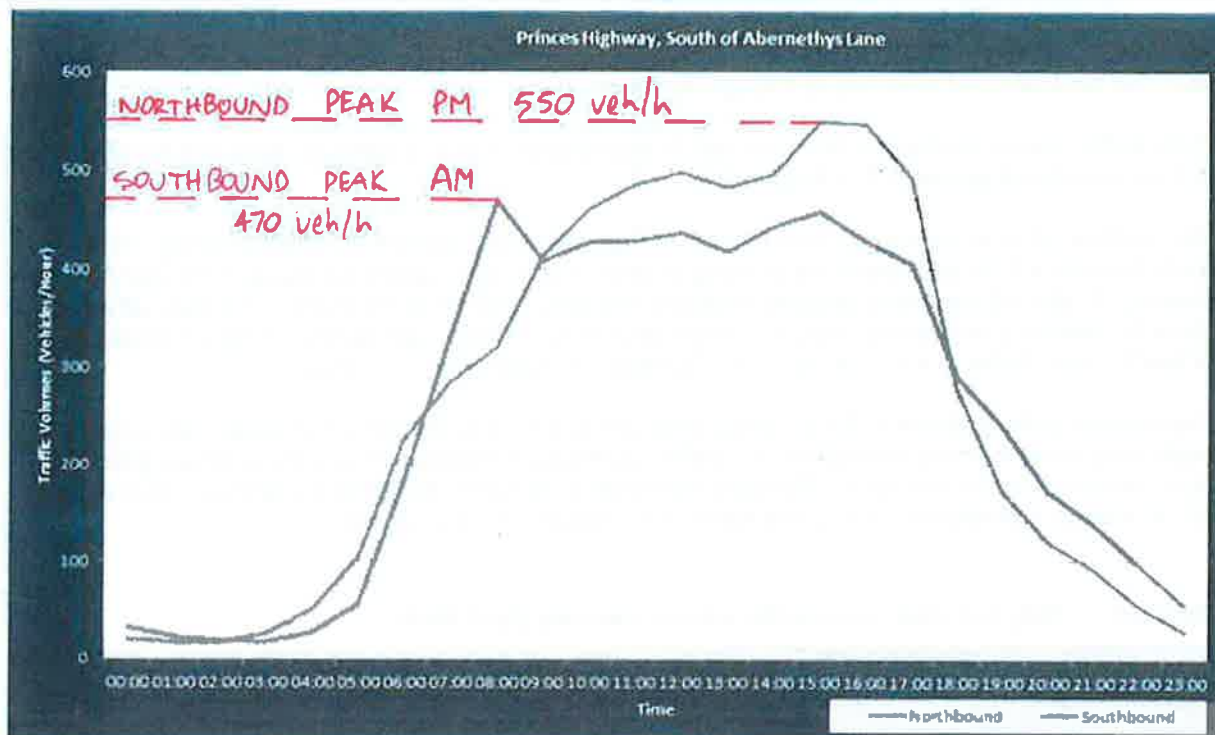


Figure 2.9: Average daily traffic profile: Princes Highway, south of Abernethys Lane (2013)

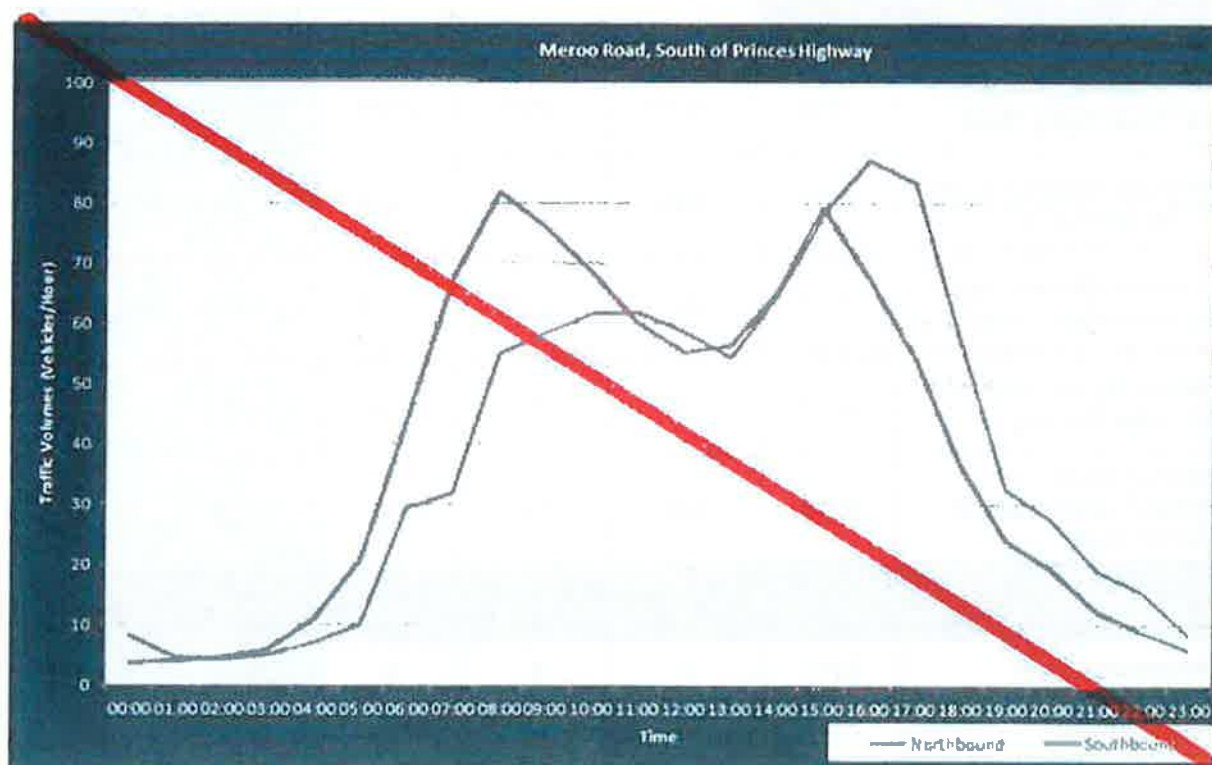
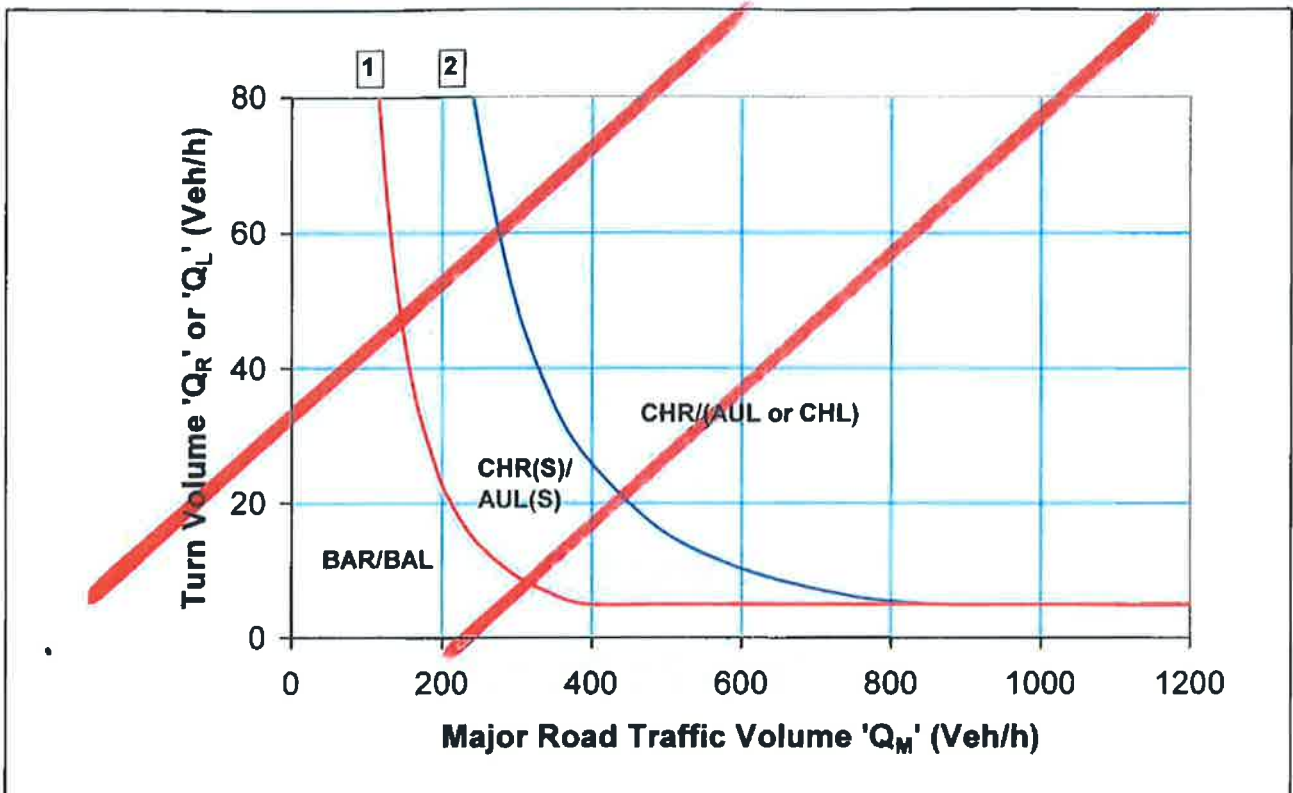


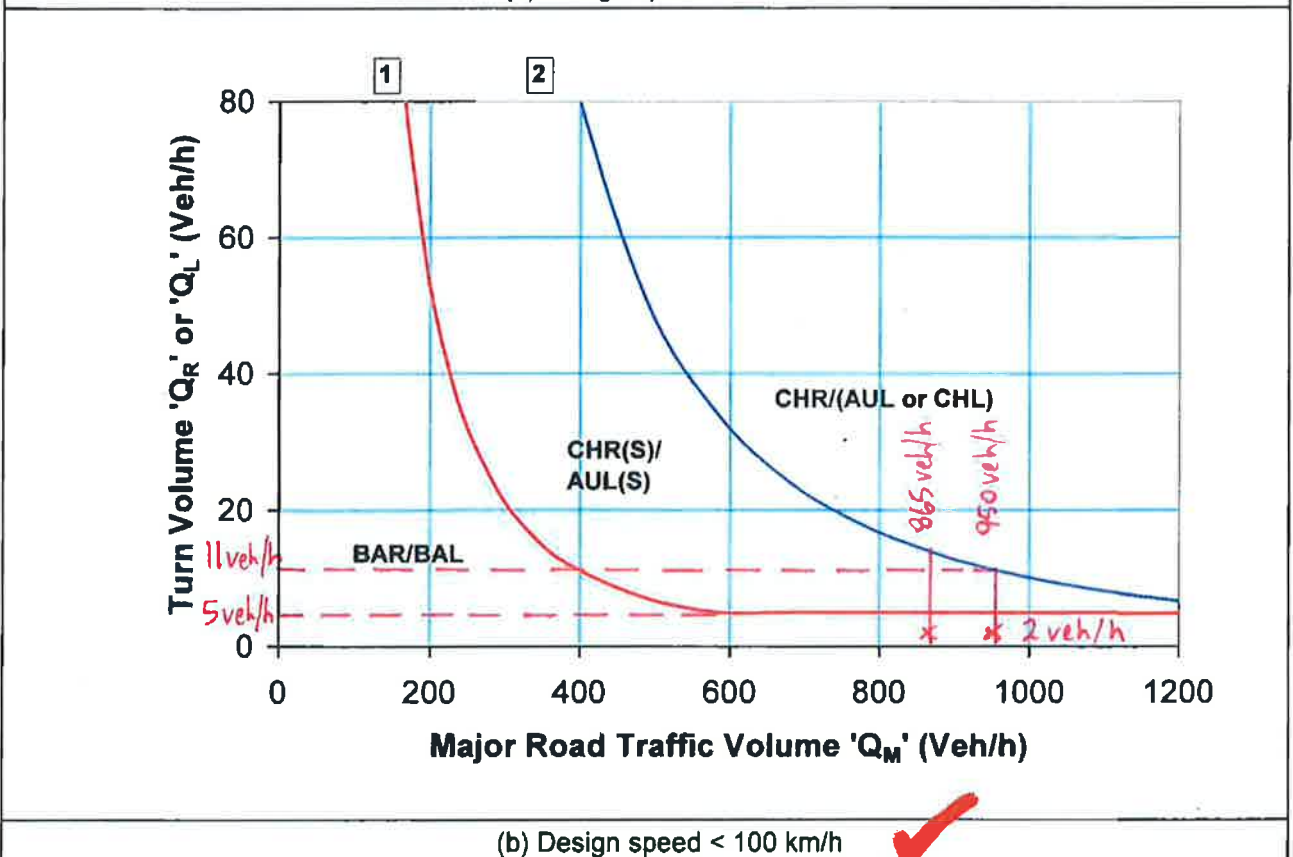
Figure 2.10: Average daily traffic profile: Meroo Road, south of Princes Highway (2013)

Appendix C

Intersection Warrants



(a) Design speed ≥ 100 km/h



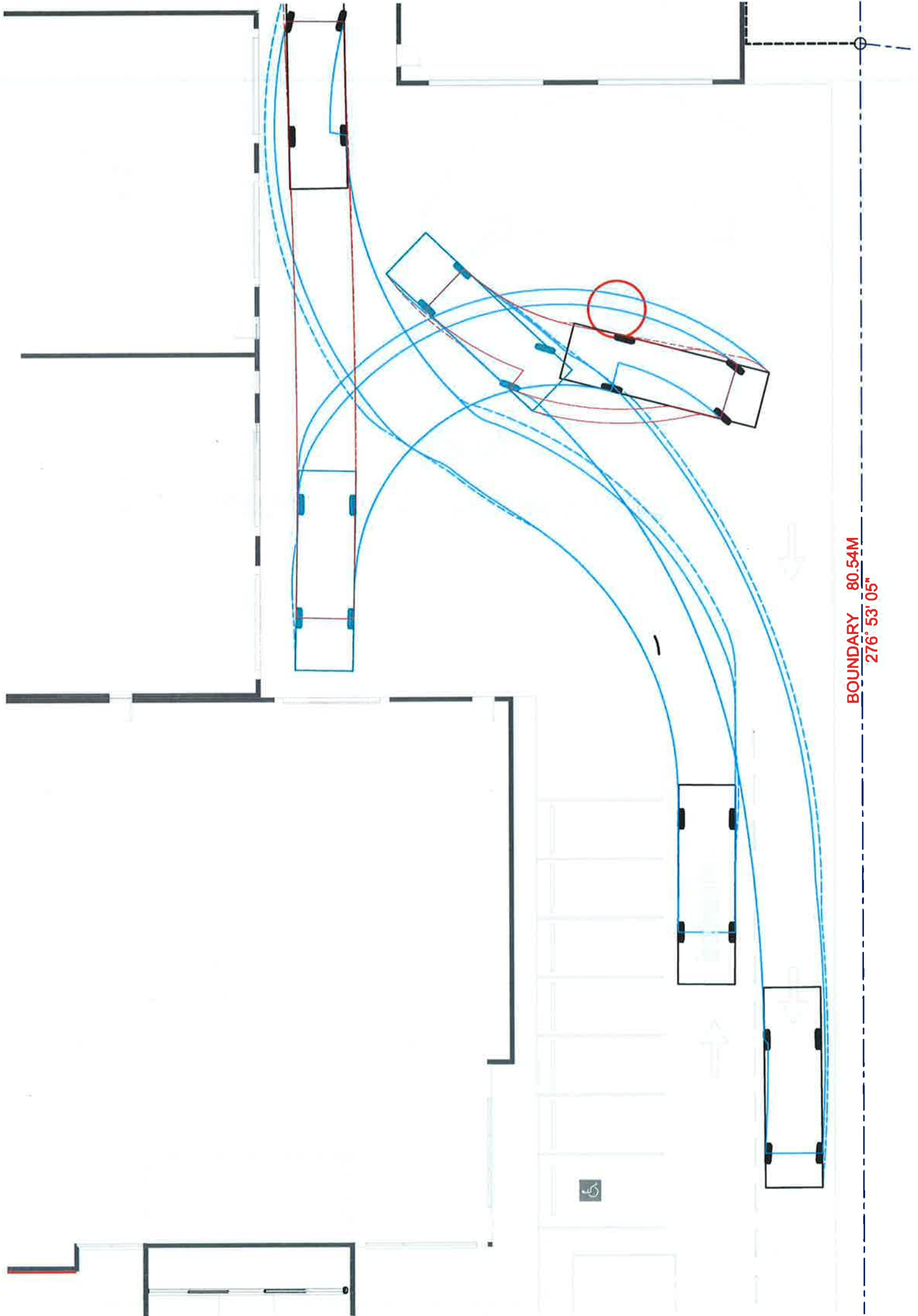
(b) Design speed < 100 km/h

Source: Amdt and Troutbeck (2006).

Figure 4.9: Warrants for turn treatments on the major road at unsignalised intersections

Appendix D

Preliminary access concept and turning movements



BOUNDARY 80.54M
276° 53' 05"

BOUNDARY 80.54M
276° 53' 05"

