

Reference: #V157080

14 August 2018

Barwon Heads Lifestyle Group Pty Ltd  
C/- Best Hooper Lawyers  
Level 9, 451 Little Bourke Street  
MELBOURNE VIC 3000

**Attention: Mr. Edward Mahony (Lawyer)**

Dear Edward

**RE: AMENDMENT C375 GEELONG PLANNING SCHEME  
1900 BARWON HEADS ROAD, BARWON HEADS**

I refer to Amendment C375 of the Greater Geelong Planning Scheme which seeks to implement the land use planning recommendations of the Barwon Heads Structure Plan (dated August 2017). The landowner at 1900 Barwon Heads Road has prepared a submission to the amendment seeking to include their site within a revised settlement boundary. A development option for the land is shown in a Preliminary Master Plan.

GTA Consultants was commissioned by Barwon Heads Lifestyle Group Pty Ltd in August 2018 to prepare a statement detailing the transport impacts of the proposal. Prior to preparing this submission I was briefed by Best Hooper Lawyers regarding the proposal via written instructions.

This transport impact assessment includes a review of the following:

- i Potential site traffic generation
- ii Future internal road network and indicative traffic volumes
- iii Review of intersection spacing and type
- iv High level traffic impact review
- v Public transport, pedestrian and cycling connectivity.

**Background**

The Barwon Heads Structure Plan (2017) seeks to:

- i. Identify the key strategic planning issues facing the township, including community aspirations and needs;*
- ii. Articulate the preferred future directions including the location of a settlement boundary; and*
- iii. Identification of appropriate planning controls, which will protect and enhance the distinctive elements of the township, biodiversity and landscape features."*

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A specific transport assessment has not been prepared to inform the structure plan, but rather the structure plan is based on the recommendations and findings contained in the 'Barwon Heads Traffic and Parking Study' prepared by GTA in April 2010 for the City of Greater Geelong. Moreover, the 2010 GTA report was an update of a previous report prepared in 2003 (also by GTA). The 2010 GTA Report responds to existing transport issues in Barwon Heads and does not specifically consider traffic capacity as a result of a revised or expanded settlement boundary.

### Traffic Generation and Distribution

An estimate of the potential peak hour and daily traffic generation to and from the site is summarised in Table 1 (based on an indicative land use scenario).

**Table 1: Traffic Generation Estimate**

Use	Size (Indicative)	Traffic Generation Rate		Traffic Generation	
		Peak Hour	Daily	Peak Hour	Daily
Aged Care	110 beds	0.3 movements per bed [1]	2.0 movements per bed [1]	33	220
Retirement Village	180 – 220 units	0.4 movements per dwelling [2]	2.1 movements per dwelling [2]	88	462
Residential	240 – 250 dwellings	0.8 movements per dwelling [3]	8 movements per dwelling [3]	200	2,000
Recreation Area	-	Ancillary		10	50
Café	-	Ancillary		-	-
Child Care	90 places	0.83 movements per child [1]	4 movements per child [3]	37 [4]	180 [4]
<b>Total</b>				<b>368</b>	<b>2,912</b>

[1] Sourced from GTA traffic generation database.

[2] Sourced from RMS Guide to Traffic Generation Technical Direction (August 2013).

[3] Based on first principles assessment.

[4] The child care centre use is anticipated to primarily cater for residents of the site and vehicles passing by and as such, a 50% reduction factor has been applied to reflect the new or additional trips generated.

Table 1 indicates that the site could be expected to generate in the order of 370 vehicle movements during a peak hour and 2,900 vehicle movements across a typical weekday.

The directional distribution and assignment of traffic generated by the site will be influenced by a number of factors (such as employment and retail centres, schools, access points, etc.). For assessment purposes, the following directional distributions have been assumed:

- Barwon Heads Road (to the west): 40% (~1,160vpd)
- Golf Links Road and Bridge Road: 40% (~1,160vpd)
- Sheepwash Road and Geelong Road: 20% (~580vpd)
- Thomson Drive via Snead Road: 0% (0vpd)

From a capacity viewpoint the above distribution is considered conservative on the high side as it assumes all traffic is attracted to the Barwon Heads Road corridor. If a vehicle connection to Snead Road was constructed, some vehicles could be expected to utilise the Snead Street connection to access Barwon Heads township (including the nearby primary school). This access should be designed to minimise the number of vehicles using it (through local area traffic management measures) to ensure that it does not become a "rat-run" for non-local traffic.

### **Internal Road Network and Daily Volume Estimates**

The potential road hierarchy identifies a higher order boulevard road aligned through the middle of the site, with lower order roads (and the aged care and retirement village uses) connecting to it. Four vehicle connections to the site are contemplated under the concept master plan, as follows:

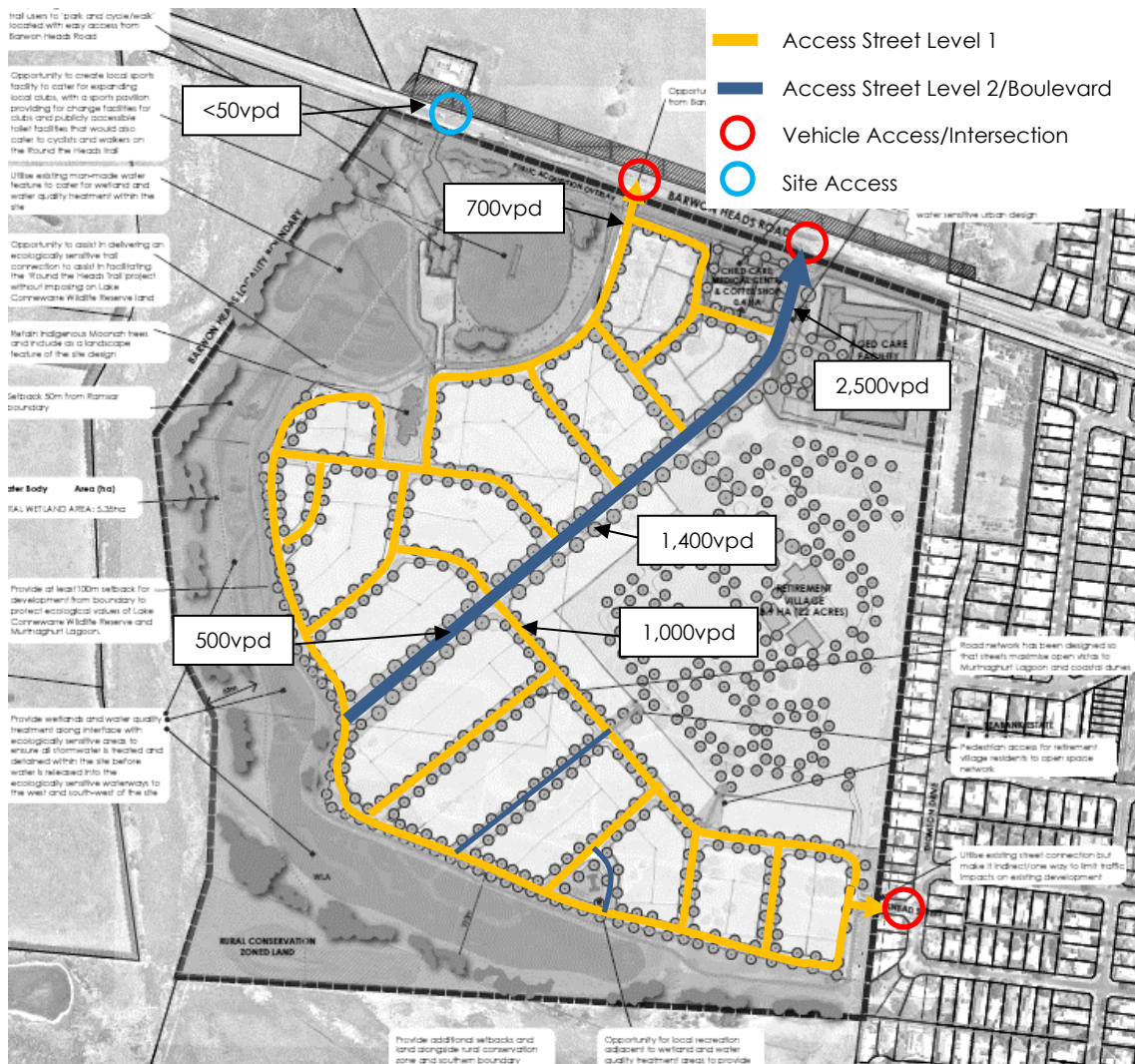
- Main access to Barwon Heads Road
- Secondary access to Barwon Heads Road (shown as optional)
- Site access to recreation reserve from Barwon Heads Road
- Continuation of Snead Street

The potential road hierarchy and vehicle access points for the site are illustrated in Figure 1. The indicative daily traffic volumes for each of the major road links are also presented on the figure and are based on the traffic generation and distribution estimates presented above.

The traffic volume forecasts suggest that the higher order boulevard road (shown in blue) would be expected to operate as an Access Street Level 2, with the remaining roads (shown in yellow) operating as a combination of Access Street Level 1 and Access Place.

Any connection to Snead Street would be designed to minimise traffic using this link and in turn the local residential streets between the site and Golf Links Road (i.e. Hogan Drive and Thomson Road).

Figure 1: Internal Road Network



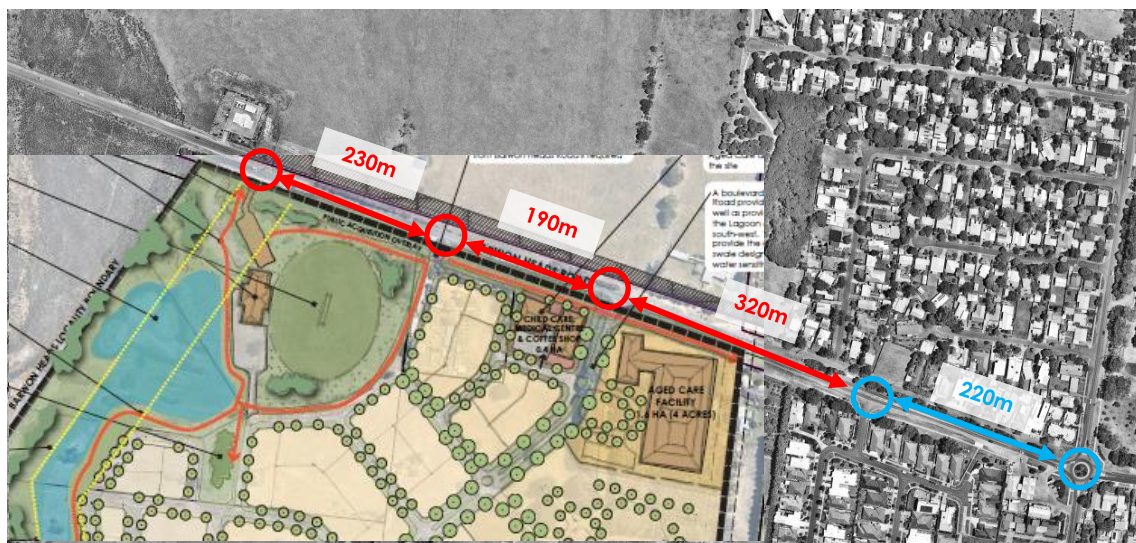
Note: Assumes that the second vehicle access/intersection to Barwon Heads Road is provided plus the site access to the oval.

## Intersection Spacing

The proposed offset between the existing and potential future intersections is presented in Figure 2, with the proposed intersection spacings varying between 190m and 320m.

Reference to VicRoads Access Management Policies suggests that Barwon Heads Road would operate as an AMP Level 4 or 5 road and therefore 200m intersection spacings are desirable. The proposed intersection spacings are generally in accordance with these requirements, noting that the second access could be shifted 10m to the west to ensure that the minimum 200m spacing could be achieved (if deemed necessary by the road authority).

**Figure 2: Existing and Potential Future Intersection Spacings on Barwon Heads Road**



## Intersection Type

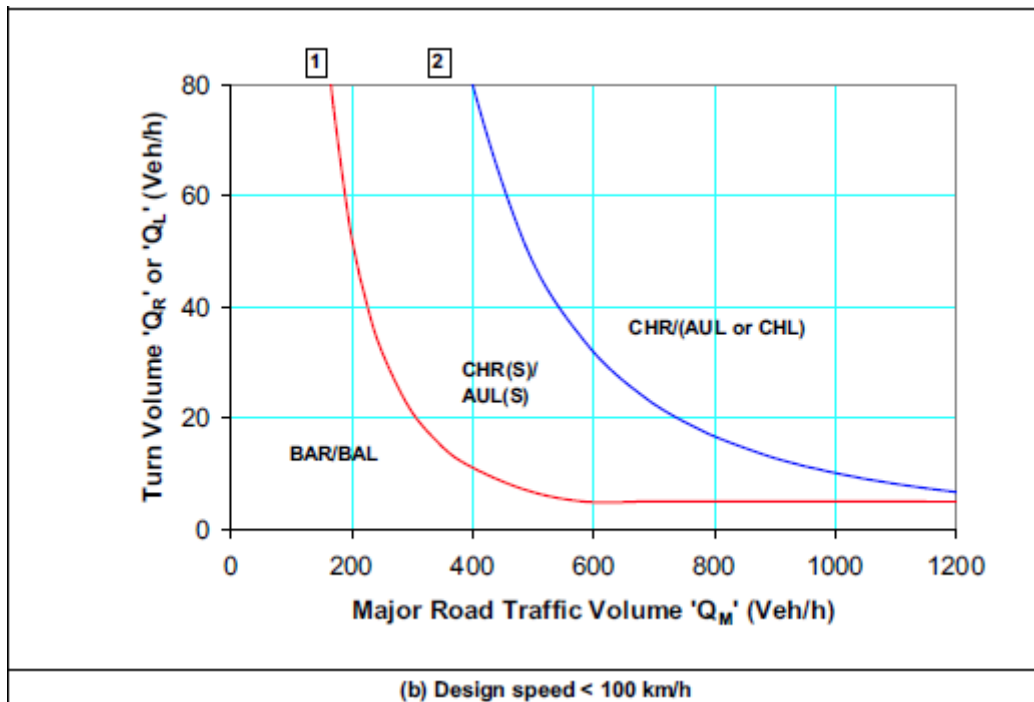
Given the anticipated traffic generation from the site and the existing traffic volumes on Barwon Heads Road it is expected that the two future intersections servicing the site will be configured as priority controlled intersections (i.e. stop or give way control).

The turn lane requirements for priority controlled intersections are set out in the Austroads Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections. Specifically, Figure 4.7 of the guide sets out the traffic volume warrants for the provision of certain lane type treatments (i.e. basic, short or channelised). The turn lane warrants are reproduced in Figure 3.

Based on the forecast traffic volumes at each of the intersections it is envisaged that channelised left and right turn lane treatments will be provided at the two main intersections servicing the site.

This treatment would be consistent with the existing arrangement at the Barwon Heads Road / Corymbia Circuit intersection (to the immediate east of the site).

Figure 3: Austroads Turn Lane Warrants



(Source: Figure 4.7 of Austroads Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections)

### Traffic Impact

Daily traffic volumes on Barwon Heads Road were sourced as part of the GTA Report (April 2010) and indicated that Barwon Heads Road (west of Golf Links Road) carried approximately 6,800vpd during non-peak holiday periods (2005) and 10,300vpd during peak holiday weekends (2006).

Reference to historic VicRoads traffic volume data (at Barwon Heads Road bridge) indicates that traffic volumes on Barwon Heads Road have increased by 2.1% per annum between 2007 and 2017<sup>1</sup>. Application of this growth rate to the previous GTA counts would suggest the following daily traffic volumes adjacent to the site on Barwon Heads Road (2018 volumes):

- Non-peak holiday periods: ~9,000vpd
- Peak holiday weekends: ~13,000vpd

The proposed development is anticipated to generate an additional 2,900vpd to Barwon Heads Road. Of this, in the order of 1,160vpd is expected to be destined towards the west to Armstrong Creek and Geelong with the remaining 1,740vpd expected to be destined to the east and the Barwon Heads township. Typically, an arterial road with a single traffic lane in each direction could be expected to accommodate up to 20,000vpd. The post development traffic volumes on Barwon Heads Road would continue to operate within their theoretical capacity during both peak and non-peak periods.

<sup>1</sup> <https://www.vicroads.vic.gov.au/traffic-and-road-use/road-network-and-performance/road-use-and-performance>

To the east of the site, Barwon Heads Road, Golf Links Road and Bridge Road form the arterial corridor through the Barwon Heads town centre. It is understood that during peak holiday periods, vehicle capacity along this corridor is constrained at a number of locations, including:

- Bridge Road / Hitchcock Avenue roundabout
- Bridge Road zebra pedestrian crossing
- Bridge Road / Ewing Blyth Drive / Flinders Parade roundabout

Outside of peak holiday periods it is understood that the corridor operates relatively well with minimal queues and delays at key intersections.

The additional traffic generation from the site along the corridor could be expected to be in the order of 1,160vpd, or approximately 120vph which equates to approximately two additional vehicle movements per minute along the corridor during the peak hour. During non-peak holiday periods this level of additional activity would not be expected to make a material impact to the operation of the arterial corridor.

During absolute peak periods (summer peak), traffic congestion within the Town is expected to continue to occur noting that residents would be expected to modify their travel behaviour during these peak times by a combination of alternate travel modes (walk, cycle), time of travel or travel routes/destinations. Congested traffic conditions during the peak holiday period is not unusual in a tourist town such as Barwon Heads.

To the west of the site, VicRoads (under the Major Road Project Authority) is currently preparing a business case for the duplication of Barwon Heads Road north of Lower Duneed Road. The duplication works will create additional capacity along the Barwon Heads Road corridor to cater for additional traffic generated from Armstrong Creek and nearby coastal towns accessing Geelong.

### **Public Transport Access**

Bus Route #55 currently services Barwon Heads and provides a connection to Geelong and Ocean Grove. Bus services are generally provided hourly between 6:00am and 8:00pm Monday to Friday, with slightly reduced frequencies on weekends. The nearest bus stop to the site is currently located on Barwon Heads Road between Corymbia Circuit and Golf Links Road.

The 'Public Transport: Guidelines for Land Use and Development' document prepared by the Department of Transport (now Transport for Victoria) provides guidance on the recommended public transport provisions and coverage for new developments. Specifically, the document states the following for bus routes:

*"Neighbourhoods should be designed for bus routes on strategically located connector roads so that dwellings will be within 400 metres of a bus route."*

Figure 4 illustrates the existing public transport catchment in Barwon Heads (noting that a 400m radius from each bus stop is shown rather than 400m from each bus route). Should the site be rezoned it is recommended that a future bus stop be located adjacent to the main access point; offset approximately 500m from the nearest bus stop to the east.

Figure 4 indicates that the public transport accessibility of the site would be largely comparable to the remainder of Barwon Heads, with key uses such as the aged care centre, child care centre and café all located adjacent to the potential future bus stop. The southern and western parcels of the site would not be located within 400m of the potential bus stop; which is comparable to the existing northern and southern extremities of the Barwon Heads township.

Figure 4: Existing and Future Bus Stop Catchment



### **Pedestrian and Cycling Access**

The potential future road network will include provision for footpaths on both sides of the internal access roads within the subject site. The site could be connected to the existing Barwon Heads township via the following potential pedestrian links:

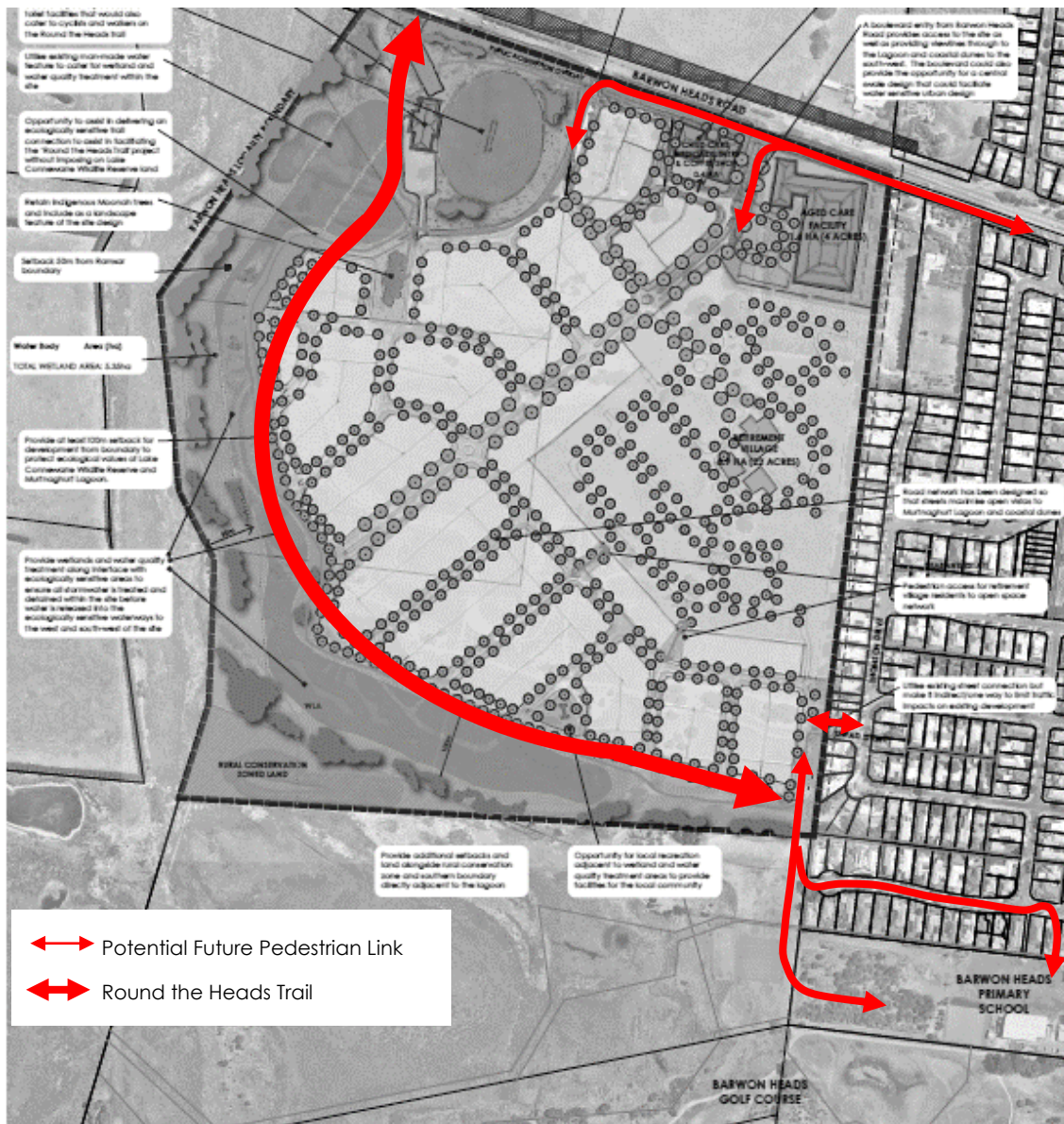
- Extension of the existing footpath on the south side of Barwon Heads Road
- Extension of Snead Street into the site
- Potential links to Barwon Heads Primary school, either a direct link or via Hopgood Place

In line with the Victorian Planning Authority (VPA) Guidelines and Greater Geelong Planning Scheme, cycling access will be primarily shared with vehicles on the internal carriageways. This is considered appropriate given the future traffic volumes and speeds anticipated on the internal road network.

In addition, there will be an opportunity to integrate part of the 'Round the Heads' trail into the internal shared path network (through the wetlands).

The potential future pedestrian connectivity between the site and the existing Barwon Heads township is presented in Figure 5.

Figure 5: Potential Future Pedestrian Connectivity



### Summary

Based on the analysis and discussions presented within this submission, the following is a summary of my findings:

- i A potential rezoning of the site and development of the land as per the Preliminary Master Plan dated 6 June 2018 could be expected to generate in the order of 370 and 2,900 vehicle movements in any peak hour and daily period, respectively.
- ii Vehicle access to the rezoned site could be provided via two priority controlled intersections to Barwon Heads Road (with left and right turn lanes) and a continuation of Snead Street.
- iii There is adequate capacity in the surrounding road network to cater for the traffic generated by the proposed development during typical operating periods.

- iv A new bus stop could be provided adjacent to the site on Barwon Heads Road to cater for future public transport demands to and from the site.
- v The rezoned site could be linked to the existing Barwon Heads township via a number of new pedestrian links as shown in the Preliminary Master Plan.

Accordingly, I can see no reason on transport grounds why the site could not be included in a revised settlement boundary to facilitate development of the land as shown in the Preliminary Master Plan.

Naturally, should you have any questions or require any further information, please do not hesitate to contact me in our Melbourne office on (03) 9851 9600.

Yours sincerely

**GTA CONSULTANTS**



**Simon Davies**  
Director