

266 Longueville Road, Lane Cove Traffic Impact Assessment
Independent Peer Review

The Sydney North Planning Panel deferred it's decision to seek further information including:

- * Independent Peer Review of the traffic assessment.

Council has engaged Bitzios Consulting to undertake the Peer Review which is provided in this material.

Comment

The Bitzios Peer Review has been forwarded to the applicant for notation and review. The applicant sought and received an extension of time to provide the additional information requested by the Panel until 19 October 2018 and any response to issues raised by the Peer Review following would be provided as part of additional information requested by the Sydney North Planning Panel.

Issue History

| File Name | Prepared by | Reviewed by | Issued by | Date | Issued to |
|---|-------------|-------------|-------------|------------|-------------------------------------|
| P3755.001T 266 Longueville Rd Lane Cove TIA Peer Review | S. Daizli | A. Giyahi | T. Wheatley | 02.08.2018 | Sashika Perera Lane Cove Council |

266 Longueville Road, Lane Cove Traffic Impact Assessment Independent Peer Review

1. INTRODUCTION

A Development Application (DA) for a proposed residential aged care facility (RACF) at 266 Longueville Road, Lane Cove, comprising 82 Independent Living Units (ILU), 70 residential aged care beds, 122 car parking spaces across two basement levels and an ambulance bay was referred to the Sydney North Planning Panel. The Panel deferred the DA noting that it required an independent peer review of the Revised Traffic and Parking Assessment Report prepared by Varga Traffic Planning, dated 25 May 2018.

Bitzios Consulting was engaged by Lane Cove Council to undertake an independent peer review of the report and supplementary documents.

2. REVIEW

2.1 TRAFFIC GENERATION RATES

According to an onsite survey undertaken by Varga, the existing site traffic generation is 6 and 8 trips during the AM and PM peak hours respectively. The report uses the "Housing for Seniors" traffic generation rate of 0.4 peak hour trips per dwelling as specified in the *Roads and Maritime TDT2013/4a*, totalling 61 proposed trips. Bitzios Consulting deems this to be acceptable given it is an updated rate from the previous *Roads and Maritime Guide to Traffic Generating Developments* and applies a more conservative analysis.

Bitzios Consulting also agrees with Varga's statement that the actual traffic generation for the proposed development in practice is likely to be less than 61 trips, given residential aged care beds would generate less traffic than ILUs and that the morning site peak hour does not generally coincide with the network peak hour as stated in the *TD2013/4a*. However, any shortfall would be made up by staff/visitors.

For completeness, the report needs to specify the net traffic generation (proposed less existing), which would be 55 and 53 trips during the AM and PM peak hours respectively. Additionally, modelling the net traffic as opposed to the proposed traffic is the more conventional method; however, as the difference is only a maximum of 8 trips, this is highly unlikely to affect the SIDRA results.

2.2 TRIP DISTRIBUTION

As part of an unrelated independent analysis of the Longueville Road/River Road West intersection, Roads and Maritime has developed a concept plan for realignment works and allowing the right turn from Longueville Road into River Road West for all traffic. As requested by Lane Cove Council, Bitzios Consulting has assessed the trip distributions for both the current (without right turn) and proposed (with right turn) arrangements. It has been noted that the report does not provide any information on trip distributions and as such, Bitzios Consulting has made their own assumptions for traffic distribution, as detailed below.

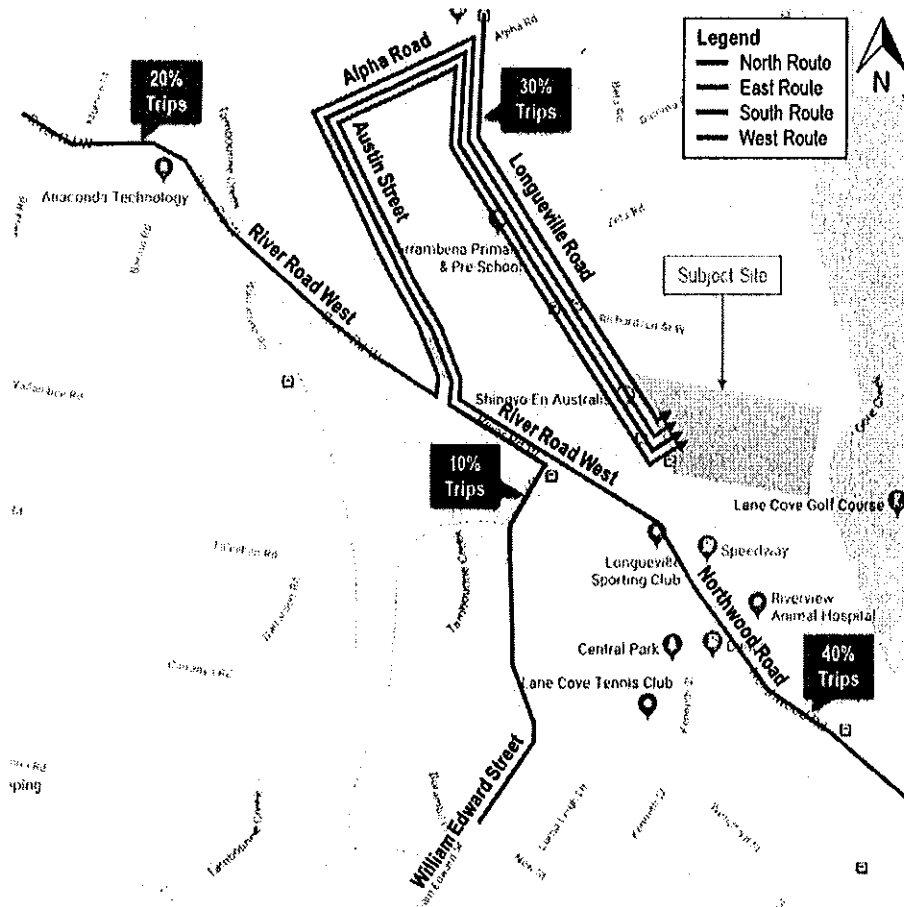
2.2.1 Assumptions

The report indicates that there will be a maximum of 23 staff during the main day shift and 35 staff during the afternoon shift change, meaning that the highest traffic turnover is assumed to be during the afternoon. Although the afternoon shift change is unlikely to coincide with the PM network peak, most traffic movements during the AM and PM peak hours would be by staff who do not live onsite and are arriving at and leaving the RACF. Based on these assumptions, Table 2.1 shows the AM and PM peak in/out traffic splits using the 55 and 53 net trips respectively.

Table 2.1: Assumed In/Out Traffic Splits

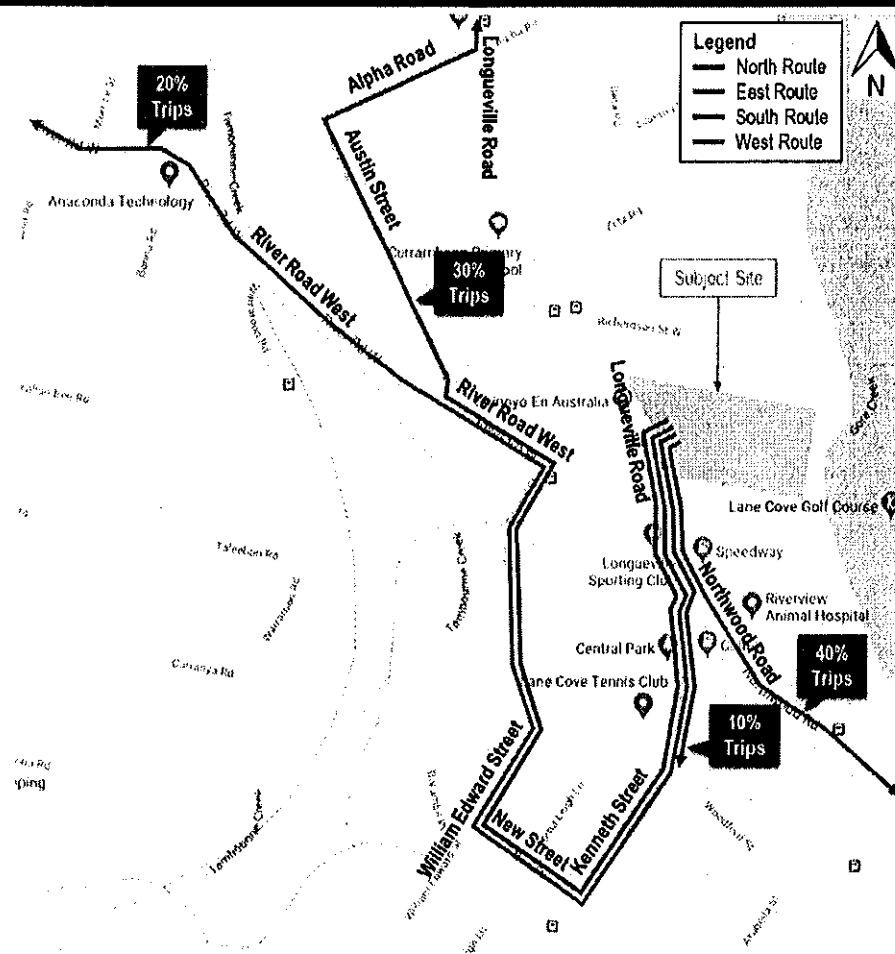
| AM Peak % | | AM Peak Volumes | | PM Peak % | | PM Peak Volumes | |
|-----------|-----|-----------------|-----|-----------|-----|-----------------|-----|
| In | Out | In | Out | In | Out | In | Out |
| 60% | 40% | 33 | 22 | 70% | 30% | 37 | 16 |

While staff will travel to and from the site and determine most of the actual trip distribution, analysing the surrounding road network is the most suitable method for estimating trip distribution to and from the site, as well as assessing potential impacts on local intersections and roads. Figure 2.1 shows the estimated inbound trip distribution, which is the same for both the current and proposed Longueville Road/River Road West intersection arrangements. Figure 2.2 and Figure 2.3 show the estimated outbound trip distribution for the current and proposed intersection arrangements respectively. It is assumed that the trip distributions would be largely similar in both the AM and PM peaks, and that vehicles will be travelling in a forward direction (i.e. not taking another route to perform U-turns).



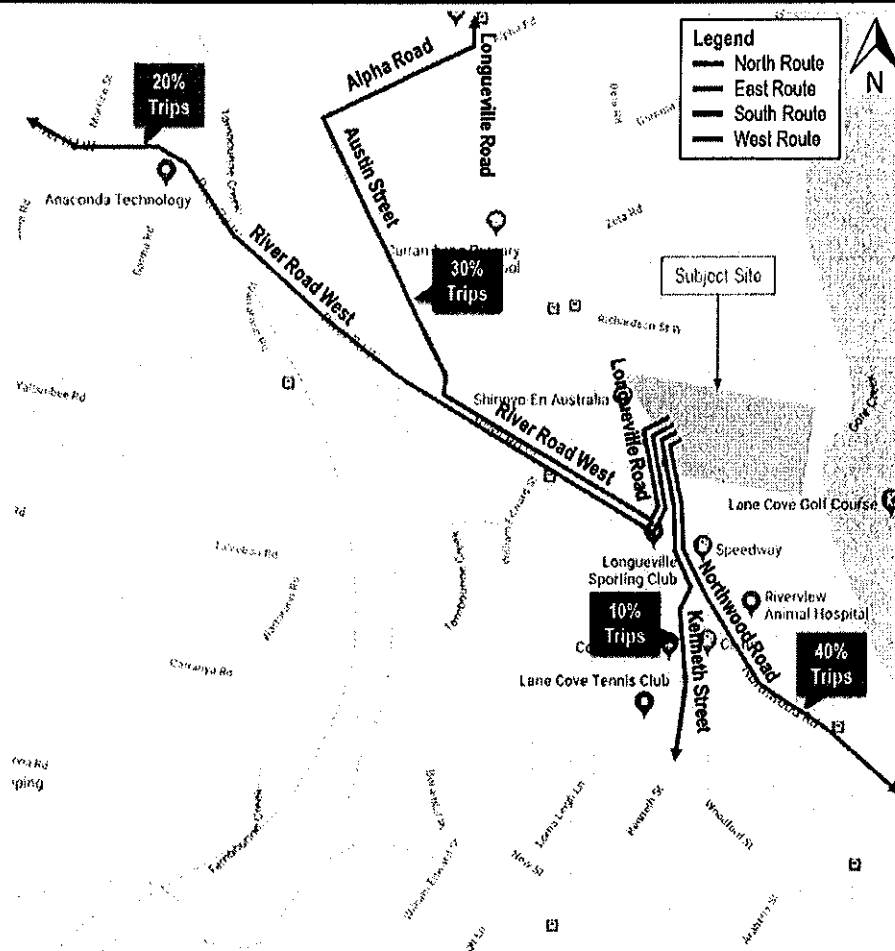
Adapted from Google Maps

Figure 2.1: Inbound Trip Distribution – Current and Proposed Arrangements



Adapted from Google Maps

Figure 2.2: Outbound Trip Distribution – Current Arrangement



Adapted from Google Maps

Figure 2.3: Outbound Trip Distribution – Proposed Arrangement

Based on the above trip distribution, the traffic volumes for each route are summarised in Table 2.2.

Table 2.2: Traffic Volume Distribution

| Route | AM Peak | | PM Peak | |
|-------|---------|-----|---------|-----|
| | In | Out | In | Out |
| North | 10 | 7 | 11 | 5 |
| South | 13 | 9 | 15 | 6 |
| East | 3 | 2 | 4 | 2 |
| West | 7 | 4 | 7 | 3 |

The trip distribution would need to be applied to the SIDRA models when testing all future with development scenarios to provide a detailed assessment of impacts on the Longueville Road/River Road West and Longueville Road/Northwood Road/Kenneth Street Intersections.

2.3 SIDRA MODELS

Bitzios Consulting has reviewed the SIDRA models created by Varga and concludes the following:

2.3.1 Intersection Geometry

Longueville Road/River Road West Intersection

- Northwood Road east leg should be a south leg in the existing and future with current arrangement scenarios, and a south-east leg in the future with proposed arrangement scenario;
- River Road West leg should be a north-west leg; and
- River Road West approach lane 1 should be combined with lane 2 as a shared left turn/right turn lane with a Slip/Bypass (High Angle) Lane.

Longueville Road/Northwood Road/Kenneth Street Intersection

- Northwood Road east leg should be a south-east leg; and
- Northwood Road west leg should be a north-west leg.

2.3.2 Network Geometry

- approach distances between the Longueville Road/River Road West and Longueville Road/Site Access Driveway intersections in the SIDRA network should be the same to optimise results. In particular, Bitzios Consulting observed that the Longueville Road/Site Access Driveway south approach was 40m, but the Longueville Road north approach was 500m; and
- as the Longueville Road/River Road West north approach 75m Short Lane with Parking exceeds the Longueville Road/Site Access Driveway intersection, the following inputs should be applied:
 - Longueville Road/River Road West north approach – 32m approach distance;
 - Longueville Road/River Road West north approach lanes – both Full Length Lanes;
 - Longueville Road/Site Access Driveway south approach – 32m approach distance; and
 - Longueville Road/Site Access Driveway north approach – additional 27m Short Lane with Parking.

2.3.3 Priorities

Longueville Road/Northwood Road/Kenneth Street Intersection

- Northwood Road east approach left turn – southern pedestrian crossing has priority;
- Kenneth Street south approach – eastern pedestrian crossing has priority; and
- Northwood Road west approach right turn – southern pedestrian crossing has priority in addition to the Northwood Road east left turn/through movements.

2.3.4 Phasing and Timing

- Longueville Road Northwood Road AM and PM phase B – Longueville Road N right turn phase is introduced with Northwood East through and right turn phases. This is a serious phase conflict and cannot represent real-world signal operation.
- Roads and Maritime IDM (Intersection Diagnostic Monitor) data have not been used in coding the signal. 120 seconds "user given" cycle time has been allocated to the traffic lights (perhaps based on site observations). The method used for coding the signal timing is not sufficient for calibrating operation of the traffic lights in SIDRA.
- It is unclear on what basis the report states that "the values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs".

2.3.5 Other Comments

- all other assumptions/inputs are considered valid and reasonable; however, it is not known how/if the 95th percentile queue distances in the existing models were calibrated. Therefore, the SIDRA model outputs may not represent intersection delay and performance realistically;
- all lane widths should be confirmed using aerial imagery (i.e. Google Maps, Google Earth, Nearmap, etc.) and applied to the models where necessary;
- future models do not apply background traffic growth and trip distributions, and they do not specify the future year being modelled; and
- proposed Longueville Road/River Road West intersection should be tested as a future option.

2.4 SWEEP PATH ANALYSIS

Bitzios Consulting has reviewed the swept path diagrams attached to the report and concludes that:

- there are several drawing layers shown which makes it difficult to make a conclusive judgement on whether the swept paths are satisfactory;
- they should include ingress/egress at the carpark entrance;
- line marking on Longueville Road should be shown and used in the swept paths, including the median double barrier line.

2.5 PARKING REQUIREMENTS

The development's parking requirements set out in the report in accordance with *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* are appropriate and detailed. The proposed 122 parking spaces, including 14 PWD spaces, seven large spaces, and one ambulance bay are deemed sufficient and should be marked and signposted for each use. Bicycle spaces for staff should also be considered.

3. CONCLUSIONS

Bitzios Consulting was engaged by Lane Cove Council to undertake an independent peer review of the traffic and parking impact assessment report prepared by Varga Traffic Planning for the proposed RACF located at 266 Longueville Road, Lane Cove. The following deficiencies were identified after the peer review of the traffic report and associated SIDRA models:

- It has been noted that the report does not provide any information on trip distributions and as such, Bitzios Consulting has come up with their own assumptions. It is unclear what trip distribution has been utilised in SIDRA modelling;
- Several deficiencies were identified in the SIDRA model (Section 2.3) including:
 - Intersection and network geometry coding deficiencies;
 - Movements Priority Coding
 - Phasing and Timing: Unacceptable conflicting movements were observed in coded signals and IDM data have not been obtained from Roads and Maritime;
 - The 95th percentile queue distances in the existing model were not calibrated. Therefore, the SIDRA model outputs may not represent intersection delay and performance realistically; and
 - future models do not apply background traffic growth and trip distributions, and they do not specify the future year being modelled.
- The parking requirements of the development set out in the report in accordance with *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* are appropriate. The proposed 122 parking spaces, including 14 PWD spaces, seven large spaces, and one ambulance bay are deemed sufficient and should be marked and signposted for each use. Bicycle spaces for staff should also be considered.