

Appendix 2:

Response from Lyle Marshall & Associates Pty Ltd on issues raised in DoPI and agencies' submissions (4 October 2013)



Lyle Marshall & Associates Pty Ltd

Consulting Engineers, Transportation and Environmental Planners, Hydrology & Hydraulics & Architects

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GLM/go/3005

4th October, 2013

Mr Darrel Conybeare
Conybeare Morrison International Pty Ltd
PO Box A866
SYDNEY SOUTH NSW 1235

Dear Darrel,

Re: Traffic & Transport Study for Shaolin Tourist & Residential Development.

1. Our fee proposal dated January 2009 listed a large amount of traffic data to be supplied by Council and the RMS. There was no indication at that time that Council would require the road network and key intersections to be analysed for the 120th highest hour and for the year 2021. The traffic data ultimately provided by Council was inadequate and additional tube counts and peak hour counts had to be carried out and a detailed analysis to determine the 120th Highest Hour in Forest Road, Princes Highway and MR 312.
2. The proposal requested information (Part B from Conybeare Morrison) about the ultimate development that was essential in order to estimate traffic generation and parking requirements, much of which was not available from the proponent or Conybeare Morrison. Consequently we had to undertake patronage and parking and traffic surveys at the Nan Tien Temple to provide a data base and make assumptions for those facilities not present at Nan Tien.

An additional assessment of traffic generation and parking demand when the Town Centre was enlarged from 2000m² to 5000m² in Stage 1 and to 20000m² in the Ultimate Development including review of retail / commercial mix and other changes in the scale of facilities in Stage 1 and Ultimate.

3. It was clear from the SIDRA analysis of existing 20th HH Traffic Conditions that the capacity of major intersections would be exceeded and I suggested to Audrey Thomas that the development should be staged and an approval sought for each stage. However I was informed that the client was adamant that approval was required for the ultimate development.
4. There was a report prepared by the Traffic and Transport Unit Shoalhaven City Council dated 7/11/2008 which stated that current and predicted traffic patterns as a best case scenario for mitigating impacts of the Shoalin development would be approximately 70% of traffic would have an origin / destination to the north, 15% to the east and 15% to the south.

4. (Continued)

The report also stated that it is more likely that a greater proportion of traffic will be concentrated through the Princes Highway Intersections and as a worst case, this could be approximately 95% of the development traffic.

The report estimated that the ultimate development could generate 15000 vehicle movements per day. On this basis 3 access points were suggested. Amongst the road improvements suggested was grade separated access at Princes Highway and Forest Road.

Based upon our traffic surveys and analysis the total external traffic movements on a peak Sunday were Stage 1 – 3630 and Ultimate 4985 (Table 4.3.10(d) in Report 7/12).

Based upon intersection traffic volume counts made on 28/10/2011 at Jervis Bay Road (MR312) and Princes Highway in the 8:00 – 9:00am peak hour, 97.5% of traffic exiting from Jervis Bay Road and travelled north on the Princes Highway. In the 4:00 – 5:00pm peak hour 96.7% of traffic turned left into Jervis Bay Road.

The proposed Shoalin development is close to Princes Highway and the shortest route to Nowra to the north is via Princes Highway. In my opinion, the assumption that 95% of traffic movements to and from the proposed development is justified.

It seemed to me that a logical case could be made for signalization of that intersection and this was done in our analyses. The SIDRA analysis showed that signals were a feasible solution and would save our client over \$1.15 million. Grade separation was **not** offered as a solution because our client would have been locked into this solution

The preliminary cost estimate was based upon prices current in 2012 for similar projects. A concept design was prepared but was not included in the report. The preliminary cost estimate is subject to confirmation at the detailed design stage subject to RMS requirements.

5. The SIDRA analysis shows that the right turn from Forest Road under existing 120th Highest Hour traffic volumes in 2011 is operating at Level of Service D in the pm peak hour and therefore has no spare capacity to cater for the Shaolin Development without traffic signals or grade separation of the right turn into Princes Highway. It is clear for the reasons stated by the RMS in their letter to the Department of Planning dated 11/12/2012 that signalization is not acceptable. A plan showing the concept design **Sheet 1** of Drawing No. **3005/1/13** and the cost estimate prepared in 2012 are *attached*. A coloured A1 size plan is in the post. The road pavement required for the northbound and southbound merging lanes to the Princes Highway were not included in the \$1.51m and will add a further \$131,000 plus GST to the project costs.

6. Irrespective of the Shaolin development, grade separation of the *right turn exit* from Forest Road **will be required** due to the **annual growth** in **traffic** due to other developments.

7. I had several discussions with Audrey about where residents in the residential subdivision would come from. It was agreed that they would be mainly 'mature age Chinese nationals' who had retired (75%) and 'Australian retirees' (25%).

These residents are not likely to have work commitments in Nowra or the surrounding area.

In *Appendix 4 to Report No. 7/12*, the percentage of trips by trip purpose for Shoalhaven LGA were stated as follows:-

1. Commuter	11%	5 Personal Business	10%.
2. Work related	8%	6 Social Recreation	24%.
3. Childcare/Education	5%	7 Serve passenger	15%.
4. Shopping	25%	8 Other	2%.

The first 3 *trip purposes* account for only 24% of daily vehicle trips. The estimates of traffic movements allowed 6% for these components and the other trip purposes accounted for 76%. Hence, the total trips generated were 82% of the 9 *daily trips per dwelling using RMS data*.

The assumption in our report that the *mature age resident* will not be in the workforce therefore is of minor relevance in terms of *total trip movements*.

8. **Car Occupancy:**

The rate of **2.14** given in *Section 4.3* of our report was for the **11:00am – 12 noon** period *only*. The report went on to state, "*However, based upon the patronage counts and car parking accumulation surveys, the car travel mode is estimated to be 3 persons per vehicle*". Hence, we believe that our assumption is justified.

9. In the *RMS publication Guide to Traffic Developments* it is stated in *Section 3.4.1 Motels* that the "*85th percentile occupancy on the busiest day of the week is reasonable for estimates of traffic generation and parking*". This assumption is commonly used by transport planners. I made assumptions of Hotel patronage based on my observations in the Hunter Valley.

10. In discussions with Audrey we thought that shop owners would live locally and probably be Chinese to service the health and other requirements of the Chinese residents. Because the development does not exist assumptions have to be made.

10. (Continued)

In *Section 4.2*, the number of retail staff is estimated to be *100* in *Stage 1* and *400* in the *Ultimate development*. In *Section 4.3.8*, the estimated number of peak hour trips **in**, in the **am** peak hours and **out** in the *pm peak hours* is **42** in **Stage 1** and **67** in the **Ultimate development**. In the *absence of any other data* we believe that this assumption is justified but we would agree with RMS that our estimate that 50 per cent of shop owners would live within the Shaolin development could be disputed. However, the important point is that the *peak hour traffic generation of the retail workforce may be lower* regardless of the percentage who travel from Nowra because an hourly bus service from Nowra would be introduced at some stage.

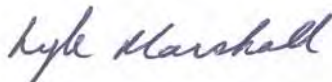
The other important point is that the *grade separated right turn from Forest Road will be required and does not hinge on the number of retail employees who may travel to this Town Centre to work each day*.

11. We have spent a lot of time in researching data upon which to base our assumptions because there was no data available from a similar Shoalin Resort in Australia. The RMS letter whilst it stated disagreement with a number of the assumptions, *provided no data in support of its case*.

In my opinion, the estimates of traffic generation are likely to err on the *high side*. The Ultimate development as planned for may *change over time* subject to *market forces and the development period may be longer*.

In any event, the disagreements are largely irrelevant because a *grade separation* at Forest Road/Princes Highway will be required due to *other traffic growth*. This grade separation will *increase the capacity of the intersection and provide the required Level of Service* to cater for traffic generated by the Shoalin Development.

Yours sincerely,



Lyle Marshall.
Lyle Marshall & Associates Pty Ltd.

PRELIMINARY COST ESTIMATE 2012

1. Bridge $\frac{(29 + 39)}{2} \times 6 \times \$3000/\text{m}^2 = \$612,000$ *
2. Reinforced earth retaining walls along
Embankments $= \frac{130 \times 6.5}{2} + \frac{81.25 \times 6.5}{2} = 686\text{m}^2$
 $686 \text{ m}^2 @ \$700 = \$480,594$ *
3. Fill $= \frac{(130 + 81.25)}{2} \times 6.1 \times 8.4\text{m}^3 = 3480 \text{ m}^3 @ 20$
 $= \$69,600$ *
4. Pavement $(130 + 81.25) \times 5 @ \$200/\text{m}^2 = \$211,250.00$ *
(200mm reinforced concrete and 200mm sub-base)

Total Cost = \$1,373,444

5. Line marking, preliminaries and Traffic
Control @ 8% $= \$137,344$

Total Cost \$1.5m plus GST

Additional Pavement	Forest Road	$75 \times 3.5\text{m}^2$	$=$	262.5 m^2
Merge P. H'Way		$\frac{120 \times (6.5 + 0)}{2} \text{m}^2$	$=$	390.0 m^2
		Cost	$=$	$652\text{m}^2 @ 200$
			$=$	$\$130,400.00$ *