

into George Evans Road. George Evans Road provides for one traffic lane in each direction with sealed shoulders. It provides access to the University of Wollongong campus, via a roundabout. Beyond the university access, George Evans Road is unsealed.

- 2.5 Jonsson Road and Stonegarth Road are unsealed roads connecting to George Evans Road. Both roads provide access to rural properties.

Previous Work

- 2.6 Shoalhaven Council has prepared the Nowra Bomaderry Structure Plan which identifies a number of areas in Nowra and Bomaderry for future development.
- 2.7 Mundamia is one of seven areas identified in the plan. The Mundamia development area is some 53 hectares and a potential scale of development of some 720 dwellings is identified in detached and medium density housing. The strategy also identifies a future high school in the area. The other six areas in the plan provide a total of some 529 hectares and some 6,400 dwellings.
- 2.8 Section 6 of the plan outlines a transport strategy to accommodate future development in Nowra/Bomaderry, including Mundamia New Living Area No 5. It is understood that Council is preparing a Section 94 plan for New Living Area No 5.

Traffic Flows

- 2.9 Traffic generated by the proposed residential development will have its greatest effects during weekday morning and afternoon peak periods when it combines with commuter traffic. In order to gauge traffic conditions, counts were undertaken during weekday morning and afternoon peak periods at the following intersections:
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- Albatross Road/Yalwal Road;
- Yalwal Road/George Evans Road; and
- George Evans Road/university access.

2.10 The results of the surveys are shown in Figures 3 and 4, and summarised in Table 2.1.

Table 2.1: Two-way (sum of both directions) peak hour traffic flows			
Road	Location	AM peak hour	PM peak hour
Albatross Road	North of Yalwal Road	1,050	1,130
	South of Yalwal Road	595	710
Yalwal Road	West of Albatross Road	605	630
	East of George Evans Road	275	280
	West of George Evans Road	175	155
George Evans Road	North of Yalwal Road	120	145
	North of university access	15	15
University access	West of George Evans Road	105	130

2.11 Table 2.1 shows that traffic flows on Albatross Road, north of Yalwal Road, were some 1,050 to 1,150 vehicles per hour two-way during the morning and afternoon peak hours. Yalwal Road near Albatross Road and Albatross Road south of Yalwal Road carried lower flows of some 600 to 700 vehicles per hour two-way.

2.12 Further west on Yalwal Road, traffic flows were some 150 to 300 vehicles per hour two-way. George Evans Road near Yalwal Road, and the access to the university, carried some 100 to 150 vehicles per hour two-way. North of the university access, flows on George Evans Road were less than 100 vehicles per hour two-way during the surveyed peak periods.

Intersections Operations

2.13 The capacity of the road network is largely determined by the capacity of its intersections to cater for peak period traffic flows. The surveyed intersections shown in Figures 3 and 4 have been analysed using the SIDRA program.

2.14 SIDRA simulates the operations of intersections to provide a number of performance measures. The most useful measure provided is average delay per vehicle expressed in seconds per vehicle.

2.15 Based on average delay per vehicle, SIDRA estimates the following levels of service (LOS):

ρ For traffic signals, the average delay per vehicle in seconds is calculated as delay/(all vehicles), for roundabouts the average delay per vehicle in seconds is selected for the movement with the highest average delay per vehicle, equivalent to the following LOS:

0 to 14	=	"A"	Good
15 to 28	=	"B"	Good with minimal delays and spare capacity
29 to 42	=	"C"	Satisfactory with spare capacity
43 to 56	=	"D"	Operating near capacity
57 to 70	=	"E"	At capacity and incidents will cause excessive delays. Roundabouts require other control mode
>70	=	"F"	Unsatisfactory and requires additional capacity

ρ For give way and stop signs, the average delay per vehicle in seconds is selected from the movement with the highest average delay per vehicle, equivalent to following LOS:

0 to 14	=	"A"	Good
15 to 28	=	"B"	Acceptable delays and spare capacity
29 to 42	=	"C"	Satisfactory but accident study required
43 to 56	=	"D"	Near capacity and accident study required
57 to 70	=	"E"	At capacity and requires other control mode
>70	=	"F"	Unsatisfactory and requires other control mode

2.16 It should be noted that for roundabouts, give way and stop signs, in some circumstances, simply examining the highest individual average delay can be misleading. The size of the movement with the highest average delay per vehicle should also be taken into account. Thus, for example, an intersection where all movements are operating at a level of service A, except one which is at level of service E, may not necessarily define the intersection level of service as E if that movement is very small. That is, longer delays to a small number of vehicles may not justify upgrading an intersection unless a safety issue was also involved.

2.17 The SIDRA analysis found that the unsignalised intersections of Yalwal Road with Albatross Road and George Evans Road, and the roundabout controlled intersection of George Evans Road with the university access, operate with average delays for all movements of less than 15 seconds per vehicle during the morning and afternoon peak periods. This represents level of service A/B, a good level of service.

Public Transport

2.18 Local bus services are provided by Nowra Coaches. Buses currently use Yalwal Road and George Evans Road to service the university campus. Route 724 connects Bomaderry Railway Station with the town centre, university campus and other services and facilities in Nowra. Three services are provided on weekday mornings.

2.19 The structure plan identifies opportunities to extend bus services into the Mundamia development area.

3. IMPLICATIONS OF PROPOSED DEVELOPMENT

3.1 It is proposed to develop a residential subdivision comprising 312 residential lots plus one rural lot in part of the Mundamia area. Vehicular access is proposed to be provided from George Evans Road, which would be realigned and extended north. A layout of the proposed subdivision is shown in Figure 5.

3.2 Parking will be provided in accordance with Council's requirements and be finalised at the time of applications for individual dwellings. This chapter examines the implications of the proposed subdivision through the following sections:

- ❑ public transport;
- ❑ access and internal layout;
- ❑ traffic generation and effects;
- ❑ Director – General's requirements; and
- ❑ summary.

Public Transport

3.3 As previously discussed in Chapter 2, buses currently use Yalwal Road and George Evans Road to service the university campus. The structure plan identifies opportunities to extend bus services into the Mundamia development area.

3.4 The collector road within the new development will be provided to accommodate buses. The site will therefore be accessible by future bus services through the area.

3.5 The proposed subdivision, with its increase in residential population, will strengthen demand for public transport services.
