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120 MONA VALE ROAD, W ARRIEW OOD

Traffic Report

For:
PLANET WARRIEWOOD P/L
4 VUKO PLACE. WARRIWOOD 2102

January2006

2005136
ReportNo.2005136

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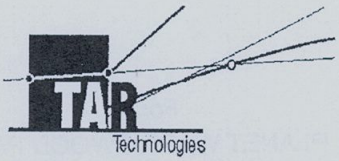

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Chapter1

INTRODUCTION

TAR Technologies Pty Ltd (TAR) has been commissioned by Planet Warriewood P/L to undertake a Traffic Study assessing the impacts of providing approximately 104 lots for single dwellings over approximately 8.33 hectares on vacant Non-Urban 1(a) zoned.

The traffic report has been prepared with reference to generations contained within the Road sand Traffic Authority's (RTA's) *Guide to Traffic Generating Developments.*

Chapter 2

SITE LOCATION

The site is triangular in shape and bounded to the north by Mona Vale Road, to the east by Boundary Street and to the west by Narrabeen Creek bushland. The site area comprises approximately 8.33 hectares and falls steeply to the east to Boundary Street. Boundary Street is currently closed at Mona Vale Road with vehicular access to the property available from Jubilee Avenue and thence via Jubilee Lane, a common access way also shared by a Church.

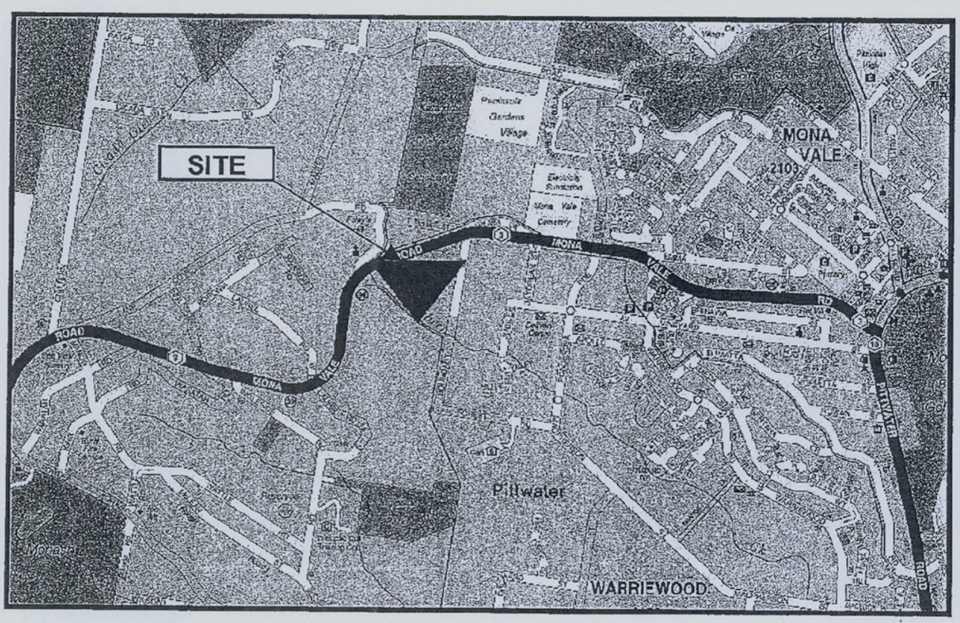

Figure 2.1 Site Location

The site in relation to the surrounding area is shown in *Figure 2.1.* The site has frontage to Mona Vale, which provides a major link to the city and westwards to Parramatta. Jubilee Avenue itself connects to Ponderosa Parade linking Mona Vale Road and Pittwater Road via Vineyard Street and MacPherson Street.

Chapter 3

EXISTING CONDITIONS

3.1 ROAD NETWORK

The local traffic routes that would be used by the site are:

- Mona Vale Road;
- Pittwater Road;
- Ponderosa Parade;
- Jubilee Avenue;
- Vineyard Street;
- Boundary Road;
- MacPherson Street; and
- Jubilee Lane.

These routes are described in detail below:

Mona Vale Road and Pittwater Road are major arterial roads linking, respectively, with the western areas of Sydney and with suburbs to the north and south along the beaches.

Ponderosa Parade, Jubilee Avenue, Vineyard Street and MacPherson Street are local roads that service a light Industrial Area near the site. Road widths vary from 13.2 metres wide in Ponderosa Avenue to 11.5 metres in wide in Jubilee Avenue.

Jubilee Lane is a 6 metre wide road that serves Pittwater Uniting Church and pre-school, and a Sports and Recreation Centre. The lane has 90 degree angle parking and connects to Boundary Road. Jubilee Lane has a 10km/h speed limit which is self-enforcing with a number of speed humps.

Boundary Road runs north-south and currently meets Jubilee Lane at right angles. The road is undulating and narrow with no connection to Mona Vale Road and providing access to a single dwelling to the south.

3.2 EXISTING TRAFFIC NETWORK OPERATION

Intersection turning movement surveys were undertaken at the intersection of Ponderosa Parade and Jubilee Avenue. The surveys were carried out between 8:00 - 9:30 am and 2:30 - 5:30 pm on Thursday, 1st December, 2005. The survey results indicate that the highest peak hour volumes occur in the mornings between 8:15 - 9:15 am, and in the afternoon between 3:00 - 4:00 pm. These time periods have been adopted in the assessment as the AM and PM peak hour periods.

3.3 MID-BLOCK PERFORMANCE

Mid-block flows for the four approach legs of the Ponderosa Parade and Jubilee Avenue intersection have been calculated from the survey data collected for the AM and PM peak hour periods.

The existing mid-block performance of Jubilee Avenue and Jubilee Lane, traffic routes on the direct approach to the development site, has been assessed by comparing existing traffic volumes with the environmental capacity of the road carriageway. Environmental capacity (EC) has been adopted by both the RTA (1993) and DUAP (1992) for density and land use planning on minor roads. It is not related to the physical capacity of the road network, but is a measure of the volume of traffic that a local or collector road can carry before residential amenity and pedestrian safety start to be significantly reduced.

The EC of a street is a function of its road geometry, speed, frontage land use, road surface, and building setbacks. The RTA provides general guidelines for appropriate traffic volumes (Guide to Traffic Generating Developments, 1993), and these are widely used in the analysis of traffic impacts. More specific values of EC can be determined when the individual characteristics of a road are known. The parameters to calculate environmental capacity are listed in the RTA's Guide to Traffic Generating Developments under:

- Traffic characteristics;
- Road characteristics; and
- Locality characteristics.

The work of Song (1993) can be used to assess the environmental capacity of an individual road. Song's method considers variations in road width, pedestrian safety and delay, and traffic noise. It incorporates the factors affecting environmental capacity described in the RTA guidelines.

Once the EC of a street has been calculated, it is possible to assess the level of traffic overload which may exist, expressed as an Environmental Deficiency Index (EDI), by consideration of the actual traffic flow on the street. The EDI is the ratio of actual traffic volume to EC.

Where the EDI value is less than 1.0, it may be considered that no environmental detriment due to traffic volume exists. Where the EDI equals or exceeds 1.0, environmental degradation is occurring.

Roads near the site that provide direct access to local properties include Jubilee Avenue and Jubilee Lane. The peak hour flows recorded in December 2005, the environmental capacities and their ratios are summarised in *Table 3.1*. The results show that the existing volumes are well below the roads' environmental capacities and below the levels where community dissatisfaction should begin to develop.

Table 3.1 ENVIRONMENTAL CAPACITY - EXISTING SITUATION

Street	Peak traffic flow (vehicles per hour)	Environmental capacity (vehicles per hour)	EC ratio
Jubilee Avenue (West of Ponderosa)	283	409	0.69
Jubilee Avenue (East of Ponderosa)	289	367	0.79
Jubilee Lane	103	320[1]	0.32

Notes: 1. Assumes 50/50 distribution and one parking hindrance.

3.4 INTERSECTION PERFORMANCE

In addition to the mid-block performance assessment described in the preceding section, the operation of the Jubilee Avenue and Ponderosa Parade intersection has been assessed based on physical capacity considerations, using the aaSIDRA (or SIDRA) junction modelling program. The program reports on the performance of the junction in terms of the average delay and level of service (LOS), for each individual junction movement.

The LOS reported by SIDRA is related to the average delay, measured in seconds/vehicle (sec/veh) experienced by vehicles waiting to perform a movement. *Table 3.2* sets out the criteria.

Table 3.2 INTERSECTION LEVEL OF SERVICE CRITERIA

LOS	Average delay (secs/veh)	Traffic signals, roundabout	Give way and stop signs
A	Less than 14	Good.	Good.
B	15 to 28	Good, with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
C	29 to 42	Satisfactory.	Satisfactory, but accident study required.
D	43 to 56	Satisfactory, but operating near capacity.	Near capacity and accident study required.
E	57 to 70	At capacity and incidents will cause excessive delays; roundabouts require other control mode.	At capacity and requires other control mode.
F	Greater than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode.

Adapted from RTA Guide to Traffic Generating Developments, 1993

3.5 JUBILEE AVENUE AND PONDEROSA PARADE

As noted previously, Ponderosa Parade provides a connection to two arterial roads, namely Mona Vale Road and Pittwater Road. The traffic surveys undertaken at this location indicate that the junction currently provides for a mix of light industrial and residential traffic controlled by a single lane roundabout. The results of the SIDRA analysis are contained in *Table 3.3.*

Table 3.3 PONDEROSA PARADE AND JUBILEE AVENUE - EXISTING SITUATION

Approach	AM		PM	
	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
Ponderosa Pde (South)	8.1	A	8.0	A
Jubilee Ave (East)	10.8	A	10.0	A
Ponderosa Pde (North)	8.0	A	8.3	A
Jubilee Ave (West)	10.2	A	10.8	A
Intersection	10.8	A	10.8	A

The results for peak hours show that all approaches of the roundabout operate at a "GOOD" level of service with only minor delays currently being experienced.

Chapter 4

DESCRIPTION OF PROPOSAL

4.1 GENERAL

120 Mona Vale Road is triangular in shape covering approximately 8.33 hectares with existing vehicular access to the property from Mona Vale Road. However, the retention of this access is unsuitable due to the available road width and grades along Mona Vale Road adjacent to the subject property. It is proposed to have access only from Boundary Street via Jubilee Lane. The site is currently zoned Non-Urban 1(a) under Pittwater Local Environmental Plan 1993.

This report has been prepared in respect of a proposal, which seeks to rezone the land for residential purposes.

Access is envisaged to be at Boundary Street where it intersects with Jubilee Lane. This access lane would cater exclusively for residential traffic and not include commercial vehicles. Parking would be contained within the site.

4.2 TRIP GENERATION AND DISTRIBUTION

Based on the RTA Guide to Traffic Generating Developments (1993) the potential traffic generation of a development comprising approximately 104 lots generating an estimated 89 trips per weekday peak hour, based on 0.85 trips per dwelling.

Traffic generation associated with the rezoning to allow 104 lots has been based on the assumption that 100% of all trips leaving the site in the morning would travel along Jubilee Lane and then to Jubilee Ave in an easterly direction and 100% of all trips in the afternoon would travel in a westerly direction.

There may be occasions where a small proportion of trips would travel against the peak direction however, for the purposes of the assessment, the worst case scenario has been assumed, i.e. 100%.

Based on existing traffic patterns the forecast 89 trips would be distributed as follows:

- 28% to the north along Ponderosa Parade;
- 22% to Jubilee Avenue (East); and

- 50% to Ponderosa Parade (South).

It is expected that traffic leaving and entering the site would generally occur in the morning peak of 7:00 - 8:00 am to allow commuters sufficient time to arrive at their destination before 9:00 am. Similarly the afternoon arrival time to the site would occur between 6:00 - 7:00pm.

Consequently these times are generally outside the existing activities of the pre-school which operates between 9:00 am - 3:00 pm, Monday - Friday, and the activities of the Sport and Recreation Centre and Church.

4.3 IMPACTS OF THE DEVELOPMENT ON THE EXISTING ROAD NETWORK

To assess the Environmental Capacity of the local street network near the site, the additional traffic generated by the site has been added to the existing traffic volumes. The results of the assessment are contained in *Table 4.1*

Table 4.1 ENVIRONMENTAL CAPACITY - FUTURE SITUATION

Street	Peak traffic flow (vehicles per hour)	Environmental capacity (vehicles per hour)	EC ratio
Jubilee Avenue (West)	372	409	0.91
Jubilee Avenue (East)	309	367	0.84
Jubilee Lane	192	320[1]	0.60

Notes: 1. Assumes 50/50 distribution and one parking hindrance.

The table shows the additional traffic by the proposed redevelopment of the site would not have a detrimental effect on road safety and amenity in Jubilee Avenue and Jubilee Lane. The forecast volumes remain below the roads' environmental capacity.

4.4 INTERSECTION PERFORMANCE

To assess the future operation of the roundabout at Ponderosa Parade and Jubilee Avenue the SIDRA model has been re-run incorporating the additional traffic generated by the development. The results of the analysis are contained in *Table 4.2*

Table 4.2 PONDEROSA PARADE AND JUBILEE AVENUE - FUTURE SITUATION

Approach	AM		PM	
	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
Ponderosa Pde (South)	8.1	A	8.4	A
Jubilee Ave (East)	11.2	A	10.1	A
Ponderosa Pde (North)	8.4	A	8.5	A
Jubilee Ave (West)	10.3	A	10.8	A
Intersection	11.2	A	10.8	A

The results of the assessment show that the Level of Service for all movements at the intersection remains unchanged, and that average delays have increased marginally for the morning and are constant for the afternoon.

The intersection of Ponderosa Parade and Jubilee Avenue is the closest intersection to the site and is not expected to experience any significant effect from the development. As this intersection was assessed to experience marginal impacts it can be expected that other sites further away would have even lower impacts.

Chapter 5

CONCLUSIONS

This traffic study has examined the impacts of rezoning 120 Mona Vale Road from Non-Urban (1A) to Residential. The assessment has been carried out in accordance with generations contained within the RTA's Guide to Traffic Generating Developments. The findings of the study are summarised below:

- The proposal includes the development of up to 104 single dwelling residential allotments, with access at Boundary Road and Jubilee Lane.
- The expected additional traffic generated by the proposal is 89 trips per hour during the morning and afternoon commuter peak periods.
- The impact of traffic generated by the development on the surrounding road network has been assessed for the AM and PM peak hour periods. The results indicate the additional traffic will have a negligible impact on the existing operation of Ponderosa Parade and Jubilee Avenue.
- The site is to use a shared access way, Jubilee Lane, which currently serves Pittwater Uniting Church and associated activities that would operate outside of the main travel time from a residential estate.
- The environmental capacity, which is a measure of road safety and amenity, has been considered in the study for Jubilee Lane and Jubilee Avenue. The results show that future traffic volumes are within the roads' environmental capacity, which is acceptable.

In summary, there are no significant traffic issues that could preclude the change of the site to residential.