



**TRAFFIC MANAGEMENT & SAFETY CONSULTANTS**

10 Haig Street Belmont NSW 2280  
PH. (02) 4945 5688  
Fax (02) 4945 5686  
Mob. 0418 419 190  
E-mail: [tp.keating@hunterlink.net.au](mailto:tp.keating@hunterlink.net.au)

## **RESPONSE REPORT**

### **PROPOSED RESIDENTIAL SUBDIVISION**

**LOT 100, DP 1101027**

**LAKE ROAD, PORT MACQUARIE**

November 2010

Hopkins Consulting Pty Ltd  
(For The Applicant)

Port Macquarie Hastings Council Local Government Area

Prepared by  
Terry Keating  
Director  
TPK & Associates Pty Ltd

# PROPOSED RESIDENTIAL SUBDIVISION

## RESPONSE REPORT

### The Project

TPK & Associates Pty Ltd (TPK) was invited by Hopkins Consulting Pty Ltd (for The Applicant) to join their project team to provide traffic assessment services for the subject project; the project is a proposed residential subdivision at:

**Lot 100, DP1101027 Lake Road, Port Macquarie**

TPK prepared the traffic assessment report and the project has now been considered by the Joint Regional Panel who has commented.

### The Matters for Response

The Joint Regional Panel (JRP) review of the subject project raised matters for consideration; Hopkins Consulting Pty Ltd have requested TPK respond to the following traffic related matters: -

- Consider a second access to the subdivision to the west of Banksia Ave.
- Reconsider the road environment at Lake Road & Banksia Ave intersection.

### TPK Representative

Mr. Terry Keating, Director TPK, undertook the evaluation, preparation of the Traffic Assessment Report and this Response Report. He has over 40 years experience in the road safety and traffic management profession, including the assessment of traffic generating developments.

### Key Report Details from the submitted TPK Traffic Assessment Report, April 2010

Selected text and tables have been included from the original report for reference.

Table 1 set's out the proposed land use.

TABLE 1 – PROJECT LAND USE DETAILS

LAND USE TYPE	DETAILS
Residential Subdivision	55 Lots

Table 2 sets out the typical traffic generation rates for Residential land use.

TABLE 2 – POTENTIAL TRAFFIC GENERATION

USE (See Table 1)	RTA TYPICAL TRIP RATES
Residential	9 trips per dwelling per day 0.85 trips per dwelling in the typical peak hour

The traffic generations were distributed based on the existing traffic distributions at the Lake Road intersections of Banksia Avenue and Pappinbarra Parade. The typical am and pm peak hours at that intersection were surveyed in March 2010; Figures 2 & 3 provide the results of those surveys

FIGURE 2 – EXISTING AM PEAK HOUR 2010

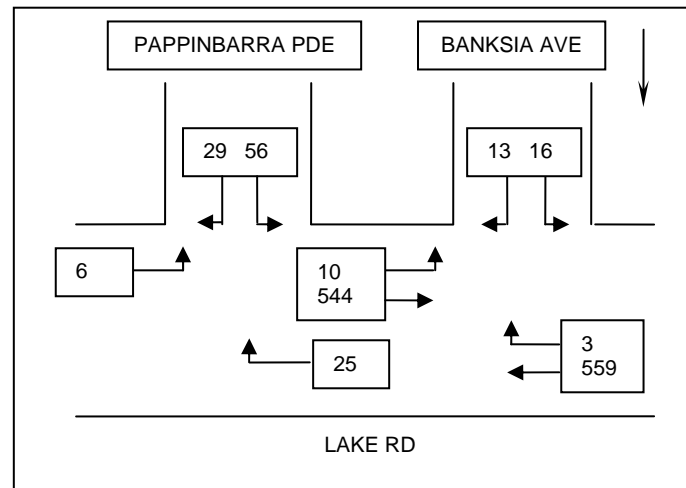
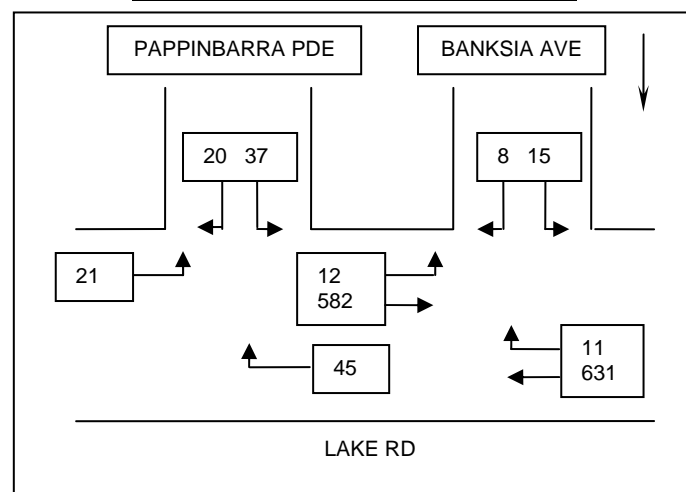


FIGURE 3 – EXISTING PM PEAK HOUR 2010



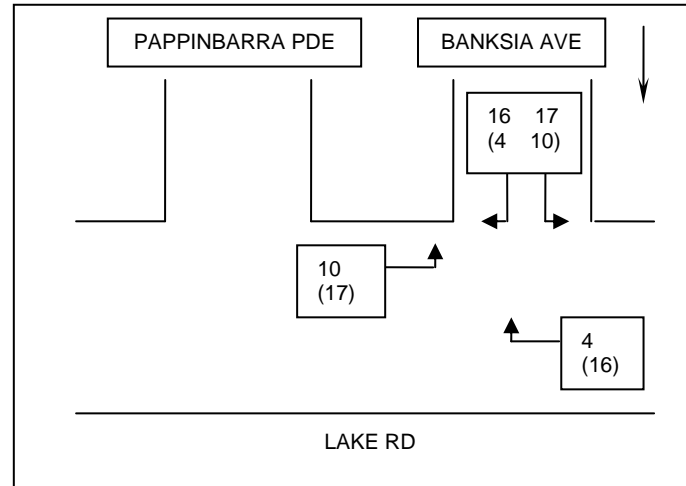
The 47 peak hour trips are distributed at the Lake Road & Banksia Avenue intersection as:

- 70% in the peak direction in the am peak; 50% split in the pm peak
- Outbound flows split 50% in the am peak; inbound split 50% in the pm peak

**There is potential for these trips to use other existing access points to Lake Road; the submitted traffic assessment adopted all trips along Banksia Avenue to ensure maximum case scenario was modelled.**

Figure 4 summaries that distribution.

FIGURE 4 – DISTRIBUTION OF POTENTIAL TRAFFIC GENERATION PEAK HOUR – PM IN BRACKETS



For intersection performance TPK utilised the intersection-modelling program SIDRA.

The SIDRA model used for this analysis was Version 3.2; the range for LoS Average Delay in the latest SIDRA Version 4 has adopted the RTA Guide to Traffic Generating Developments Table 4.2 show below.

Level of service criteria for intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode

A range of SIDRA Movement Summaries, each titled for the scenario modelled were provided as Tables 4 to 8.

**Table 4 – Movement Summary**

LAKE ROAD & BANKSIA AVENUE, PORT MACQUARIE – AM PEAK – EXISTING TRAFFIC 2010

Give-way

<u>Vehicle Movements</u>										
Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
BANKSIA AVE										
1	L	17	5.6	0.029	11.8	LOS B	1	0.52	0.75	45.3
3	R	14	6.7	0.139	41.5	LOS E	4	0.89	0.97	27.9
Approach		33	6.1	0.139	25.3	LOS D	4	0.69	0.85	35.3
LAKE ROAD										
4	L	11	9.1	0.006	8.2	LOS A	0	0.00	0.67	49.0
5	T	573	1.0	0.296	0.0	LOS A	0	0.00	0.00	60.0
Approach		584	1.2	0.296	0.2	LOS A		0.00	0.01	59.7
LAKE ROAD										
11	T	588	1.0	0.304	0.0	LOS A	0	0.00	0.00	60.0
12	R	3	25.0	0.007	12.3	LOS B	0	0.55	0.70	44.8
Approach		593	1.2	0.304	0.1	LOS A	0	0.00	0.00	59.9
All Vehicles		1210	1.3	0.304	0.8	Not Applicable	4	0.02	0.03	58.7

**Table 5 – Movement Summary**

LAKE ROAD & BANKSIA AVENUE, PORT MACQUARIE – AM PEAK, EXISTING TRAFFIC 2010 WITH DA ADDED

Give-way

<u>Vehicle Movements</u>										
Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
BANKSIA AVE										
1	L	35	2.9	0.057	11.9	LOS B	2	0.52	0.78	45.2
3	R	31	3.2	0.279	45.4	LOS E	8	0.91	1.00	26.6
Approach		66	3.0	0.278	27.7	LOS D	8	0.70	0.88	34.0
LAKE ROAD										
4	L	21	4.5	0.012	8.2	LOS A	0	0.00	0.67	49.0
5	T	573	1.0	0.296	0.0	LOS A	0	0.00	0.00	60.0
Approach		595	1.2	0.296	0.3	LOS A		0.00	0.02	59.5
LAKE ROAD										
11	T	588	1.0	0.304	0.0	LOS A	0	0.00	0.00	60.0
12	R	7	12.5	0.012	11.5	LOS B	0	0.53	0.70	45.5
Approach		597	1.2	0.304	0.2	LOS A	0	0.01	0.01	59.7
All Vehicles		1258	1.3	0.304	1.7	Not Applicable	8	0.04	0.06	57.4

**Table 6 – Movement Summary**

LAKE ROAD & BANKSIA AVENUE, PORT MACQUARIE – PM PEAK, EXISTING TRAFFIC 2010

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued Eff.	Stop Rate	Aver Speed (km/h)
BANKSIA AVE										
1	L	16	5.9	0.030	12.2	LOS B	1	0.53	0.76	44.9
3	R	8	11.1	0.129	59.1	LOS F	4	0.93	0.98	22.8
Approach		26	7.7	0.129	28.5	LOS D	4	0.67	0.84	33.6
LAKE ROAD										
4	L	13	7.1	0.008	8.2	LOS A	0	0.00	0.67	49.0
5	T	613	1.0	0.316	0.0	LOS A	0	0.00	0.00	60.0
Approach		627	1.1	0.316	0.2	LOS A		0.00	0.01	59.7
LAKE ROAD										
11	T	664	1.1	0.343	0.0	LOS A	0	0.00	0.00	60.0
12	R	12	8.3	0.017	11.5	LOS B	1	0.54	0.72	45.5
Approach		677	1.2	0.343	0.2	LOS A	1	0.01	0.01	59.7
All Vehicles		1330	1.3	0.343	0.7	Not Applicable	4	0.02	0.03	58.8

**Table 7 – Movement Summary**

LAKE ROAD & BANKSIA AVENUE, PORT MACQUARIE – PM PEAK, EXISTING TRAFFIC 2010 WITH DA TRAFFIC ADDED

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued Eff.	Stop Rate	Aver Speed (km/h)
BANKSIA AVE										
1	L	26	3.7	0.047	12.3	LOS B	1	0.54	0.79	44.8
3	R	13	7.1	0.187	58.1	LOS F	5	0.93	0.99	23.0
Approach		41	4.9	0.186	28.0	LOS D	5	0.67	0.86	33.9
LAKE ROAD										
4	L	31	3.2	0.017	8.2	LOS A	0	0.00	0.67	49.0
5	T	613	1.0	0.316	0.0	LOS A	0	0.00	0.00	60.0
Approach		644	1.1	0.316	0.4	LOS A		0.00	0.03	59.4
LAKE ROAD										
11	T	664	1.1	0.343	0.0	LOS A	0	0.00	0.00	60.0
12	R	28	3.4	0.040	11.5	LOS B	1	0.54	0.76	45.6
Approach		694	1.2	0.343	0.5	LOS A	1	0.02	0.03	59.2
All Vehicles		1379	1.2	0.343	1.3	Not Applicable	5	0.03	0.06	58.0

**Table 8 – Movement Summary**

LAKE ROAD & BANKSIA AVENUE, PORT MACQUARIE – PM PEAK, EXISTING TRAFFIC 2010, DA TRAFFIC ADDED PLUS 0.5% GROWTH FOR 10 YEARS

Give-way

<u>Vehicle Movements</u>										
Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
<b>BANKSIA AVE</b>										
1	L	28	3.6	0.050	12.7	LOS B	2	0.55	0.80	44.5
3	R	13	7.1	0.219	68.2	LOS F	6	0.94	0.99	20.8
Approach		42	4.8	0.217	31.2	LOS D	6	0.68	0.87	32.3
<b>LAKE ROAD</b>										
4	L	32	3.0	0.018	8.2	LOS A	0	0.00	0.67	49.0
5	T	643	0.9	0.332	0.0	LOS A	0	0.00	0.00	60.0
Approach		676	1.0	0.332	0.4	LOS A		0.00	0.03	59.3
<b>LAKE ROAD</b>										
11	T	697	1.0	0.360	0.0	LOS A	0	0.00	0.00	60.0
12	R	30	3.2	0.045	11.8	LOS B	2	0.55	0.77	45.3
Approach		728	1.1	0.360	0.5	LOS A	2	0.02	0.03	59.2
All Vehicles		1446	1.2	0.360	1.3	Not Applicable	6	0.03	0.06	57.9

### Response to Matters Raised by JRP

#### A Second Access to the Subdivision

The JRP have recommended consideration of a second access off Lake Road for the subdivision; the location recommended is a connection to an existing intersection onto Lake Road just east of Ocean Drive; Ocean Drive & Lake Road is a major traffic signal controlled intersection.

The current intersection (side road) provides access to land use that generates very low traffic volumes and the side road is not an integrated part of the local road network.

TPK submit that any increase in traffic conflict close to a major signalised intersection has the potential to increase accident rates. Driver expectation close to significant intersections does not normally embrace conflicting traffic movements in close proximity to that major intersection; they are more focused to the traffic signal control display and/or associate queues on red.

TPK has considered the option in terms of potential gains to intersection or route capacity but found no reason to support the second access on those grounds.

In general TPK would see a philosophy of minimising the number of intersections on arterial routes, such as Lake Road as a traffic planning objective rather than increasing the number of “active” intersections.

TPK in consideration of this project assessed the cul-de-sac and contained nature of the layout but concluded that due to the number of lots, the lack of potential for expansion and the fact that the Banksia Ave connection section back to Farrah Parade intersection has virtually no other traffic demands then due to the adequate existing road reserve including the footways the one access to the estate for emergency vehicles was adequate.

#### Lake Road & Banksia Ave

Lake Road is an arterial route within Council's road network; no doubt Council monitor's growth on their major road network routes and appropriate forward planning is implemented.

Lake Road currently manages through traffic flows in the peak periods around the 600vph in each direction; traffic flow at this level will impact on the Level of Service and Average Delay for side streets.

The SIDRA analysis submitted confirmed and is reaffirmed in this report:

1. The traffic generations from the new estate will have virtually no impact on the current intersection performance of Lake Road and Banksia Avenue; average delay change was minimal between existing and when the DA traffic was added.
2. The critical movement in terms of delay is the right turn from Banksia Avenue; average delay is indicated as less than 50 seconds in the am peak and less than 60 seconds in the pm peak. In real terms this length of delay is not regular on site due to the platooning of Lake Road TPK submitted above should be acknowledged.
3. The change to delay for the scenarios with or without the DA Traffic Added is so minimal it could not be termed an adverse impact.
4. TPK did undertake a Design Life analysis on the Table 7 output; TPK imposed 0.5% growth over 10 years. Table 8 confirms that even at such a small growth rate side street delay will continue to increase.

In further support TPK also submitted there were relevant points to acknowledge:

- Peak observations show that each direction of flow in Lake Road regularly platoons; platoons are created by downstream intersection controls in either direction from the subject location. Side Street and turning traffic took full advantage of the regular gaps created by the platooning; unacceptable delay in Banksia Avenue was very occasional.
- Council recently advised the project team that the intersection did not have an adverse accident history; a poor accident rate could be a window to side street delay/frustration.

These points are still submitted to be relevant.



TPK reaffirms the position that the proposed residential subdivision traffic generation in itself is not significant to road network performance. In assessing the potential impact what the analysis and peak observations have disclosed is that Lake Road has significant one lane flows in either direction in the peak periods and that side streets under basic Give Way (non-priority) control experience delay approaching unacceptable levels.

The delay is not unique to Banksia Avenue as there are many other Give Way controlled approaches along Lake Road. What TPK suggested was for Council to implement a strategic review of the busier section of Lake Road (or the entire route) to progress development of a master plan for the route that identifies intersections for traffic management upgrade and intersections where traffic movement will be restricted.

In further consideration of this side street traffic of Banksia Avenue two additional points can be considered:

- A. To encourage traffic to maximise the position they stand to exit Banksia Avenue and to enhance control of turn paths consideration could be given to provision of a central median in the Banksia Avenue approach to Lake Road.
- B. Whilst sight lines were considered acceptable at the intersection no doubt undergrowth/trees on the south-west corner of the intersection require continued maintenance by the relevant authority/owner to maximise sight lines to the west.
- C. There was a parking demand noted during observations on Lake Road, south side west of Banksia Avenue. This has some impact again on sight lines from Banksia Avenue; Council may wish to consider introduction of No Stopping over some section to again maximise sight lines.

#### Summation

TPK has reviewed the project and submits:

- TPK did not find justification to support a second access at the location recommended by the JRP.
- TPK would support the additional considerations listed above for the Lake Road & Banksia Avenue intersection if agreed to by Council.

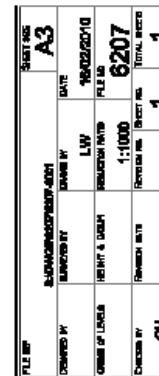
Prepared by

*T Keating*

Mr. T Keating  
Director, TPK & Associates

# **APPENDIX A**

## **SITE LAYOUT PLAN**



**PLAN OF PROPOSED SUBDIVISION  
OF LOT 100, DP 1101027**

**LAKE ROAD, PORT MACQUARIE**

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**HOPKINS CONSULTANTS**

1-800-368-6868 • 4750 West 12th Avenue • Suite 100 • Denver, CO 80202  
 Fax: 303-733-1111 • E-mail: [info@hewlett.com](mailto:info@hewlett.com)

**THE UNIVERSITY OF CHICAGO**

PO Box 84  
Port Macquarie  
NSW Australia 2444  
DX 7415

council@pmhc.nsw.gov.au  
www.pmhc.nsw.gov.au

ABN 11 236 901 601

6 December 2010

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BY: .....



PORT MACQUARIE  
HASTINGS

Our ref: 2010/336  
PN: 44433

Joint Regional Planning Panel  
GPO Box 3415  
SYDNEY NSW 2001

Dear Sir/Madam

**Demolition of Dwelling & 53 Lot Residential Subdivision - LOT: 100 DP: 1101027, 11 John Fraser Place PORT MACQUARIE**

Reference is made to the Panel's resolution of 9 November 2010 and additional information submitted by the applicant dated 24 November 2010.

In response to the additional information Council offers the following comments to each option addressed by the applicant.

Option 1

- Council is the landowner of Lot 103 DP 1115201. Landowners consent would be required for the use of the land as a means of secondary access. Part of Lot 103 DP 1115201 is also under a lease arrangement and currently used for the purpose of a landscape supplies centre. The impact and implications on this lease arrangement have not been investigated.
- Council concurs with TPKs response in that the current intersection (John Fraser Place & Lake Road) provides access to land uses that generate very low traffic volumes and the intersection is not an integrated part of the local road network. Any increase in traffic volume to this intersection, being so close to the major signalised intersection, has the potential to create driver confusion and result in increased accident rates.
- The road reserve and part of Lot 1 DP 120249 contain a substantial number of infrastructure services including sewer and water mains. Depending on the extent of works required to construct the secondary access some of these services may need to be relocated. The extent and impact would need to be further investigated.

Options 2 & 3

- Landowners consent would be required from Council for the use of the land as a means of secondary access.
- Part Lot 1 DP 120249 (as identified on that attached map) is a replacement planting area established under the 'Port Macquarie Link Road Koala Plan of Management' 2002. This option is inconsistent with the adopted KPOM.
- This option would require the removal of additional vegetation within the road reserve. A revised SEPP 44 – Koala Habitat Assessment would be required to

determine the potential impact of additional tree removal.

- The road reserve and part of Lot 1 DP 120249 contain a substantial number of infrastructure services including sewer and water mains. Depending on the extent of works required to construct the secondary access some of these services may need to be relocated. The extent and impact would need to be further investigated.
- Council concurs with TPKs response in that the current intersection (John Fraser Place & Lake Road) provides access to land uses that generate very low traffic volumes and the intersection is not an integrated part of the local road network. Any increase in traffic volume to this intersection, being so close to the major signalised intersection, has the potential to create driver confusion and result in increased accident rates.

#### Option 4

- Landowners consent would be required from Council for the use of the land as a means of secondary access.
- Part Lot 1 DP 120249 (as identified on that attached map) is a replacement planting area established under the 'Port Macquarie Link Road Koala Plan of Management' 2002. This option is inconsistent with the adopted KPOM.
- This option would require the removal of additional vegetation within the road reserve. A revised SEPP 44 – Koala Habitat Assessment would be required to determine the potential impact of additional tree removal.
- The road reserve and part of Lot 1 DP 120249 contain a substantial number of infrastructure services including sewer and water mains. Depending on the extent of works required to construct the secondary access some of these services may need to be relocated. The extent and impact would need to be further investigated.
- This option would result in an additional formal intersection directly onto Lake Road. Council is not supportive of an additional intersection onto Lake Road.
- There is potential conflict with traffic movements from driveways opposite Lake Road.

#### Option 5

- This option would result in an additional formal intersection directly onto Lake Road. Council is not supportive of an additional intersection onto Lake Road.
- There is potential conflict with traffic movements from driveways opposite Lake Road.

Council is of the opinion that the additional information submitted does not find justification for a second access at any of the locations examined. The original findings and additional information submitted by TPK are acknowledged and accepted by Council. Furthermore Council would be supportive of the additional measures as suggested by TPK in addressing concerns at the Banksia Avenue intersection.

Should you require further information please do not hesitate to contact Ben Roberts on telephone number 6581 8111 or by e-mail on [Ben.Roberts@pmhc.nsw.gov.au](mailto:Ben.Roberts@pmhc.nsw.gov.au).

Yours sincerely

A handwritten signature in black ink, appearing to read 'Ben Roberts', written in a cursive style.

Ben Roberts  
Development Assessment Officer



