Traffic Report

South West Appin Rezoning

27 April 2007

Prepared for

Walker Corporation Pty Ltd

Suite 20/809 Pacific Highway
Chatswood NSW 2067
(t) 02 9410 4100 **(f)** 02 9410 4199
(e) info@mwttraffic.com.au
(w) www.mwttraffic.com.au

MASSON | WILSON | TWINEY

TRAFFIC AND TRANSPORT CONSULTANTS

Document:
Title: South West Appin Rezoning
File Name: 052810r05 South West Appin Rezoning.doc

Client:
Walker Corporation Pty Ltd

Issue Date:
27 April 2007

Authorised by:
Bruce Masson

Disclaimer
The information contained in this document produced by Masson Wilson Twiney Pty Limited is solely for the use of Walker Corporation Pty Ltd for the purpose for which it has been prepared and Masson Wilson Twiney Pty Ltd undertakes no duty to or accepts any responsibility to any third party who may rely upon this document.

Contents

1. Introduction

Masson Wilson Twiney Pty Limited has been commissioned by Walker Corporation to study the traffic and transport implications of rezoning of a parcel of land in south western Appin from rural to residential uses. The land has the capacity to provide about 342 residential lots.

This study report is presented through the following chapters:-

- Chapter 2 - Provides background information
- Chapter 3 - Describes land and local road systems
- Chapter 4 - Describes the traffic and transport implications of rezoning

Previous reports carried out by MWT for land to the north will be referred to within this report.

2. Background

The location of Appin Township is shown in Figure 1. The Walker Corporation land which is the subject of the current rezoning application is shown in Figure 2.

The subject site is located on the western side of Appin Road providing a southern extension to the existing township.

Analysis of the transport effects of development of existing urban zoned land in Appin along with possible development to be rezoned was conducted on behalf of Walker Corporation by Dobinson and Associates in conjunction with Masson Wilson Twiney in 2006[1]. This found that with rezoning, the population of Appin would potentially increase to 4560 persons by 2015.

Quantitative analysis in the report found that the existing Appin road network would be able to accommodate the traffic associated with the rezoning subject to appropriate new connections being made to Appin Road, some road capacity increases through the Town Centre being achieved through kerbside parking restrictions until the proposed Bypass was in place and the intersection of Macquariedale Road with Appin Road being signalised.

Traffic volumes on Appin Road were found to increase over time with such development but would remain within its operational capacity with the improvements indicated. In due course when the Appin Bypass is constructed (expected by 2016) through traffic would largely be removed from Appin Road through the Township, permitting Appin Road to become a local collector street.

---

[1] Proposed Expansion of Residential Development of Appin Lots 101 and 102 DP 1093066, Lot D DP 1602904 Assessment of Traffic and Transport Implications. Report for Walker Corporation Pty Ltd by Dobinson and Associates Pty Ltd in association with Masson Wilson Twiney June 2006.

3. Proposed Rezoning

3.1 Land Use

Wollondilly Council has recently rezoned Walker Corporation land in North Appin. This land is the subject of a development application proposing 345 residential lots. The subject application seeks to rezone land in eastern and southern Appin to the east of an RTA proposed western bypass of Appin to allow around 342 residential lots (see Figure 2).

The subject land comprises three sections as follows

- Northern section with potential for about 38 lots. This would form a southern extension of the North Appin rezoned land as it would be cut off from the southern section of land to be rezoned by the Appin Showground.
- Central section. This is located between Appin Showground and Macquariedale Road and would have the potential for about 112 lots.
- Southern section. This is located south of Macquariedale Road and would have the potential for about 192 residential lots.

3.2 Road Network

Appin Road links the township to Campbelltown and the F5 Freeway to Sydney. The Bulli Appin Road links Appin to the coast and Wollongong while Wilton Road provides access to the F5 Freeway and points south.

Appin, Bulli Appin and Wilton Roads are all classified State Roads. They are essentially two-lane, two-way roads with paved shoulders. Appin Road is near level and straight through the township and in 2004 carried 9,435 vehicles per day.

Appin Road is an arterial route with one lane and a hard shoulder in each direction. A speed limit of 90 kph is in effect north of the township and reduces to 50 kph in sections through the town and 40 kph in the school zones.

Macquariedale Rd and Rixon/Sportsground Rd are major local roads. Both are two lane, two way paved roads with no line markings. King St west of Appin Road is currently a one lane, two way, gravel cul-de-sac. These three main roads have

potential to provide access to the southern two sections. As indicated above, the northern section would be accessed through the already rezoned North Appin area when its road system was developed.

4. Implications of Rezoning

4.1 Existing Traffic Volumes

Previously for the 2006 investigation, turning movement counts were carried out from 7:00 to 9:00 in the morning and from 4:00 to 6:00 in the evening at the following intersections in Appin:

- Appin Road/Rixon Road; and
- Appin Road/Wilton Road/Church St.

The peak hours were determined to be 7:30-8:30 and 16:30-17:30.

Table 4.1 indicates traffic volumes at representative locations in the town.

Appin Road currently carries approximately 960 vehicles during the AM peak and 900 vehicles in the PM peak to the north of the town centre, and 920 and 890 vehicles respectively to the south of the town centre. For comparative purposes traffic flows on roads other than the probable main access roads are also shown in Table 3.1.

Table 1 indicates traffic volumes at representative locations in the turn.

Table 1 – Existing Two-way Peak Hourly Flows

Location	AM Peak	PM Peak
Appin Rd (North of Rixon Rd)	958	897
Rixon Rd (West of Appin Rd)	82	77
Appin Road (North of Church St)	917	888
Church St (East of Appin Rd)	839	765
Wilton Rd (South of Church St)	212	281
Macquariedale Rd* (West of Appin Rd)	80	75

* Estimated

The relatively low side street traffic volumes indicate that the majority of vehicle movements on Appin Road are through trips between Appin Road and Church Street/Bulli Appin Road i.e. they have an origin and destination outside of Appin. Therefore the majority of Appin traffic would utilise the proposed Appin Bypass when completed.

4.2 Future Traffic Volumes

The 2006 rezoning report by Dobinson and Associates and MWT estimated that with combined rezonings plus infill development of already zoned land there is the potential for about 1100 additional dwellings by 2016. Based on this Table 2 below was prepared to compare forecast future traffic flows for cases without (Future Base 2016) and with the proposed rezonings (Future 2016)

Table 2 – Future Two-way Peak Hourly Flows

	AM			PM		
	Future Base 2016(1)	Future 2016(2)	Change (1 to 2)	Future Base 2016(1)	Future 2016(2)	Change (1 to 2)
Appin Rd (North of Rixon Rd)	1257	1652	395	1196	1591	395
Rixon Rd (West of Appin Rd)	123	207	84	118	202	84
Appin Road (North of Church St)	1193	1304	111	1164	1275	111
Church St (East of Appin Rd)	1107	1181	74	1033	1107	74
Wilton Rd (South of Church St)	220	257	37	289	326	37
Macquariedale Rd* (West of Appin Rd)	104	432	328	99	394	295
Appin Rd (North of Proposed)	-	1740	-	-	1679	-

- Estimated

Notes: (1) Scenario 1 – Background Growth Only
(2) Scenario 2 – Scenario 1 plus traffic due to rezoned land

With the subject rezoning, Macquariedale Road would indicatively provide access for about 204 lots and King Street about 100 lots. This allows for an improved Macquariedale Road /Appin Road intersection. Additional traffic flows on these two roads at their intersection with Appin Rd would be 175 and 85 vehicles per hour respectively. Thus in total these roads would carry about 250 and 100 vehicles per hour respectively in peak periods. This estimate represents a reduction below the previous estimate for Macquariedale Road because it allows for some traffic to use King Street. This was not assumed in the 2006 study.

It is noted that there is potential for further land to be rezoned in the area to the south of the subject land. This land would most likely be served by a prolongation of Church Street to the west of Appin Road. The potential for and desirability of such occurring is the matter for future consideration when development of the land to the south of the subject site is assessed. In the previous assessment it was assumed that

this parcel of land would contribute traffic to Macquariedale Road but that is now not considered to be likely.

4.3 Implications for Intersections

Intersections of particular interest to this application are:

- Rixon Rd/Appin Rd
- Macquariedale Rd/Appin Rd
- King St/Appin Rd

The intersection of Appin Road and Rixon Road is controlled by a roundabout with one lane on each approach. The main traffic flows are north-south along Appin Road.

The intersections of Macquariedale Road and of King Street with Appin Road are unsignalised.

The operation of these three intersections were analysed using the SIDRA intersection analysis program. SIDRA determines the average delay encountered by vehicles, the degree of saturation of the intersection and the level of service. SIDRA provides analysis of the operation conditions which can be compared to the performance criteria set out in Table Table 3. Results of the analysis are set out in Table 4.

Table 3 - – Level of Service Criteria

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	less than 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
F	> 70	Extra capacity required	Extreme delay, traffic signals or other major treatment required

Adapted from RTA Guide to Traffic Generating Developments, 2002.

Results of the analysis for these junctions under current conditions are provided in Table 4.

Table 4 – Intersection Operations Future 2016 (with rezoning)

Intersection	Control	AM Peak		PM Peak	
		LOS	Delay (secs/veh)	LOS	Delay (secs/veh)
Appin Rd/ Rixon Rd	Roundabout	A	6.0	A	5.5
Appin Rd/ Wilton Rd	Unsignalised	B	15 (South Thru & Right)	A	13.9 (South Thru & Right)
Appin Rd/ Macquariedale Rd	Unsignalised	F	737.8 (West Left) 737.6 (West Right)	E	372.5 (West left) 372.3 (West Right)
Appin Rd/ Macquariedale Rd	Signalised(1)	C	30.7 (West Left) 30.9 (West Right)	B	23.4 (West Left) 23.7 (West Right)
Appin Rd/ King St	Unsignalised	A	4.4	A	4.0

(1) Scenario 1 – Background Growth Only

To cope with the increase in traffic volume resulting from future developments on the rezoned land it is expected that the Appin Rd/ Macquariedale Rd intersection will need to be signalised prior to the construction of the bypass. The need for this will need to be confirmed when a subdivision plan is prepared.

Otherwise the analysis indicates that these intersections work well during the AM and PM peaks with relatively minor delays.

4.4 Local Amenity Implications

With the proposed future development Rixon Road/Sportsground Parade and Macquariedale Road would operate as collector roads.

King Street and other new subdivision roads within the rezoned area would operate as local roads.

RTA guidelines indicate that collector and local roads operate with good residential amenity within the following limits:

Road	Environmental Goal	Environmental Limit
Local	200 veh/hr	300 veh/hr
Collector	300 veh/hr	500 veh/hr

All of the above roads would operate within their respective environmental limits. Thus satisfactory residential amenity would apply.

4.5 Public Transport

Bus Route 890, operated by Busways Campbelltown Pty Ltd, runs between Campbelltown and Wollongong through Appin. This links Appin to Wollongong Railway Station, shopping centre, beach and University and to Macquarie Square at Ambervale, Campbelltown shops and Campbelltown Railway Station. There are only three services on weekdays between Wollongong and Appin but 8-9 services between Appin and Campbelltown depending on direction. The services operate between about 6:30 a.m. and 6:320 p.m. At weekends, there are two services to Wollongong and three to Campbelltown. The bus service to Campbelltown is co-ordinated with trains at Campbelltown station which provides access to the Sydney suburban rail network.

The poor frequency of public transport services will need to be improved along with any increase in population caused by future developments. This is a matter that is addressed by the NSW Department of Transport.

In order to provide a bus service within close proximity to as many dwellings as possible it would be desirable that a bus service operate on the Rixon Road/ Sportsground Parade/Macquariedale Road collector road system.

4.6 Pedestrian and Cycle Connections

There are minimal pedestrian facilities currently in the area. None of Rixon Road, Macquariedale Road or King Street have footways. Only parts of Appin Road have footways. These are mainly on the western side. There are unsignalised crossings south of Church St and at the Rixon Rd Roundabout on Appin Road. There is also a signalised crossing at the towns only set of traffic lights at Market Street near the school. These facilities are adequate for able bodied pedestrians as there is room to walk on grassy areas where footways are not provided. This may however be an issue for elderly or less mobile persons and improved pedestrian facilities may be required in congruence with any future development.

There is no defined cycle route serving Appin Township or through the town but cyclists use the road shoulders on Appin Road for access to the town and local streets within the town.

Footpath and cycle connections will need to be addressed in a development application once the land was rezoned.

5. Summary and Conclusions

This report addresses transport implications of the proposed rezoning of land for residential purposes in South Appin. The land would have the potential to accommodate in the order of 342 dwellings.

This level of development on the subject site was included in assumptions for total potential development in Appin that was considered a previous transport assessment conducted in 2006. The assessment found that subject to some minor intersection improvements, the Appin road system would be able to accommodate all prospective development.

More localised traffic effects of the subject rezoning proposal have been found to be satisfactory in respect of intersection operation and of local residential amenity. However the following aspects will need to be addressed in a development application:

- Likely need for signalisation of the Macquariedale Road/Appin Road intersection;
- The form of control at the Macquariedale Road/Sportsground Parade intersection;
- Provision of cycle connections and footpaths;
- A possible bus route along Macquariedale Road/Sportsground Parade/ Rixon Road collector route.

Subject to consideration of these future matters at development application stage, rezoning of the subject land for residential purposes is supported from a transport planning perspective.