ORANGE PRIVATE HOSPITAL DEVELOPMENT
FOREST ROAD, ORANGE

Traffic and Parking Assessment Report

19th May 2017

Ref: 14016

Prepared by

Terraffic Pty Ltd
Traffic and Parking Consultants

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1. INTRODUCTION

This report has been prepared to accompany a Section 75W Application to modify MP08_0232; MP08_0233; and MP07_0072 for the Orange Private Hospital development on the site known as No.3403, Lot 1, DP549856, Forest Road, Orange (Figures 1 and 2).

The site is located on the western side of Forest Road opposite the Orange Base Hospital. It has a frontage of approximately 260m to Forest Road and has an area of approximately 6 hectares. The site was formerly used as an outdoor drive-in cinema, but has been unused for approximately 13 years.

This report will adopt the traffic and parking generation rates adopted in the Traffic and Parking Assessment prepared by Terraffic Pty Ltd for the approved development. This report was dated 22nd April 2014.

Approved Development

The current approval on the site (Major Project No.07_0072 MOD 1) comprises 4 precincts that include the following components:

Precinct 1 - Private hospital precinct

- a 12,620m^2 private hospital

Precinct 2 - Medi-Motel, health facilities precinct

- Health facilities with a combined floor area of 3,061m^2
- 11 x ancillary retail shops with a combined floor area of 1,498m^2
- a 293m^2 restaurant
- an 82-room Medi-Motel including a 130m^2 restaurant and 140m^2 function room

Precinct 3 - Community/child care and Residential precinct

- 59 x 2 bedroom residential flats
- a Child Care Centre with a capacity for 100 children

Precinct 4 - Residential precinct

- *157 x 2 bedroom residential units*

The approved development is served by a total of 617 off-street parking spaces as follows:

Precinct 1(101 spaces)	101 spaces serving the hospital
Precinct 2 (188 spaces)	55 spaces serving the health facilities
	61 spaces serving the ancillary retail shops and restaurant
	72 spaces serving the medi-motel
Precinct 3 (108 spaces)	83 spaces serving the 59 residential units
	25 spaces serving the 100 place Child Care Centre
Precinct 4 (220 spaces)	220 spaces serving the 157 residential units
Total	***617 spaces***

In addition to the approved parking provision are 41 parallel parking spaces on the internal road network. Once these roads are constructed to provide access to Precincts 3 and 4, these on-street parking spaces will be available as surplus parking for the overall development.

The approved access arrangements serving the site off Forest Road comprise:

- A new 4-way signalised intersection that will connect the site to the main access driveway serving the Orange Base Hospital which is located on the eastern side of Forest Road. The new signals will include pedestrian crossings on each leg of the intersection to enhance pedestrian safety.

- Left turn **exit only** movements from a northern access driveway that accommodates all vehicle types

Proposed Development

The development proposal will retain the approved uses in each of the 4 precincts but will rearrange some of these components in order to improve its appeal to potential operators. The revised precincts will comprise:

Precinct 1 – Health Facilities, Restaurant and Retail precinct

- Health facilities with a combined floor area of 3,061m^2
- a 293m^2 restaurant
- 11 x ancillary retail shops with a combined floor area of 1,498m^2

Precinct 2 – Private Hospital and Medi-Motel precinct

- a 12,620m^2 private hospital
- an 82-room Medi-Motel including a 130m^2 restaurant and 140m^2 function room

Precinct 3 - Community/child care and Residential precinct

- 59 x 2 bedroom residential flats
- a Child Care Centre with a capacity for 100 children

Precinct 4 - Residential precinct

- *157 x 2 bedroom residential units*

As can be seen, the components in Precinct 1 and 2 have been rearranged while the residential floor space and Child Care Centre in Precincts 3 and 4 have been unaltered.

While the existing uses and floorareas will be retained, the proposed development will increase the parking provision to 803 spaces which represents an overall increase of 186 spaces as follows:

Precinct 1(227 spaces)	86 spaces serving the health facilities
	91 spaces serving the ancillary retail shops
	50 spaces serving the restaurant
Precinct 2 (248 spaces)	165 spaces serving the hospital
	83 spaces serving the medi-motel
Precinct 3 (108 spaces)	83 spaces serving the 59 residential units
	25 spaces serving the 100 place Child Care Centre
Precinct 4 (220 spaces)	220 spaces serving the 157 residential units
Total	***803 spaces***

In addition, a 32 space surplus carpark located at the rear of Precinct 1 is also proposed. This area will also be utilised by service vehicles delivering goods to the retail shops and health facilities in this precinct.

The proposal will retain the 4-way signalised intersection that will connect the site to the main access driveway serving the Orange Base Hospital. The new signals will include pedestrian crossings on each leg of the intersection to enhance pedestrian safety.

The approved left turn exit only driveway adjacent to the northern site boundary will be reconfigured to allow all turns but will now only accommodate service vehicles accessing the loading area servicing Precinct 1.

In addition to the approved access arrangements, the development proposal seeks to provide 2 separate access driveways towards the south of the site that will provide access to the medi-motel in Precinct 2 as follows:

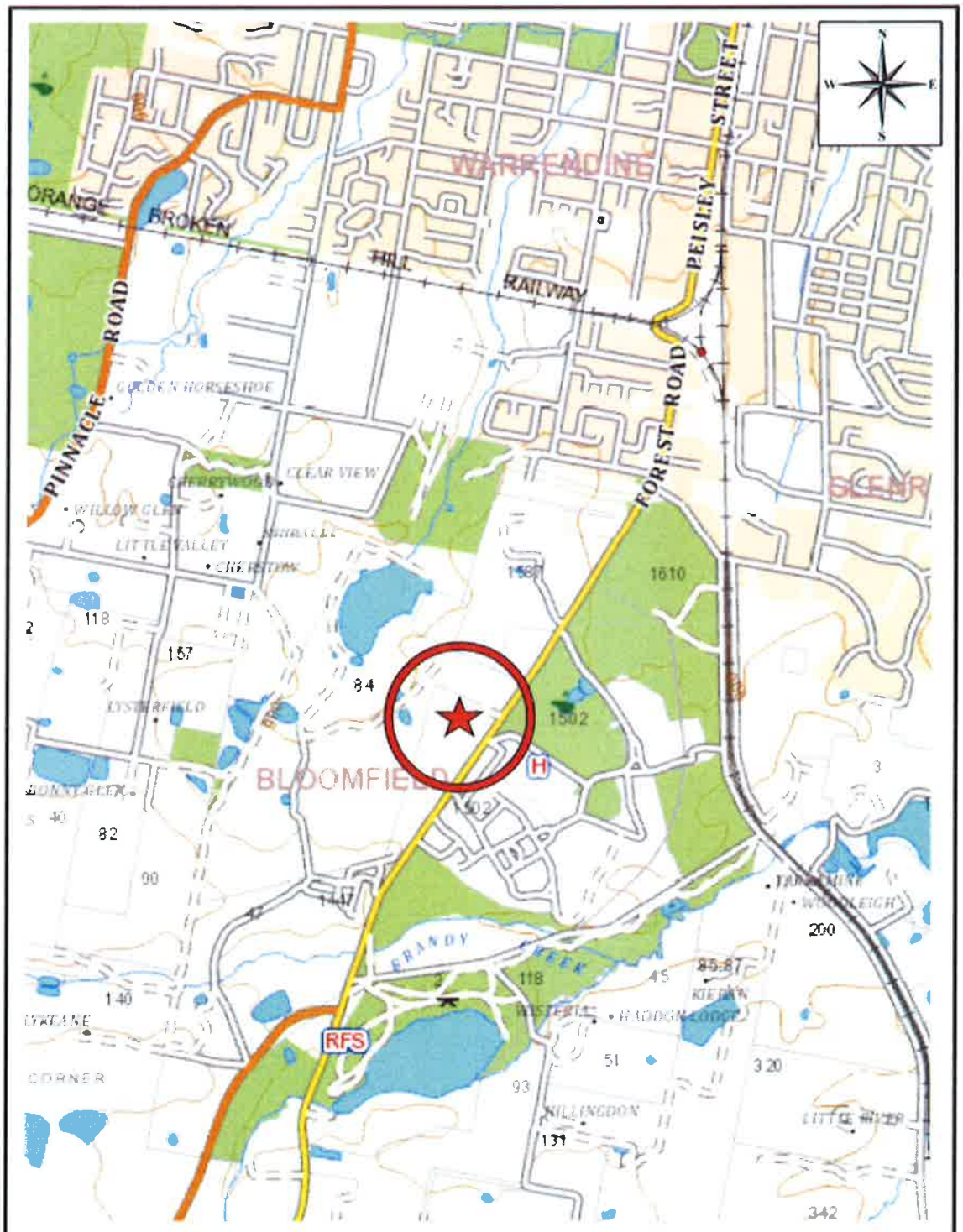
- A new 6.0m wide combined entry/exit driveway providing direct access to the 83 parking spaces serving the Motel

- A 6.0m wide access driveway providing access to a Motel loading dock that can accommodate service vehicles only, including Medium Rigid Vehicles

While the majority of traffic will approach to/from the north, it is proposed to allow all turns at the new medi-motel driveways off Forest Road. In order to achieve these manoeuvres, the current roadworks plans for Forest Road prepared by GHD will need amending. The median island currently extending to the south of the new traffic signals will requiring an appropriate gap to permit the right turn movements to occur.

Plans of the proposed development prepared by TVS Architects and Leffler Simes Architects are reproduced in Appendix A.

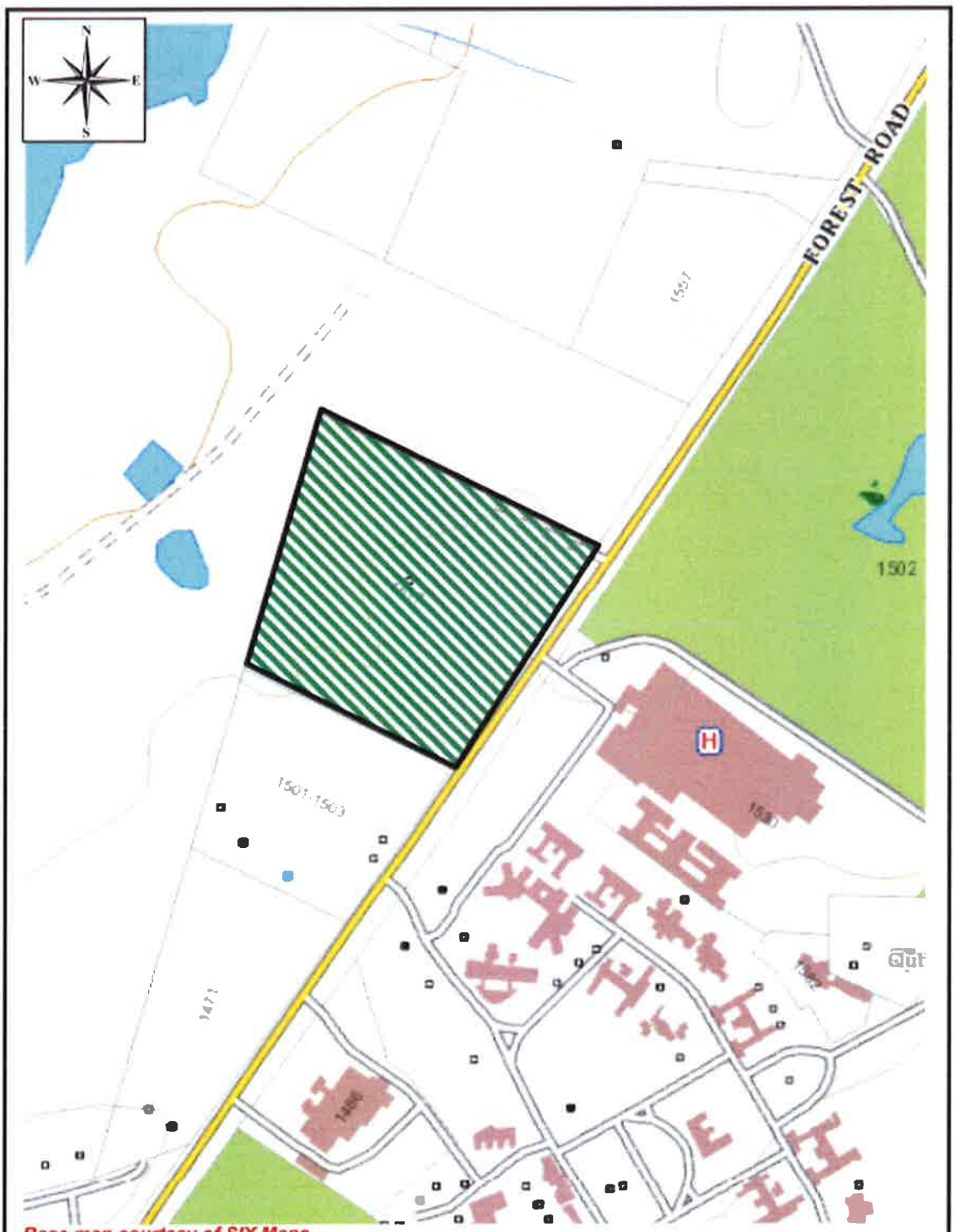
The purpose of this report is to assess the traffic and parking implications of the development proposal.



Base map courtesy of SIX Maps

Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

LOCATION
FIGURE 1



Base map courtesy of SIX Maps

Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

SITE
FIGURE 2

2. PARKING AND SERVICING ASSESSMENT

Car Parking Requirements

Orange Development Control Plan 2004 (30 June 2007) specifies the following parking requirements which are relevant to the proposed development:

Hospital	1 space for every 3 beds + 1 space each resident doctor and 1 space for every 2 visiting doctor + 1 space for every 2 employees.
Health Consulting Rooms	2 spaces for every 1 practitioner with spaces being available for customer and staff use.
Motel	1 space per unit + 1 space for each resident manager + 1 space for every 2 employees + 1 space for every 3 seats in a restaurant + 1 space per $10m^2$ of entertainment or function room areas
Restaurants	1 space per $10m^2$ GFA or 1 space for every 3 seats, whichever is greater
Childcare Centre	1 space for every 4 children in attendance
Residential Units	1-bedroom unit - 1.0 space per unit 2-bedroom unit - 1.2 spaces per unit 3 (or more) bedroom unit - 1.5 spaces per unit Visitors - 0.2 spaces per unit
Shops and Shopping Centres	6.1 spaces per $100m^2$ GLFA

Dual and Complimentary Use of Parking

The approved development took into consideration *Dual and Complementary* use of parking that Council's parking requirements do not take into account.

Dual use of parking spaces occurs when patrons of one component of a development also patronise another. For example, a proportion of staff and visitors to the proposed hospital and medical facility can also be expected to patronise the retail shops. Not only will this reduce the parking requirements for the proposed medical facility, it also has the potential to reduce the traffic generating potential of visitors to the site.

Another form of *Dual use* parking is that a proportion of residents in the Precinct 3 and 4 residential flat buildings will be employees of the health facilities and retail shops on the site and possibly the Orange Base Hospital. These residents will be allocated an on-site parking space within the residential precinct and will not require an additional car space in either Precinct 1 or 2. These residents will ultimately reduce the overall parking demand and traffic generation of the proposed development site.

Complementary use of parking spaces occurs when the peak parking demand of one component of a development does not coincide with the peak parking demand of another. In this case, the peak parking demand of the restaurant or the function centre in the motel is at night after 6pm, whereas the peak parking demand of the retail shops and health facilities is throughout the day.

Approved Modifications to DCP Parking Requirements

The parking rates adopted in the original Traffic and Parking Assessment prepared by Terraffic in April 2014 took into account the *dual and complimentary use* of carparking expected on the site. With the substantial increase in parking provided in the proposed development, these concessions to the DCP parking rates are generally no longer required as follows:

1. The approved development adopted a lesser rate of 4.1 spaces per $100m^2$ which applies to retail shops in the CBD. The standard parking requirement of 6.1 spaces per $100m^2$ for retail shops was considered too excessive because it is unlikely that the general public will travel to the site. It was argued that a high percentage of shoppers will already be on the site or will be generated by the Base Hospital on the eastern side of Forest Road (*dual use*). The proposed retail shops can now adopt the standard DCP rate of 6.1 spaces per $100m^2$.

2. The approved parking provision for the restaurant incorporated in Precinct 1 only applied during the night when the restaurant would be operational and the retail shops were closed. This approach is applying the principle of *complementary use* of parking

on the site. The proposed development will now provide 50 spaces for a 150 seat restaurant that will operate during the day and night.

3. The approved health facilities in Precinct 1 provided for a total of 55 parking spaces and assumed that a total of 24 practitioners will be on-site at any given time. As can be appreciated, this is a conservative approach as specialists (such as surgeons and physiotherapists) tend to operate between hospitals and their office and may only be on-site on a given day. The proposal will retain the approved GFA of the health facilities but will increase the parking provision to 86 spaces

4. While the floor space for the approved private hospital has generally been retained, the proposed parking provision will increase from 101 spaces to 165 spaces. The parking calculations for the approved hospital assumed that the night time workforce parking demand will be 20% of the daytime peak. The peak visitor parking demand is typically at nights when staffing levels are low. The provision of an additional 64 spaces will clearly satisfy the demand generated by the private hospital

5. The DCP parking rate for motel rooms (1 space per room) was considered excessive as 12 of the rooms are to be medical suites occupied by persons who are bedridden. To that end, the approved development provided 70 parking spaces by applying the DCP requirement to the remaining 70 standard motel rooms plus 2 spaces for staff (total 72 spaces). While the motel will remain unchanged, the proposed development will increase the parking to 83 spaces comprising 70 guest spaces and 13 additional staff/visitor spaces.

6. The parking requirement for the motel restaurant was considered excessive as a substantial proportion of restaurant patronage, if not all of it, will be drawn from motel guests and patients. Any additional motel restaurant patrons (who are not already in the area) would utilise the vacant parking spaces allocated to the health facility and retail shops that will be closed at night (*complementary use*). The proposed development will retain this approach.

7. The approved development did not provide any additional parking for the motel function room as it is expected to only operate at nights when the health facilities and

retail shops are closed. While function guests can utilise these vacant spaces, it is expected that some of the function guests will also be motel guests who have already parked on the site (*dual use*). The proposed development will retain this approach.

Parking Comparisons

As noted in the foregoing, the proposed development will increase the overall parking provision on the site by 186 as follows:

Land Use	*Approved Development*	*Proposed Development*
Health Facilities	55	86
Retail shops	61	91
Restaurant		50
Private Hospital	101	165
Medi-Motel	72	83
Precinct 3 Residential Flat Buildings	83	83
Child Care Centre	25	25
Precinct 4 Residential Flat Buildings	220	220
Total	**617**	**803**

As can be appreciated, the additional parking provision will ensure that the proposed development will comfortably accommodate the likely daytime and nighttime demand of the proposed uses.

In addition, the development contains a 32 space overflow carpark at the rear of Precinct 1. This carpark is unlikely to be occupied with cars and is likely to be used by delivery vehicles accessing the 2 loading bays serving the shops and health facilities.

In the circumstances, it can be concluded that the parking provision incorporated in the development proposal is adequate such that the proposed development has no unacceptable parking implications.

Servicing Assessment

The proposed development will retain the following approved loading arrangements:

Private Hospital	2 x HRV loading bays
Health Facilities	Vans to park in carpark
Retail Shops and Restaurant	2 x MRV loading bays
Motel	1 x MRV loading bay
Child Care Centre	Vans/SRV's to park in carpark during non-peak periods
Residential Units	No loading facilities

The Traffic and Parking Assessment prepared for the approved development estimated that the overall development will generate in the order of 45 to 50 deliveries per day ranging from courier vans to Heavy Rigid Vehicles. This level of activity equates to no more than 10 deliveries to the site during the morning and evening peak periods. This commercial vehicle activity will not be of a level that is likely to have any significant traffic implications.

In the circumstances, the proposed development will have no unacceptable servicing implications.

3. TRAFFIC ASSESSMENT

Existing Road Network

Forest Rd is classified by the RMS as a Regional Road performing a sub-arterial road function. The section of Forest Rd in the vicinity of the site is constructed to a two-lane rural road standard with a sealed carriageway approximately 6.5m wide between edge lines with a 500mm bitumen shoulder on each side.

As can be seen in the aerial photograph below, the main access driveway serving the Orange Base Hospital opposite the subject site is controlled by a sea-gull treatment. Traffic making a right turn into the site are within a protected lane and do not obstruct northbound traffic. Vehicles making a right turn from the Hospital turn into a protected merge lane.

Aerial photograph of existing Base Hospital access arrangements

Orange City Council has engaged GHD to prepare roadwork plans for the upgrade of Forest Road and in particular the provision of traffic signals at the intersection of Forest Road, the Base Hospital and the subject site. The plan of these proposed access arrangements was reproduced earlier in this report on Figure 3.

Traffic Generating of Approved Development

The Traffic and Parking Assessment for the approved development calculated the following traffic generation potential based on the RMS generic traffic generation rates and first principle assumptions:

AM PEAK PERIOD TRAFFIC GENERATION – APPROVED DEVELOPMENT			
Use	**Inbound**	**Outbound**	**Total**
Private Hospital	36	10	46
Health Facilities	72	24	96
Specialty Shops	49	20	69
Restaurant	0	0	0
Medi-Motel	8	20	28
Motel Restaurant	0	0	0
Child Care Centre	45	35	80
Precinct 3 Residential	6	18	24
Precinct 4 Residential	13	50	63
Total Development	**229**	**177**	**406**

PM PEAK PERIOD TRAFFIC GENERATION – APPROVED DEVELOPMENT			
Use	**Inbound**	**Outbound**	**Total**
Private Hospital	15	60	75
Health Facilities	24	72	96
Specialty Shops	20	49	69
Restaurant	12	3	15
Medi-Motel	20	8	28
Motel Restaurant	5	2	7
Child Care Centre	35	45	80
Precinct 3 Residential	18	6	24
Precinct 4 Residential	50	13	63
Total Development	**199**	**258**	**457**

That traffic was assigned to the road network serving the site generally reflecting the origin/destination characteristics of the surveyed traffic generation of the existing Base Hospital as follows:

To/from North 95%
To/from South 5%

The majority of traffic generated by the approved development accessed the site via the proposed traffic signals. The approved left turn exit only driveway located adjacent to the northern site boundary did generate a moderate level of traffic exiting the site.

Traffic Generating of Proposed Development

As noted in the Introduction of this report, the existing access arrangements will primarily be retained however the proposal incorporates a new combined entry/exit driveway to the south of the traffic signals that will provide direct access to the medi-motel. This driveway will accommodate approximately 28vph during the AM peak and 35vph during the PM peak as follows:

AM PEAK PERIOD TRAFFIC GENERATION – PROPOSED MOTEL			
Use	**Inbound**	**Outbound**	**Total**
Medi-Motel	8	20	28
Motel Restaurant	0	0	0
Total	**8**	**20**	**28**

PM PEAK PERIOD TRAFFIC GENERATION – PROPOSED MOTEL			
Use	**Inbound**	**Outbound**	**Total**
Medi-Motel	20	8	28
Motel Restaurant	5	2	7
Total	**25**	**10**	**35**

Should this new motel access point be approved, the level of traffic accessing the site via the traffic signals will be approximately 378vph during the AM peak and 422vph during the PM peak as follows:

AM PEAK PERIOD TRAFFIC GENERATION – PROPOSED DEVELOPMENT			
Use	**Inbound**	**Outbound**	**Total**
Private Hospital	36	10	46
Health Facilities	72	24	96
Specialty Shops	49	20	69
Restaurant	0	0	0
Child Care Centre	45	35	80
Precinct 3 Residential	6	18	24
Precinct 4 Residential	13	50	63
Total Development	**221**	**157**	**378**

PM PEAK PERIOD TRAFFIC GENERATION – PROPOSED DEVELOPMENT			
Use	**Inbound**	**Outbound**	**Total**
Private Hospital	15	60	75
Health Facilities	24	72	96
Specialty Shops	20	49	69
Restaurant	12	3	15
Child Care Centre	35	45	80
Precinct 3 Residential	18	6	24
Precinct 4 Residential	50	13	63
Total Development	**174**	**248**	**422**

Traffic Growth of Forest Road

The Traffic and Parking Assessment Report prepared for the approved development by John Coady Consulting Pty Ltd (dated 1 July 2008) received the following information from Orange City Council with regard to traffic growth along Forest Road:

- The average daily traffic flows on Forest Rd in the vicinity of the proposed development site are in the order of 6,500 vehicle trips per day, and grew at an average annual rate of 3.9% in the period 1998 to 2005.

- The AM peak hour traffic flows are in the order of 520 vtph and grew at an annual rate of 3.0% per annum between 1998 and 2005, while the PM peak traffic flows are in the order of 600 vtph and grew at an annual rate of 3.7% between 1998 and 2007.

This report will continue to assume a 4% annual increase in traffic flow over next 10 years. The current traffic flows accessing the Orange Base Hospital will not be increased. To that end, the 2024 base flows on Forest Road travelling past the site will be as follows:

Direction	2014 Traffic Flow	2024 Traffic Flow
AM Northbound	236	349
AM Southbound	238	352
PM Northbound	337	499
PM Southbound	205	303

Traffic Implications of Proposed Development

The main traffic implications of the proposed development concern the ability of traffic that it generates to access the site via the two access points off Forest Rd (ie the new traffic signals serving the site and Base Hospital and the new southern access driveway serving the Medi-Motel).

The ability of these intersections to accommodate the projected post-development traffic demand can be assessed using the SIDRA traffic model, and criteria for interpreting the results of SIDRA analysis are set out on the schedule reproduced in the following pages.

The access points off Forest Rd were modelled under projected future (2024) traffic demand and include the current traffic generation characteristics of the Base Hospital on the eastern side of Forest Road.

The results of that SIDRA analysis are set out in Table 5.1 (Traffic Signals) and Table 5.2 (southern Motel access driveway) revealing that both intersections operate satisfactorily under projected traffic demand in 2024.

TABLE 5.1 – RESULTS OF SIDRA ANALYSIS OF FOREST ROAD AND BASE HOSPITAL / MAIN SITE ACCESS INTERSECTION

2024 Conditions	Level of Service	Degree of Saturation	Total Average Vehicle Delay (sec)
AM Peak	A	0.373	11.2
PM Peak	B	0.576	15.9

TABLE 5.2 – RESULTS OF SIDRA ANALYSIS OF FOREST ROAD AND SOUTHERN MOTEL DRIVEWAY

2024 Conditions	Level of Service	Degree of Saturation	Total Average Vehicle Delay (sec)
AM Peak	A	0.099	0.3
PM Peak	A	0.135	0.4

The Sidra Movement Summary Sheets for the Forest Road/Base Hospital/Subject Site Main Access are reproduced in Appendix C, while the Movement Summary Sheets for the Southern Motel Driveway are reproduced in Appendix D.

Traffic Implications of Proposed Service Roads

As noted in the foregoing, the proposed development contains the following service roads:

- A two-way access driveway located adjacent to the northern site boundary serving the precinct 1 shops and health facilities, and

- A two-way access driveway located in close proximity to the southern site boundary that will provide access to service vehicles accessing the medi-motel.

As can be appreciated, the level of traffic at these access points will be minimal and will have no adverse impacts on traffic flow or safety.

In the circumstances, it can be concluded that the proposed development has no unacceptable traffic implications.

Criteria for Interpreting Results of SIDRA Analysis

1. *Level of Service (LOS)*

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good operation.	Good operation.
'B'	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
'C'	Satisfactory.	Satisfactory but accident study required.
'D'	Operating near capacity.	Near capacity and accident study required.
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.
'F'	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode.

2. *Average Vehicle Delay (AVD)*

The AVD provides a measure of the operational performance of an intersection as indicated on the table below which relates AVD to LOS. The AVD=s listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	less than 14	Good operation.	Good operation.
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	Operating near capacity.	Near capacity and accident study required.
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.

3. *Degree of Saturation (DS)*

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by traffic signals[1] both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a roundabout or GIVE WAY or STOP signs, satisfactory intersection operation is indicated by a DS of 0.8 or less.

1 *The values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs.*

APPENDIX A

PLANS OF PROPOSED DEVELOPMENT PREPARED BY TVS ARCHITECTS AND LEFFLER SIMES ARCHITECTS

Staging Areas

	Use Type	Site Area
PRECINT 1	Allied Health/ Retail	15708 m²
PRECINT 2	Private Hospital	8664 m²
PRECINT 2	Motel	7441 m²
PRECINT 3	Child Care & Apartments	14014 m²
PRECINT 4	Residential	11697 m²
Overall	Overall Site Area	66937 m²

Building Area Schedule GFA

Type of Area	Area
Common	513 m²
Health	3440 m²
Motel	4440 m²
Private Health	2434 m²
Retail	1353 m²

Note:
Refer Landscape Architects documents for landscaping.

TVS architects

Bloomfield Private Hospital Site

Site Masterplan

5420.1.02. 6

N

0 10 20 30 40 50

Scale (m) 1: 500 @A1
Scale (m) 1: 1000 @A3

ite Plan - Precinct 2

1: 250

Area Schedule		
Name	Area	Original Area
Amenities	75 m²	75m²
Cafe	144 m²	144m²
Chemist	227 m²	227m²
Common	444 m²	445m²
Convenience	207 m²	207m²
Fast Food	134 m²	130m²
Hair Dresser	102 m²	102m²
Medical Suites	3002 m²	3062m²
Newsagent	155 m²	155m²
Restaurant	293 m²	293m²
Shop 3	106 m²	106m²
Shop 4	105 m²	105m²
Shop 9	102 m²	102m²
Shop 10	102 m²	102m²
Shop 14	114 m²	118m²
	5313 m²	

TVS architects

Bloomfield Private Hospital Site

Health Facilities and Retail

5420.2.01.4

Motel - Ground Floor Plan

Scale @ A1 1 250

Motel - First Floor Plan

Scale @ A1 1 250

TVS architects

Bloomfield Private Hospital Site

Motel - Ground & First Floor

5420.3.01 4

ISSUE	AMENDMENT	DATE	CHKD
A	FOR DEVELOPMENT CONSENT	FEB 24	GMR
B	FOR DEVELOPMENT CONSENT	APR 24	GMR
C	FOR DEVELOPMENT CONSENT	MAY 18	GMR

PRECINCT 2
PRIVATE HOSPITAL

AREA SCHEDULE	GFA m2	NLA m2
GROUND LEVEL	1600	1096
LEVEL 1	2295	1976
LEVEL 2	2295	1976
LEVEL 3	2295	1976
LEVEL 4	2295	1976
LEVEL 5	1850	1540
TOTAL	12,630	10,540
CAR PARKS	138	

LOCATION PLAN

LEFFLER SIMES PTY LTD
ABN 39 001 043 992
WEB: www.lefflersimes.com.au
SYDNEY 7 YOUNG ST NEUTRAL BAY NSW 2089 T+61 2 99654344
MELBOURNE LEVEL2 370 LITTLE BOURKE ST VIC 3000 T+61 3 99093344
BRISBANE 2 / 290 BOUNDARY ST SPRING HILL QLD 4004 T+61 7 31236544

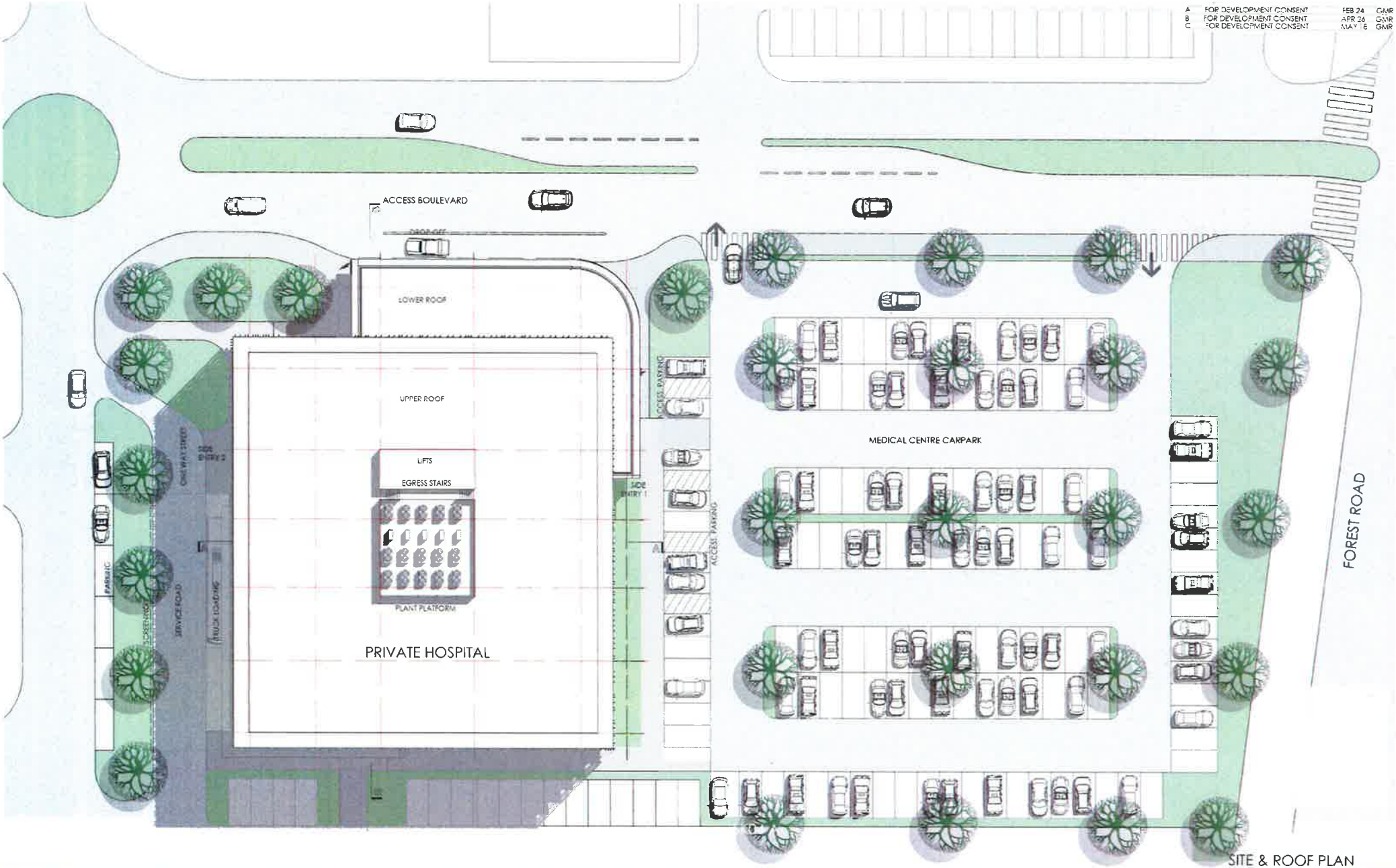
SCALE 1:1000 @A2

BLOOMFIELD PRIVATE HOSPITAL
FOREST RD ORANGE NSW FOR FOLKESTONE PROPERTY P/L

JOB NO. 4123 DWG NO. SK 02 REV. C
DATE FEB 2017
DRAWN GMR

LEFFLER SIMES ARCHITECTS

ISSUE	AMENDMENT	DATE	CHKD
A	FOR DEVELOPMENT CONSENT	FEB 24	GMR
B	FOR DEVELOPMENT CONSENT	APR 26	GMR
C	FOR DEVELOPMENT CONSENT	MAY 16	GMR



SITE & ROOF PLAN

LEFFLER SIMES PTY LTD
ABN 39 001 643 992
WEB: www.lefflersimes.com.au
SYDNEY 7 YOUNG ST NEUTRAL BAY NSW 2089 T+61 2 99903344
MELBOURNE LEVEL2 370 LITTLE BOURKE ST VIC 3000 T+61 3 96546344
BRISBANE 2 - 270 BOUNDARY ST SPRING HILL QLD 4004 T+61 7 31235544

0 3 6 9 12 15m SCALE 1:100 @A1

BLOOMFIELD PRIVATE HOSPITAL
FOREST RD ORANGE NSW FOR FOLKESTONE PROPERTY P/L

JOB NO. 4123 DWG NO. SK 03 REV C
DATE FEB 2017 DRAWN GMR

LEFFLER SIMES ARCHITECTS

APPENDIX B

TRAFFIC COUNT DATA

Traffic Count

Forest Road and Base Hospital Access Driveway

Friday 7th March 2014

Time Period	A	B	C	D	E	F	Total
	Northbound	Right In	Southbound	Left In	Right Out	Left Out	
0700 - 0715	63	2	39	30	26	2	**162**
0715 - 0730	81	2	40	45	23	4	**195**
0730 - 0745	47	1	61	36	24	0	**169**
0745 - 0800	40	2	67	82	15	0	**206**
0800 - 0815	47	3	43	66	17	3	**179**
0815 - 0830	59	4	67	65	18	0	**213**
0830 - 0845	77	4	57	50	22	1	**211**
0845 - 0900	46	2	38	55	18	0	**159**
0900 - 0915	38	1	60	41	19	1	**160**
0915 - 0930	48	4	49	33	19	2	**155**
0930 - 0945	27	3	41	27	18	2	**118**
0945 - 1000	43	4	29	41	32	1	**150**
Total	**616**	**32**	**591**	**571**	**251**	**16**	**2077**

Time Period	A	B	C	D	E	F	Total
	Northbound	Right In	Southbound	Left In	Right Out	Left Out	
1500 - 1515	87	4	40	24	48	1	**204**
1515 - 1530	83	3	43	26	78	2	**235**
1530 - 1545	65	3	43	23	68	2	**204**
1545 - 1600	63	0	48	20	50	3	**184**
1600 - 1615	67	0	46	20	32	3	**168**
1615 - 1630	90	0	47	22	38	1	**198**
1630 - 1645	113	1	43	15	67	2	**241**
1645 - 1700	55	2	53	27	60	0	**197**
1700 - 1715	75	1	59	15	66	0	**216**
1715 - 1730	59	0	48	15	35	1	**158**
1730 - 1745	48	1	67	17	39	0	**172**
1745 - 1800	19	2	88	16	27	3	**155**
Total	**824**	**17**	**625**	**240**	**608**	**18**	**2332**

Traffic Count

Forest Road and Base Hospital Access Driveway

Friday 7th March 2014

Time Period	A	B	C	D	E	F	Total
	Northbound	Right In	Southbound	Left In	Right Out	Left Out	
0700 - 0800	231	7	207	193	88	6	**732**
0715 - 0815	215	8	211	229	79	7	**749**
0730 - 0830	193	10	238	249	74	3	**767**
0745 - 0845	223	13	234	263	72	4	**809**
0800 - 0900	229	13	205	236	75	4	**762**
0815 - 0915	220	11	222	211	77	2	**743**
0830 - 0930	209	11	204	179	78	4	**685**
0845 - 0945	159	10	188	156	74	5	**592**
0900 - 1000	156	12	179	142	88	6	**583**

Peak	**223**	**13**	**234**	**263**	**72**	**4**	**809**

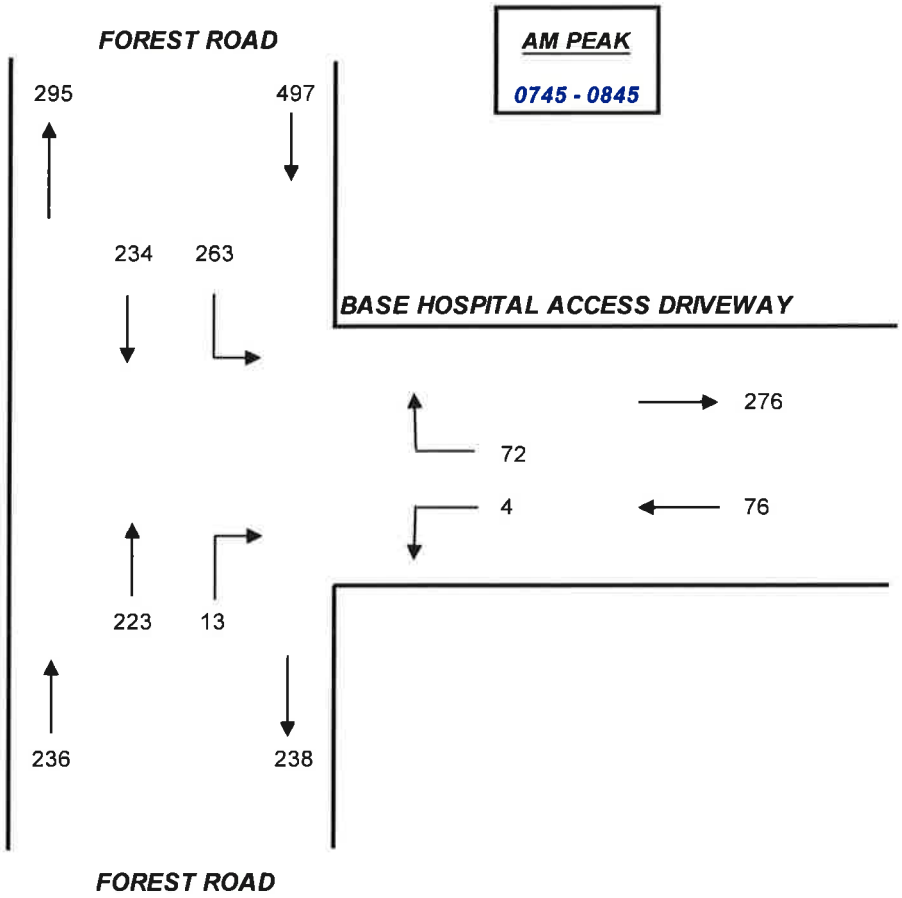
Time Period	A	B	C	D	E	F	Total
	Northbound	Right In	Southbound	Left In	Right Out	Left Out	
1500 - 1600	298	10	174	93	244	8	**827**
1515 - 1615	278	6	180	89	228	10	**791**
1530 - 1630	285	3	184	85	188	9	**754**
1545 - 1645	333	1	184	77	187	9	**791**
1600 - 1700	325	3	189	84	197	6	**804**
1615 - 1715	333	4	202	79	231	3	**852**
1630 - 1730	302	4	203	72	228	3	**812**
1645 - 1745	237	4	227	74	200	1	**743**
1700 - 1800	201	4	262	63	167	4	**701**

Peak	**333**	**4**	**202**	**79**	**231**	**3**	**852**

Traffic Count

Forest Road and Base Hospital Access Driveway

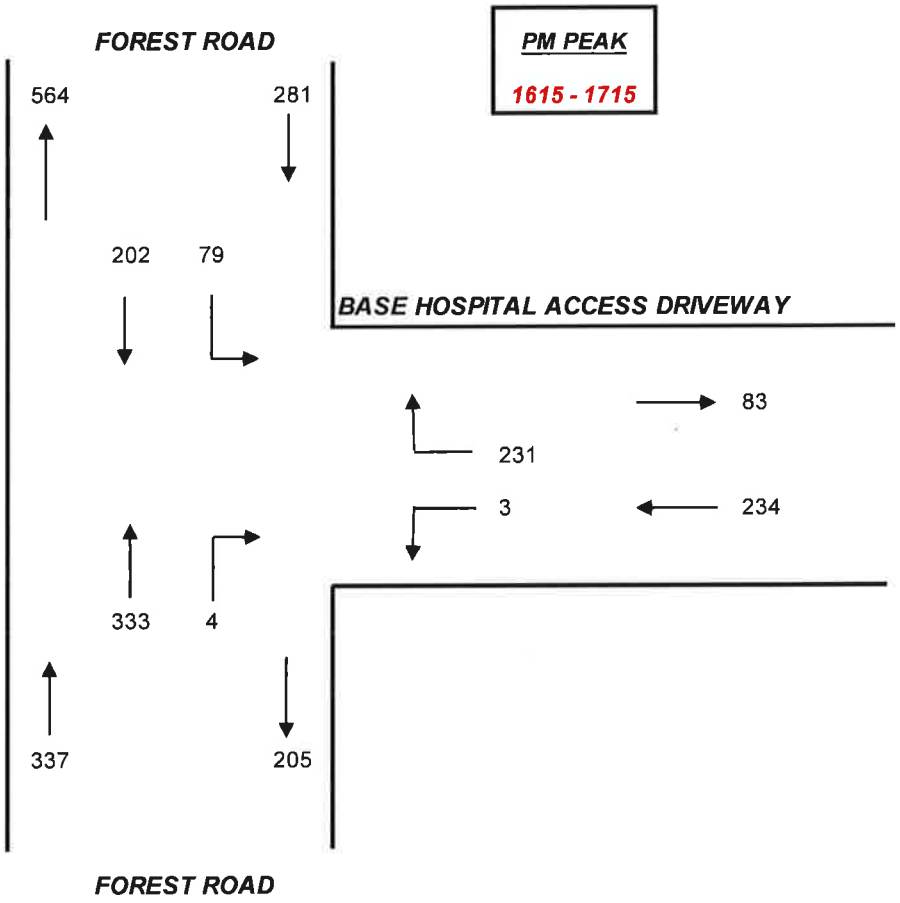
Friday 7th March 2014



Traffic Count

Forest Road and Base Hospital Access Driveway

Friday 7th March 2014



APPENDIX C

SIDRA MOVEMENT SUMMARY SHEETS FOR THE FOREST ROAD/BASE HOSPITAL/SUBJECT SITE ACCESS DRIVEWAY

MOVEMENT SUMMARY

Site: 1 [Forest Road Traffic Signals - AM Peak - 2017 Proposal]

2024 Traffic Signals (2017 Proposal)

Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Forest Road											
1	L2	11	0.0	0.084	11.4	LOS A	1.2	8.7	0.46	0.41	43.8
2	T1	368	5.0	0.256	6.4	LOS A	4.1	29.9	0.51	0.44	54.2
3	R2	13	0.0	0.023	13.4	LOS A	0.2	1.3	0.51	0.65	27.2
Approach		392	4.7	0.256	6.8	LOS A	4.1	29.9	0.51	0.44	52.2
East: Base Hospital											
4	L2	4	0.0	0.010	20.0	LOS B	0.1	0.6	0.80	0.52	25.3
6	R2	72	0.0	0.287	25.9	LOS B	2.0	13.9	0.93	0.71	24.3
Approach		76	0.0	0.287	25.6	LOS B	2.0	13.9	0.92	0.70	24.4
North: Forest Road											
7	L2	263	0.0	0.258	11.0	LOS A	3.6	25.3	0.39	0.67	28.2
8	T1	360	5.0	0.258	6.0	LOS A	4.1	30.1	0.50	0.49	53.7
9	R2	210	0.0	0.373	15.3	LOS B	3.8	26.6	0.64	0.75	36.9
Approach		833	2.2	0.373	9.9	LOS A	4.1	30.1	0.50	0.61	38.5
West: Development Site											
10	L2	150	0.0	0.369	22.4	LOS B	3.9	27.2	0.89	0.72	30.9
12	R2	7	0.0	0.019	20.2	LOS B	0.2	1.1	0.81	0.64	31.9
Approach		157	0.0	0.369	22.3	LOS B	3.9	27.2	0.89	0.71	30.9
All Vehicles		1468	2.5	0.373	11.2	LOS A	4.1	30.1	0.56	0.58	39.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	10	24.3	LOS C	0.0	0.0	0.90	0.90
P2	East Full Crossing	10	10.8	LOS B	0.0	0.0	0.60	0.60
P3	North Full Crossing	10	24.3	LOS C	0.0	0.0	0.90	0.90
P4	West Full Crossing	10	10.8	LOS B	0.0	0.0	0.60	0.60
All Pedestrians		40	17.6	LOS B			0.75	0.75

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 1 [Forest Road Traffic Signals - PM Peak - 2017 Proposal]

2024 Traffic Signals (2017 Proposal)

Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop Queued	Effective Stop Rate per veh	Average Speed km/h
South: Forest Road											
1	L2	9	0.0	0.162	17.4	LOS B	2.4	17.2	0.66	0.55	39.0
2	T1	509	5.0	0.490	13.5	LOS A	8.5	62.0	0.75	0.64	49.1
3	R2	4	0.0	0.009	19.5	LOS B	0.1	0.5	0.67	0.64	26.1
Approach		522	4.9	0.490	13.6	LOS A	8.5	62.0	0.75	0.64	48.6
East: Base Hospital											
4	L2	3	0.0	0.004	12.1	LOS A	0.1	0.4	0.63	0.41	26.8
6	R2	231	0.0	0.576	20.1	LOS B	6.0	42.1	0.90	0.75	25.3
Approach		234	0.0	0.576	20.0	LOS B	6.0	42.1	0.89	0.75	25.3
North: Forest Road											
7	L2	79	0.0	0.250	18.6	LOS B	3.8	27.2	0.66	0.64	27.2
8	T1	327	5.0	0.250	11.9	LOS A	3.8	28.0	0.68	0.60	49.5
9	R2	165	0.0	0.544	26.6	LOS B	4.4	30.5	0.90	0.80	30.6
Approach		571	2.9	0.544	17.1	LOS B	4.4	30.5	0.74	0.66	39.8
West: Development Site											
10	L2	236	0.0	0.328	14.3	LOS A	5.0	34.7	0.75	0.62	35.2
12	R2	12	0.0	0.020	12.4	LOS A	0.2	1.5	0.64	0.45	36.4
Approach		248	0.0	0.328	14.2	LOS A	5.0	34.7	0.74	0.62	35.3
All Vehicles		1575	2.7	0.576	15.9	LOS B	8.5	62.0	0.77	0.66	38.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	10	21.7	LOS C	0.0	0.0	0.85	0.85
P2	East Full Crossing	10	17.6	LOS B	0.0	0.0	0.77	0.77
P3	North Full Crossing	10	21.7	LOS C	0.0	0.0	0.85	0.85
P4	West Full Crossing	10	17.6	LOS B	0.0	0.0	0.77	0.77
All Pedestrians		40	19.7	LOS B			0.81	0.81

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

APPENDIX D

SIDRA MOVEMENT SUMMARY SHEETS FOR THE FOREST ROAD/SOUTHERN MOTEL CARPARK DRIVEWAY

MOVEMENT SUMMARY

Site: 101 [Forest Road Motel Access - AM Peak]

Motel AM Peak
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Forest Rd											
1	L2	1	0.0	0.095	5.6	LOS A	0.0	0.0	0.00	0.00	58.3
2	T1	358	5.0	0.095	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		359	5.0	0.095	0.0	NA	0.0	0.0	0.00	0.00	60.0
North: Forest Rd											
8	T1	359	5.0	0.099	0.1	LOS A	0.1	0.6	0.02	0.01	59.8
9	R2	8	0.0	0.099	7.2	LOS A	0.1	0.6	0.05	0.03	30.6
Approach		367	4.9	0.099	0.2	NA	0.1	0.6	0.03	0.01	58.6
West: Motel											
10	L2	19	0.0	0.022	4.9	LOS A	0.1	0.5	0.30	0.87	28.3
12	R2	1	0.0	0.022	12.9	LOS A	0.1	0.5	0.30	0.87	28.2
Approach		20	0.0	0.022	5.3	LOS A	0.1	0.5	0.30	0.87	28.3
All Vehicles		746	4.8	0.099	0.3	NA	0.1	0.6	0.02	0.03	57.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Forest Road Motel Access - PM Peak]

Motel PM Peak
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Forest Rd											
1	L2	1	0.0	0.135	5.6	LOS A	0.0	0.0	0.00	0.00	58.3
2	T1	508	5.0	0.135	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		509	5.0	0.135	0.0	NA	0.0	0.0	0.00	0.00	60.0
North: Forest Rd											
8	T1	315	5.0	0.098	0.3	LOS A	0.3	2.1	0.09	0.04	59.2
9	R2	24	0.0	0.098	8.2	LOS A	0.3	2.1	0.21	0.10	30.3
Approach		339	4.6	0.098	0.9	NA	0.3	2.1	0.10	0.05	55.4
West: Motel											
10	L2	9	0.0	0.014	5.3	LOS A	0.0	0.3	0.39	0.85	28.1
12	R2	1	0.0	0.014	15.7	LOS B	0.0	0.3	0.39	0.85	28.0
Approach		10	0.0	0.014	6.3	LOS A	0.0	0.3	0.39	0.85	28.1
All Vehicles		858	4.8	0.135	0.4	NA	0.3	2.1	0.04	0.03	57.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.