ML
Traffic Engineers

TRAFFIC AND PARKING REPORT FOR PROPOSED BOARDING HOUSE DEVELOPMENT

14 Wyatt Avenue in Belrose

Prepared for: Northern Beaches Essential Accommodation

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1. INTRODUCTION

ML Traffic Engineers was commissioned by Northern Beaches Essential Accommodation to undertake a traffic and parking impact assessment of proposed boarding house development at 14 Wyatt Avenue in Belrose. The development site has frontage to Wyatt Avenue.

Currently the site is a vacant block of land, which has a boarding house approved under DA2018/0401. The proposed development will have access for pedestrians and vehicles via Wyatt Avenue.

This traffic report focuses on the proposed development and changes in car usage and car park utilisation and additional trips from the proposed development.

In the course of preparing this assessment, the subject site and its environs have been inspected, plans of the development examined, and all relevant traffic and parking data collected and analysed.

2. BACKGROUND AND EXISTING CONDITIONS OF THE PROPOSED LOCATION

2.1 Location and Land Use

The proposed Boarding House Development is located on Wyatt Avenue and is located in a Residential Area. The site is located near school facilities and public reserves.

The site is located opposite to Wyatt Reserve and to the East is John Colet School. Figures 1 and 2 show the location of the development site from the aerial and street map perspective respectively.

Figure 3 shows photograph of the development site.

Figure 1: Location of the Subject Site on Aerial

Figure 2: Street Map of the Location of the Development Site

Figure 3: Photograph of the Development Site

2.2 Road Network

This section discusses the road network adjacent to the site.

Forest Way is an arterial road with two lanes each way separated by a median strip. Parking is not permitted on both sides of the road. The sign posted speed limit is 80km/hr. A bicycle lane is provided near Wyatt Avenue. Figure 4 shows a photograph of Forest Way.

Morgan Road is a collector road with one lane of travel in each direction. Lane marking are not provided on some section of the road. Parking not permitted on both sides of Morgan Road. The sign posted speed limit is 50 km/hr. Figure 5 shows a photograph of Morgan Road.

Wyatt Avenue is a local road with one lane of travel in each direction. Parking is permitted on both sides of Wyatt Avenue. Wyatt Avenue is subject to school zone, speed limits are enforced on school days. A speed restriction of 40km/hr applies between 8am to 9.30am and 2.30pm to 4pm during school days. Figure 6 shows a photograph of Wyatt Avenue.

Figure 4: Forest Way looking North from Wyatt Avenue

Figure 5a: Wyatt Avenue looking East from opposite Lockhart Place

Figure 5b: Wyatt Avenue looking West from adjacent to the Boarding House Site

2.3 Intersection Description

As part of this traffic impact assessment the following intersections are assessed for the traffic generation:

- Signalised intersection of Forest Way with Morgan Road and Wyatt Avenue

Vehicle access and egress to the proposed basement car park is via Wyatt Avenue.

External traffic to and from the proposed development will need to travel through the above intersections.

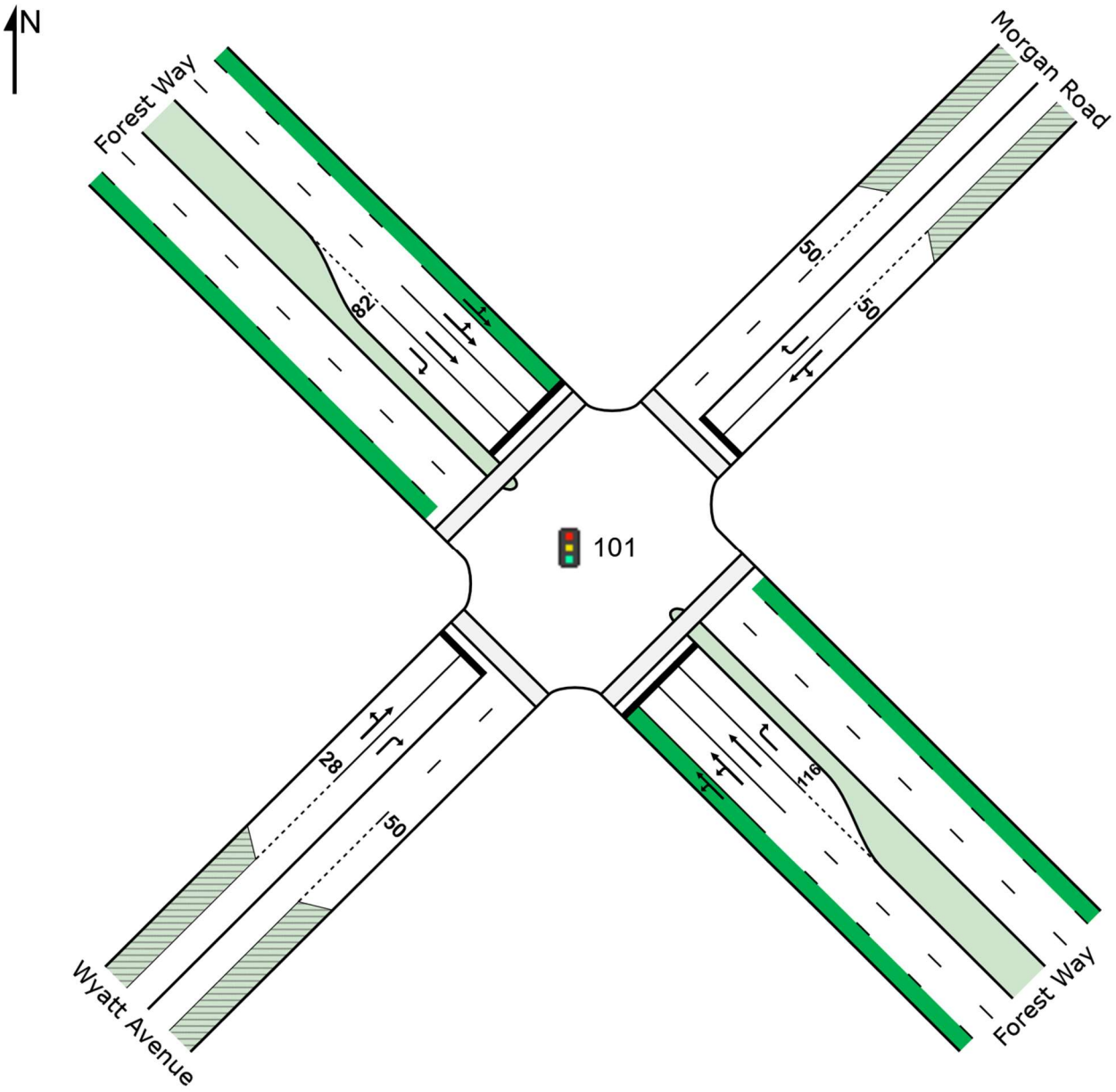

Figure 6: Signalised Intersection Layout of Forest Way with Morgan Road and Wyatt Avenue (SIDRA)

2.4 Existing Traffic Volumes

As part of the traffic assessment, traffic counts have been undertaken at the two intersections for the weekday AM and PM peak period. The peak hours were 7:45am to 8:45am and 5pm to 6pm for the weekday AM and PM peak hours respectively.

The following Figures present the traffic volumes in vehicles for the weekday peak hours.

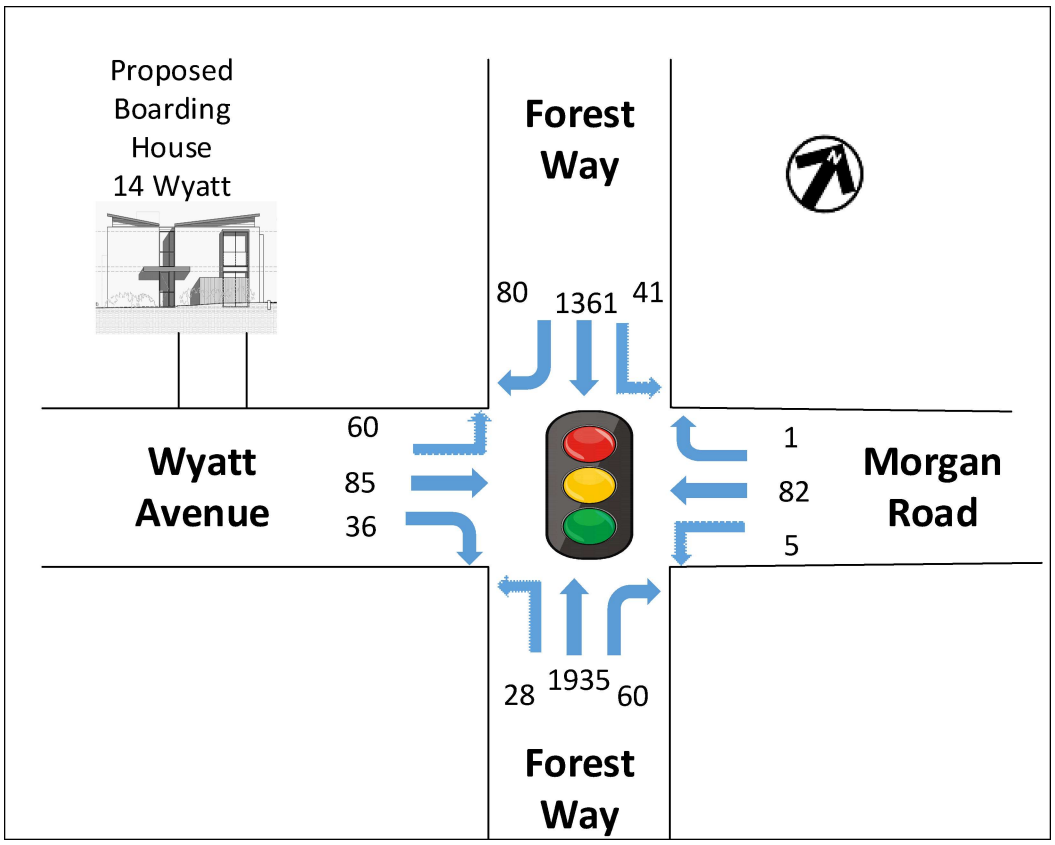

Figure 7: Existing Weekday Traffic Volumes AM Peak Hour

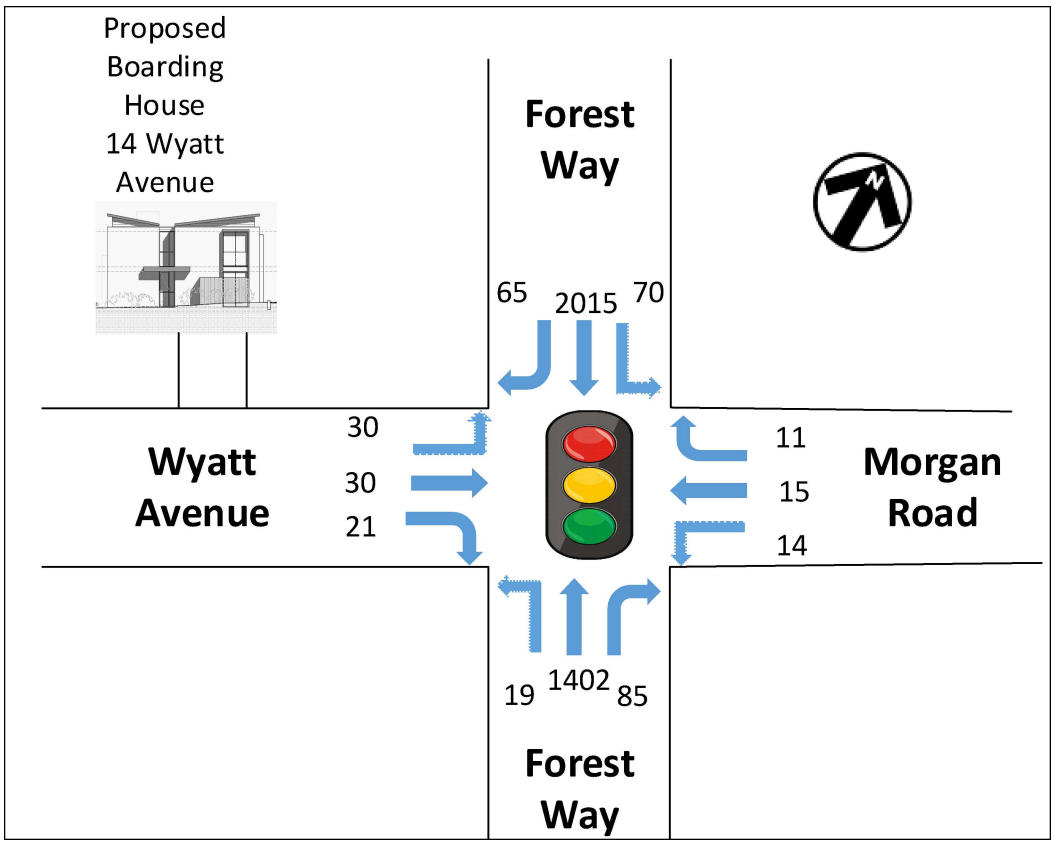

Figure 8: Existing Weekday Traffic Volumes PM Peak Hour

2.5 Intersection Assessment

An intersection assessment has been undertaken for the nearby surveyed intersection.

The existing intersection operating performance was assessed using the SIDRA software package (version 6) to determine the Degree of Saturation (DS), Average Delay (AVD in seconds) and Level of Service (LoS) at each intersection. The SIDRA program provides Level of Service Criteria Tables for various intersection types. The key indicator of intersection performance is Level of Service, where results are placed on a continuum from 'A' to 'F', as shown in Table 1.

LoS	Traffic Signal / Roundabout	Give Way / Stop Sign / T-Junction Control
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 & accident study required
E	At capacity, at signals incidents will cause excessive delays.	At capacity, requires other control mode
F	Unsatisfactory and requires additional capacity, Roundabouts require other control mode	At capacity, requires other control mode

Table 1: Intersection Level of Service

The Average Vehicle Delay (AVD) provides a measure of the operational performance of an intersection as indicated below, which relates AVD to LOS. The AVD's should be taken as a guide only as longer delays could be tolerated in some locations (i.e. inner-city conditions) and on some roads (i.e. minor side street intersecting with a major arterial route). For traffic signals, the average delay over all movements should be taken. For roundabouts and priority control intersections (sign control) the critical movement for level of service assessment should be that movement with the highest average delay.

LoS	Average Delay per Vehicles (seconds/vehicle)
A	Less than 14
B	15 to 28
C	29 to 42
D	43 to 56
E	57 to 70
F	>70

Table 2: Intersection Average Delay (AVD)

The degree of saturation (DS) is another measure of the operational performance of individual intersections. For intersections controlled by traffic signals both queue length and delay increase rapidly as DS approaches 1. It is usual to attempt to keep DS to less than 0.9. Degrees of Saturation in the order of 0.7 generally represent satisfactory intersection operation. When DS exceed 0.9 queues can be anticipated.

The results of the intersection analysis are as follows:

Forest Way with Morgan Road and Wyatt Avenue

- The overall intersection has a LoS B for the AM and Peak hours
- There is spare capacity at this intersection

The full Sidra results are presented in Appendix A.

2.6 Public Parking Opportunities

On street parking is provided generally on Wyatt Avenue. The road section adjacent to the site has a road shoulder is not suitable for on street parking (see Figure 5B). On street parking near the nearby school is restricted to drop off and pick up events during the school drop off/pick up period. Ninety degree parking is located adjacent to Wyatt Reserve.

There are vacant car spaces near and opposite the development site at all times during the day. Vacant on street car spaces are more limited adjacent to the nearby school during the drop and pick up period.

2.7 Public Transport

The development site is within a one-minute walking distance to local bus stop. Figure 9 shows the site in relation to the local bus route. The site is within 40 metres of bus stop on Cotentin Road. The development site has excellent access to public transport because of the proximity to the bus stops along Forest Way, Cotentin Road and Wyatt Avenue.

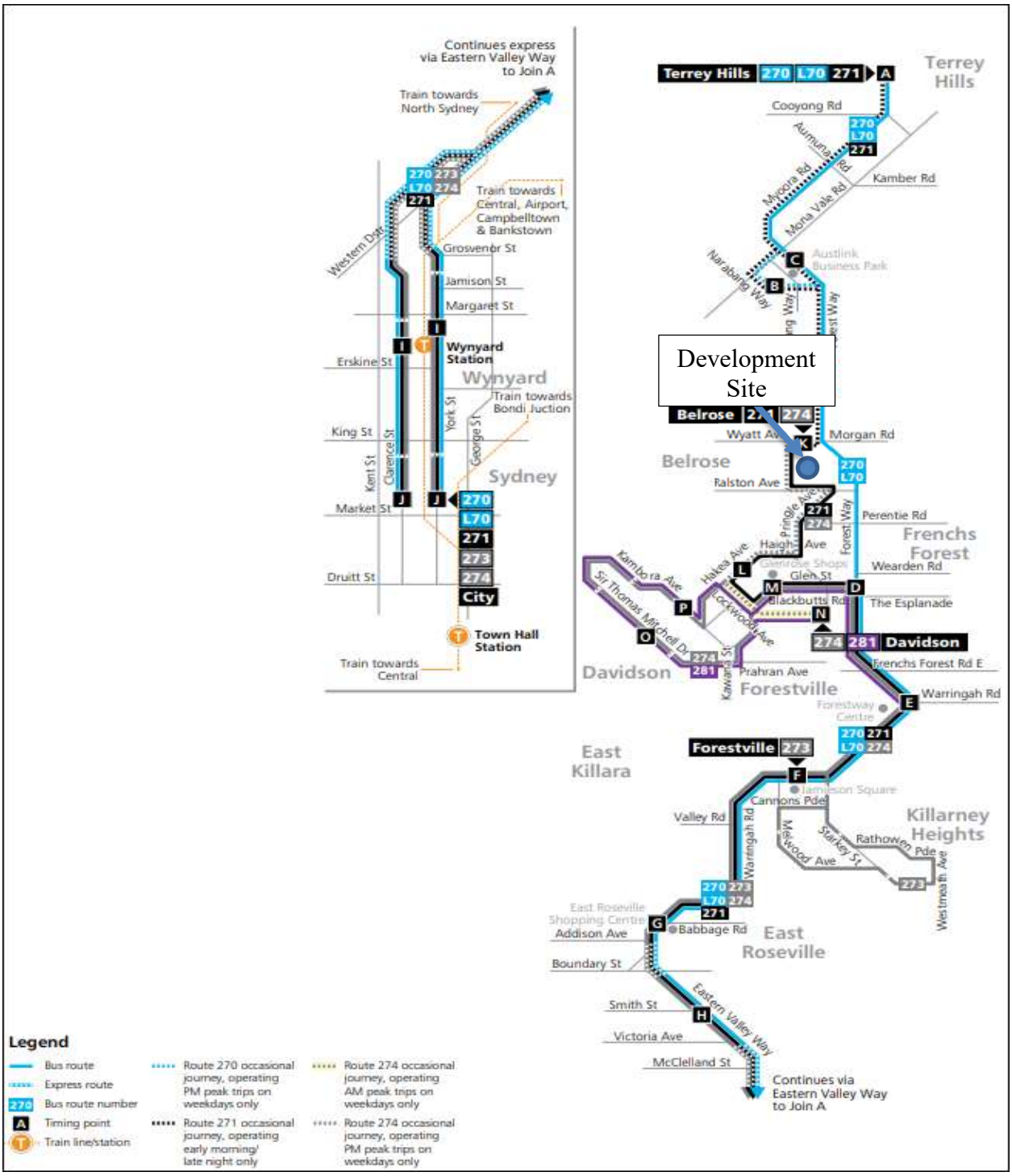

Figure 9: Local Public Transport Facilities

2.8 Conclusions on the Existing Conditions

The proposed development is located in a residential area. The development is fronting local road Wyatt Avenue.

The nearby intersection overall performs well with sufficient spare capacity to accommodate additional traffic.

The site has excellent access to public transport and is within walking distance of local bus services.

3. PROPOSED DEVELOPMENT

The land use for the proposed development are as follows in the following:

- 25 One- Bedrooms boarding house rooms

The car parking is provided on basement level with vehicle access and egress via Wyatt Avenue:

- 12 car spaces
  - 9 Lodgers car parking spaces
  - 1 Caretake car parking space
  - 2 Disabled car parking space

- 8 motorcycle spaces

A full scaled plan of the proposed development is provided as part of the Development Application.

4. PARKING CONSIDERATIONS

4.1 Warringah Council's Planning Scheme for Car Parking Assessment

The car parking requirements for Residential developments are contained in Warringah Council's Development Control Plan Appendix 1 is as follows for Backpackers' accommodation, Boarding house, Group home:

Backpackers' accommodation, Boarding house, Group home

- Comparisons must be drawn with developments for a similar purpose.

However, the car parking requirements for boarding houses are presented in *State Environmental Planning Policy (Housing) 2021* with the car parking rates as follows as it applies to the proposed development:

Boarding house

- 0.2 parking spaces provided for each bed within accessible area

Table 3a summarises the car parking requirements for the boarding house development
The boarding house development meets the requirements of being within an "accessible area".

	Number of Rooms	SEPP parking rate	Parking spaces required	Parking spaces provided
Boarding	25	0.2	5	12

Table 3a: Summary of Car Parking Requirements and Provision

The car spaces required is five versus twelve car spaces provided. The provision exceeds the requirement by 7 spaces. Therefore, proposed development complies with SEPP (Housing) 2021.

The bicycle and motorcycle parking requirements for a boarding house development as outlined in SEPP 2021 are as follows:

- 1 bicycle space per boarding rooms
- 1 motorcycle parking space for every 5 boarding houses

Table 3b summarises the bicycle and motorcycle parking requirements for the boarding house development.

Vehicle	Number of Rooms	SEPP parking rate	Parking spaces required	Parking spaces provided
Bicycle	25	1 per boarding room	25	11
Motorcycle	25	1 per 5 boarding rooms	5	8

Table 3b: Summary of bicycle and motorcycle Parking Requirements and Provision

As shown in the table above, the provision of motorcycle spaces complies with the requirements of SEPP 2021 and exceeds the requirements by two spaces. However, the provision of bicycle spaces falls short of sixteen spaces. The excess motorcycle spaces and car spaces can be used to accommodate the bicycle parking requirements. Therefore, the provision is considered adequate.

5. VEHICLE TRAFFIC IMPACT CONSIDERATIONS

5.1 Traffic Generation

The RTA Guide to Traffic Generating Developments Updated Traffic Surveys August 2013 does not publish trip generation rates for a boarding house but it does for motel rooms as follows:

- 0.4 trips per unit for the weekday evening peak hour

For the purposes of the traffic assessment only, the above trip rate is used for the boarding house traffic assessment.

Table 4 summarises the trips generated by the proposed development.

Table 5 summarises the new trip distribution for the proposed development. The proposed development is a low trip generator.

Proposed			
Land use	**Number of rooms**	**Trip rate per room**	**Trips**
Boarding House	25	0.4	10
Total			**10**

Table 6 summarises the proposed and existing trip generation for the respective land uses.

Net Trips			
Weekday Rates	**Origin**	**Destination**	**Total**
AM Peak Hour	8	2	10
PM Peak Hour	2	8	10

Table 7 summarises the trip distribution for the proposed and existing to obtain the net trip generation.

The proposed development will generate a small portion of additional trips in the peak hour periods.

The proposed development is a low trip generator.

5.2 Forecast Traffic Volumes

The following Figures present the existing with the development traffic.

The additional development traffic is in red for origin trips and blue for destination trips. The additional development traffic represents a small proportion of the existing traffic.

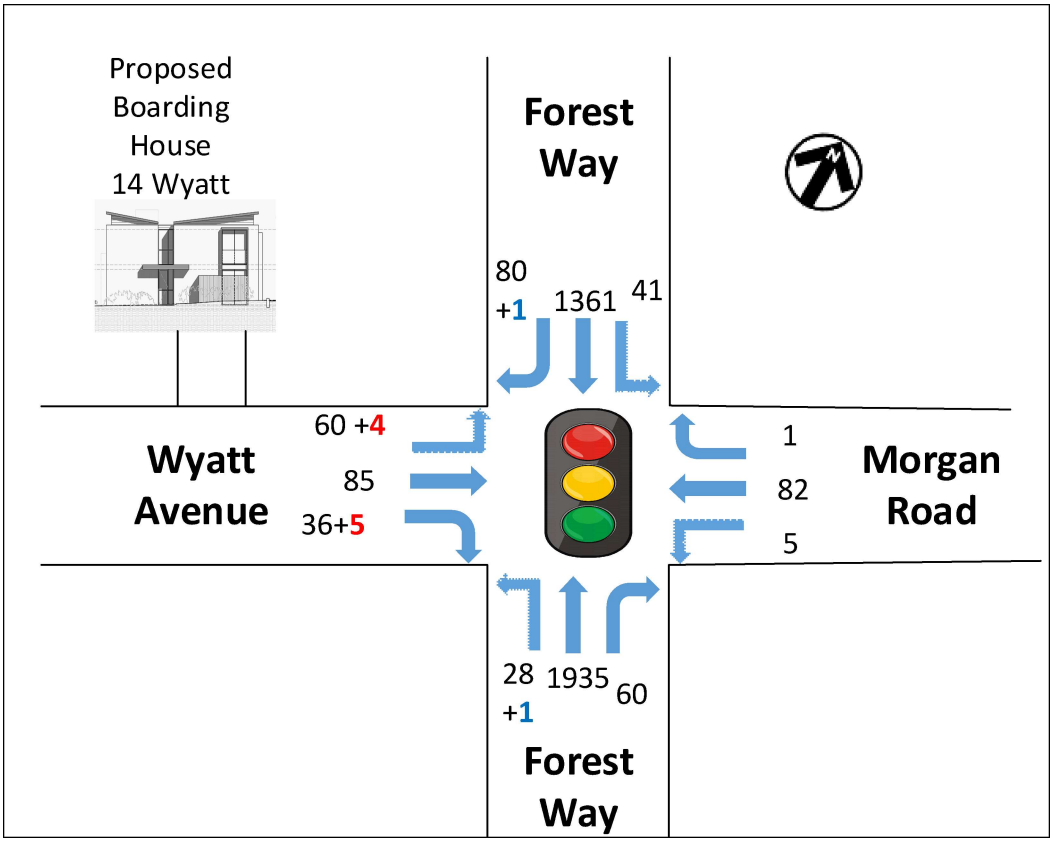

Figure 13: Existing Weekday AM Peak Hour Traffic Volumes with Development Traffic

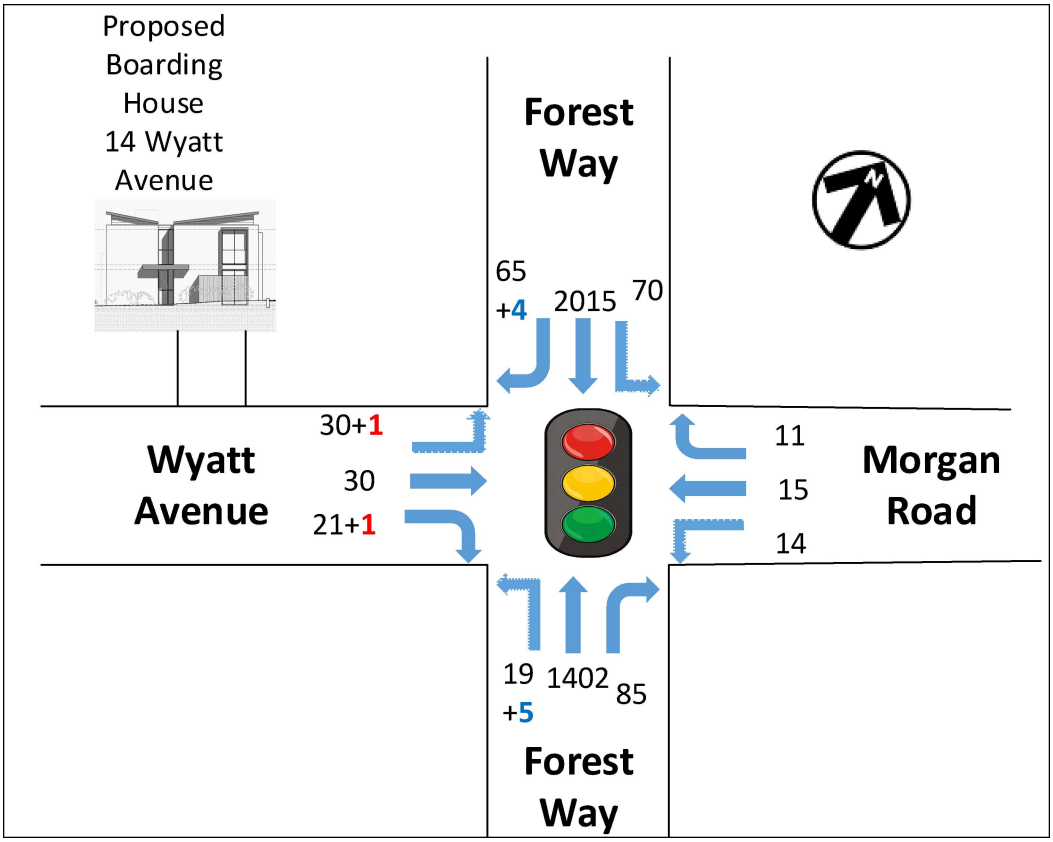

Figure 14: Existing Weekday PM Peak Hour Traffic Volumes with Development Traffic

5.3 Intersection Assessment

This section assesses the following intersections for the existing traffic with the school traffic. The results of the intersection assessment are as follows:

Forest Way with Morgan Road and Wyatt Avenue

- The overall intersection has a LoS B for the AM and Peak hours
- There is spare capacity at this intersection
- The additional trips do not change the LoS for the overall intersection or for any turn movement

The full SIDRA results are presented in Appendix B for the existing conditions with the school traffic. The full SIDRA results are presented in Appendix A for the existing conditions.

6. CONCLUSIONS

Based on the considerations presented in this report, it is considered that:

Parking

- The proposed development is compliant with the car parking requirements outlined in State Environmental Planning Policy

Traffic

- The proposed development is a low net trip generator for the weekday AM and PM peak hours.
- The additional trips from the proposed development can be accommodated at the nearby intersection without noticeably affecting intersection performance, delays or queues.
- There are no traffic engineering reasons why a planning permit for the proposed boarding house development at 14 Wyatt Avenue in Belrose should be refused.

APPENDIX A

SIDRA Intersection Results for Existing Traffic Conditions

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
SouthEast: Forest Way											
1	L2	31	0.0	0.869	28.5	LOS B	49.7	347.7	0.87	0.85	43.3
2	T1	2037	0.0	0.869	22.2	LOS B	49.7	347.7	0.87	0.86	53.7
3	R2	63	0.0	0.630	64.3	LOS E	3.6	25.3	1.00	0.80	26.5
Approach		2131	0.0	0.869	23.6	LOS B	49.7	347.7	0.88	0.85	51.9
NorthEast: Morgan Road											
4	L2	5	0.0	0.308	49.1	LOS D	4.4	30.9	0.92	0.73	30.9
5	T1	86	0.0	0.308	44.5	LOS D	4.4	30.9	0.92	0.73	31.1
6	R2	1	0.0	0.007	53.1	LOS D	0.1	0.4	0.92	0.59	28.9
Approach		93	0.0	0.308	44.9	LOS D	4.4	30.9	0.92	0.73	31.1
NorthWest: Forest Way											
7	L2	44	0.0	0.634	20.0	LOS B	25.1	175.5	0.66	0.62	48.5
8	T1	1433	0.0	0.634	13.1	LOS A	25.1	175.5	0.65	0.60	61.7
9	R2	84	0.0	0.840	69.1	LOS E	5.1	35.6	1.00	0.94	25.6
Approach		1561	0.0	0.840	16.3	LOS B	25.1	175.5	0.67	0.62	56.9
SouthWest: Wyatt Avenue											
10	L2	63	0.0	0.489	49.7	LOS D	7.6	52.9	0.95	0.78	30.3
11	T1	89	0.0	0.489	45.1	LOS D	7.6	52.9	0.95	0.78	30.5
12	R2	38	0.0	0.200	52.5	LOS D	1.9	13.2	0.93	0.73	29.1
Approach		191	0.0	0.489	48.1	LOS D	7.6	52.9	0.95	0.77	30.1
All Vehicles		3975	0.0	0.869	22.4	LOS B	49.7	347.7	0.80	0.76	51.1

Table A1: Intersection Performance of Forest Way with Morgan Road and Wyatt Avenue Weekday AM Peak Hour Existing Conditions

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
SouthEast: Forest Way											
1	L2	21	0.0	0.593	19.7	LOS B	26.2	183.7	0.60	0.55	47.9
2	T1	1476	0.0	0.593	13.4	LOS A	26.3	184.0	0.61	0.57	61.7
3	R2	89	0.0	0.791	76.6	LOS F	6.2	43.1	1.00	0.90	24.3
Approach		1586	0.0	0.791	17.1	LOS B	26.3	184.0	0.64	0.58	56.5
NorthEast: Morgan Road											
4	L2	15	0.0	0.102	54.8	LOS D	1.7	11.6	0.89	0.68	29.0
5	T1	16	0.0	0.102	50.2	LOS D	1.7	11.6	0.89	0.68	29.2
6	R2	12	0.0	0.057	57.6	LOS E	0.6	4.5	0.90	0.68	27.9
Approach		42	0.0	0.102	53.8	LOS D	1.7	11.6	0.89	0.68	28.8
NorthWest: Forest Way											
7	L2	75	0.0	0.892	31.1	LOS C	62.7	438.9	0.90	0.88	42.4
8	T1	2121	0.0	0.892	24.5	LOS B	62.7	438.9	0.88	0.86	51.7
9	R2	68	0.0	0.605	72.8	LOS F	4.5	31.6	1.00	0.79	25.0
Approach		2264	0.0	0.892	26.2	LOS B	62.7	438.9	0.88	0.86	49.7
SouthWest: Wyatt Avenue											
10	L2	32	0.0	0.207	55.9	LOS D	3.5	24.5	0.91	0.72	28.7
11	T1	32	0.0	0.207	51.3	LOS D	3.5	24.5	0.91	0.72	28.9
12	R2	22	0.0	0.097	57.0	LOS E	1.2	8.6	0.90	0.71	28.1
Approach		85	0.0	0.207	54.5	LOS D	3.5	24.5	0.90	0.72	28.6
All Vehicles		3978	0.0	0.892	23.4	LOS B	62.7	438.9	0.78	0.74	51.0

Table A2: Intersection Performance of Forest Way with Morgan Road and Wyatt Avenue Weekday PM Peak Hour Existing Conditions

APPENDIX B

SIDRA Intersection Results for Existing Traffic Conditions with Boarding House Traffic

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
SouthEast: Forest Way											
1	L2	32	0.0	0.869	28.6	LOS C	49.8	348.4	0.88	0.85	43.3
2	T1	2037	0.0	0.869	22.3	LOS B	49.8	348.4	0.88	0.86	53.6
3	R2	63	0.0	0.630	64.3	LOS E	3.6	25.3	1.00	0.80	26.5
Approach		2132	0.0	0.869	23.6	LOS B	49.8	348.4	0.88	0.86	51.8
NorthEast: Morgan Road											
4	L2	5	0.0	0.308	49.1	LOS D	4.4	30.9	0.92	0.73	30.9
5	T1	86	0.0	0.308	44.5	LOS D	4.4	30.9	0.92	0.73	31.1
6	R2	1	0.0	0.007	53.1	LOS D	0.1	0.4	0.92	0.59	28.9
Approach		93	0.0	0.308	44.9	LOS D	4.4	30.9	0.92	0.73	31.1
NorthWest: Forest Way											
7	L2	44	0.0	0.635	20.0	LOS B	25.1	175.6	0.66	0.62	48.5
8	T1	1433	0.0	0.635	13.1	LOS A	25.1	175.6	0.65	0.60	61.7
9	R2	85	0.0	0.851	69.6	LOS E	5.2	36.3	1.00	0.95	25.5
Approach		1562	0.0	0.851	16.4	LOS B	25.1	175.6	0.67	0.62	56.8
SouthWest: Wyatt Avenue											
10	L2	67	0.0	0.508	49.8	LOS D	7.8	54.4	0.95	0.78	30.3
11	T1	89	0.0	0.508	45.2	LOS D	7.8	54.4	0.95	0.78	30.4
12	R2	42	0.0	0.223	52.7	LOS D	2.1	14.7	0.93	0.74	29.0
Approach		199	0.0	0.508	48.4	LOS D	7.8	54.4	0.95	0.77	30.1
All Vehicles		3985	0.0	0.869	22.5	LOS B	49.8	348.4	0.80	0.76	50.9

Table B1: Intersection Performance of Forest Way with Morgan Road and Wyatt Avenue Weekday AM Peak Hour Existing Conditions with Boarding House Traffic

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
SouthEast: Forest Way											
1	L2	26	0.0	0.595	19.8	LOS B	26.4	184.8	0.60	0.56	48.2
2	T1	1476	0.0	0.595	13.4	LOS A	26.4	185.1	0.61	0.57	61.6
3	R2	89	0.0	0.791	76.6	LOS F	6.2	43.1	1.00	0.90	24.3
Approach		1592	0.0	0.791	17.1	LOS B	26.4	185.1	0.64	0.59	56.4
NorthEast: Morgan Road											
4	L2	15	0.0	0.102	54.8	LOS D	1.7	11.6	0.89	0.68	29.0
5	T1	16	0.0	0.102	50.2	LOS D	1.7	11.6	0.89	0.68	29.2
6	R2	12	0.0	0.057	57.6	LOS E	0.6	4.5	0.90	0.68	27.9
Approach		42	0.0	0.102	53.8	LOS D	1.7	11.6	0.89	0.68	28.8
NorthWest: Forest Way											
7	L2	75	0.0	0.893	31.3	LOS C	63.1	441.8	0.90	0.88	42.3
8	T1	2121	0.0	0.893	24.7	LOS B	63.1	441.8	0.88	0.86	51.5
9	R2	73	0.0	0.642	73.3	LOS F	4.8	33.7	1.00	0.80	24.9
Approach		2268	0.0	0.893	26.5	LOS B	63.1	441.8	0.88	0.86	49.5
SouthWest: Wyatt Avenue											
10	L2	33	0.0	0.210	55.9	LOS D	3.6	25.0	0.91	0.72	28.7
11	T1	32	0.0	0.210	51.4	LOS D	3.6	25.0	0.91	0.72	28.9
12	R2	23	0.0	0.102	57.1	LOS E	1.3	9.0	0.90	0.71	28.1
Approach		87	0.0	0.210	54.6	LOS D	3.6	25.0	0.90	0.72	28.6
All Vehicles		3989	0.0	0.893	23.7	LOS B	63.1	441.8	0.79	0.75	50.7

Table B2: Intersection Performance of Forest Way with Morgan Road and Wyatt Avenue Weekday PM Peak Hour Existing Conditions with Boarding House Traffic