

PROPOSED RESIDENTIAL DEVELOPMENT

16-24 Hope Street in Penrith

***Prepared for: Prestige Developments Group
(NSW) Pty Ltd***

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1. INTRODUCTION

Motion Traffic Engineering was commissioned by Prestige Developments Group (NSW) Pty Ltd to undertake a traffic and parking impact assessment of the proposed residential development at 16-24 Hope Street in Penrith.

Currently the site is comprised of five residential dwelling houses and has frontage to Hope Street.

This traffic report focuses on the proposed residential development and changes in car usage and car park utilisation and additional trips from the proposed residential 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 residential development is located on Hope Street and is within a residential area. The site is about 100 metres to the west of Nepean Hospital.

Figures 1 and 2 show the location of the development site from the aerial and street map perspective respectively.

Figure 3 shows a 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 3a: Photograph of 16 Hope Street



Figure 3b: Photograph of 18-20 Hope Street



Figure 3c: Photograph of 22-24 Hope Street

2.2 Road Network

This section discusses the road network adjacent to the site.

Hope Street is a local road with one lane each way with a default speed limit of 50km/hr. On street parking is permitted on both sides of the road. Figure 4 presents a photograph of Hope Street.

Parker Street is an arterial road with three lanes each way and is on a divided carriageway with a sign posted speed limit of 60km/hr. Figure 5 presents a photograph of Parker Street.



Figure 4: Hope Street looking east near the Development Site



Figure 5: Parker Street looking north

2.3 Intersection Description

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

- The signalised intersection of Parker Street with Derby Street
- The priority-controlled intersection of Parker Street with Hope Street

External traffic to and from the proposed residential development will need to travel through one of the above intersections. Drivers from the north will turn right from Parker Street into Derby Street at the signalised intersection of Parker Street with Derby Street and then circulate through the local road network and reach the site.

Drivers from the south can turn left into Hope Street from Parker Street.

The signalised intersection of Parker Street with Derby Street is a four leg intersection with all turn movements permitted and pedestrian crossings on all approaches. Figure 6 shows a layout of the intersection using SIDRA - an industry standard intersection assessment software. The numbers on the lane represent the length of short lanes in metres.

The priority-controlled intersection of Parker Street with Hope Street is a three-leg intersection with drivers from Hope Street needing to give way to traffic on Parker Street. The only turn movements permitted are the left turns. Figure 7 shows a layout of the intersection using SIDRA.

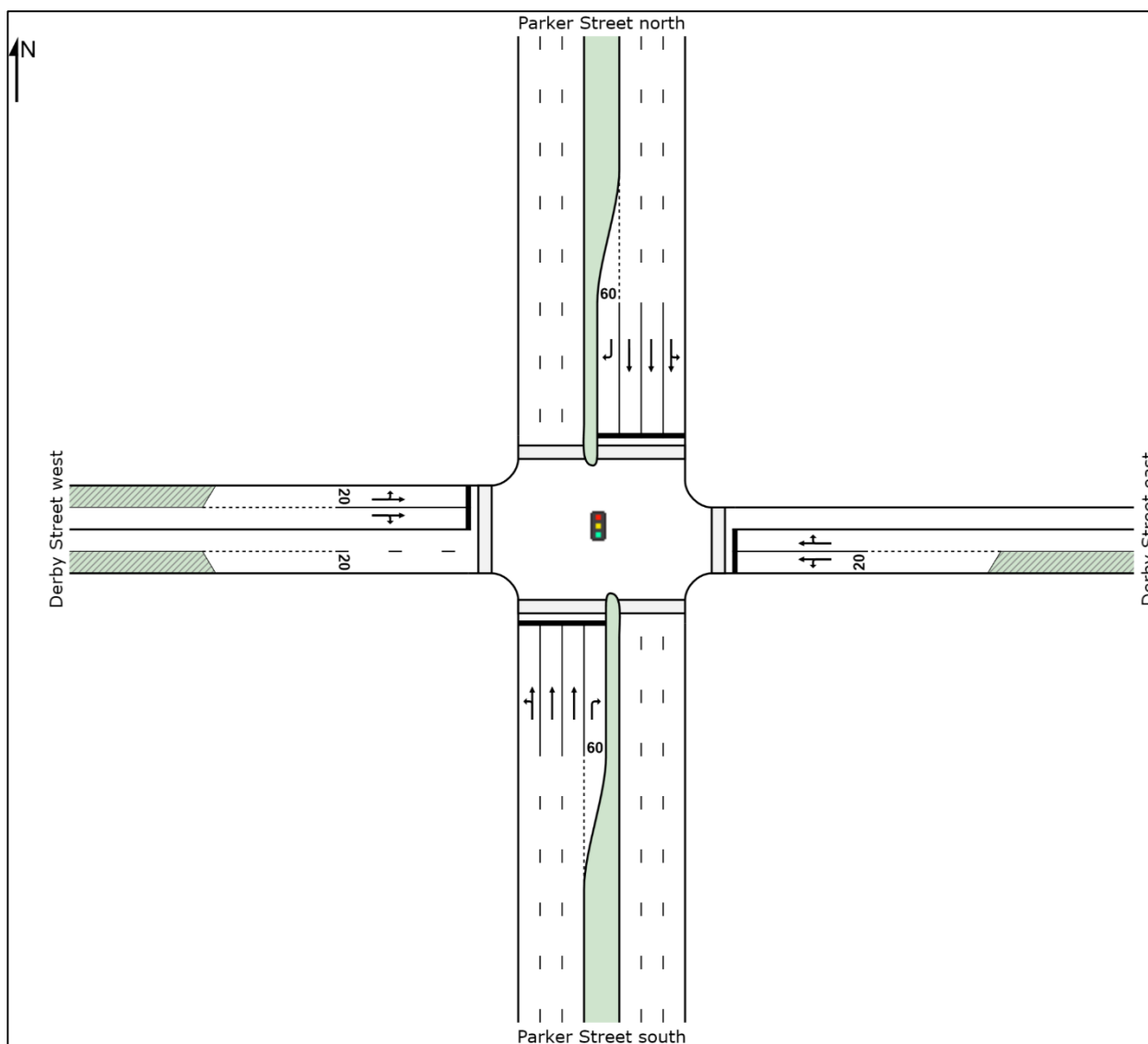


Figure 6: Signalised Intersection Layout of Parker Street with Derby Street (SIDRA)

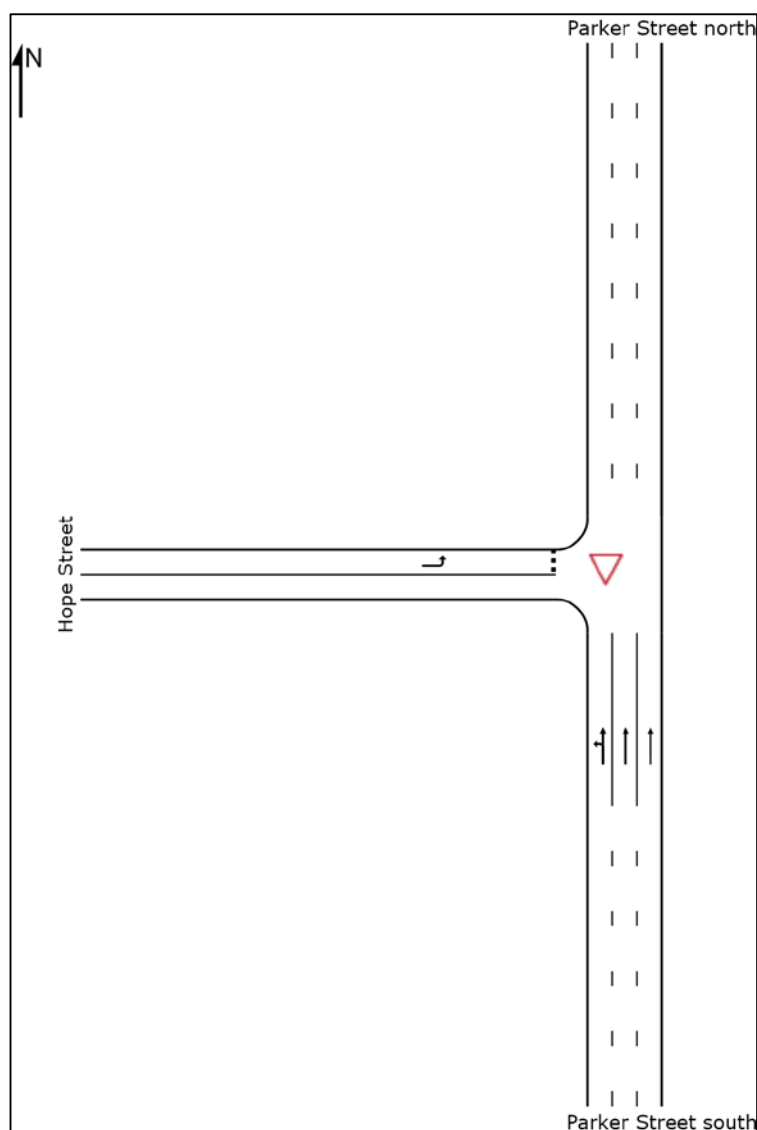


Figure 7: Priority-controlled Intersection Layout of Parker Street with Hope Street (SIDRA)

2.4 Existing Traffic Volumes

As part of the traffic assessment, traffic counts have been undertaken at the four 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.

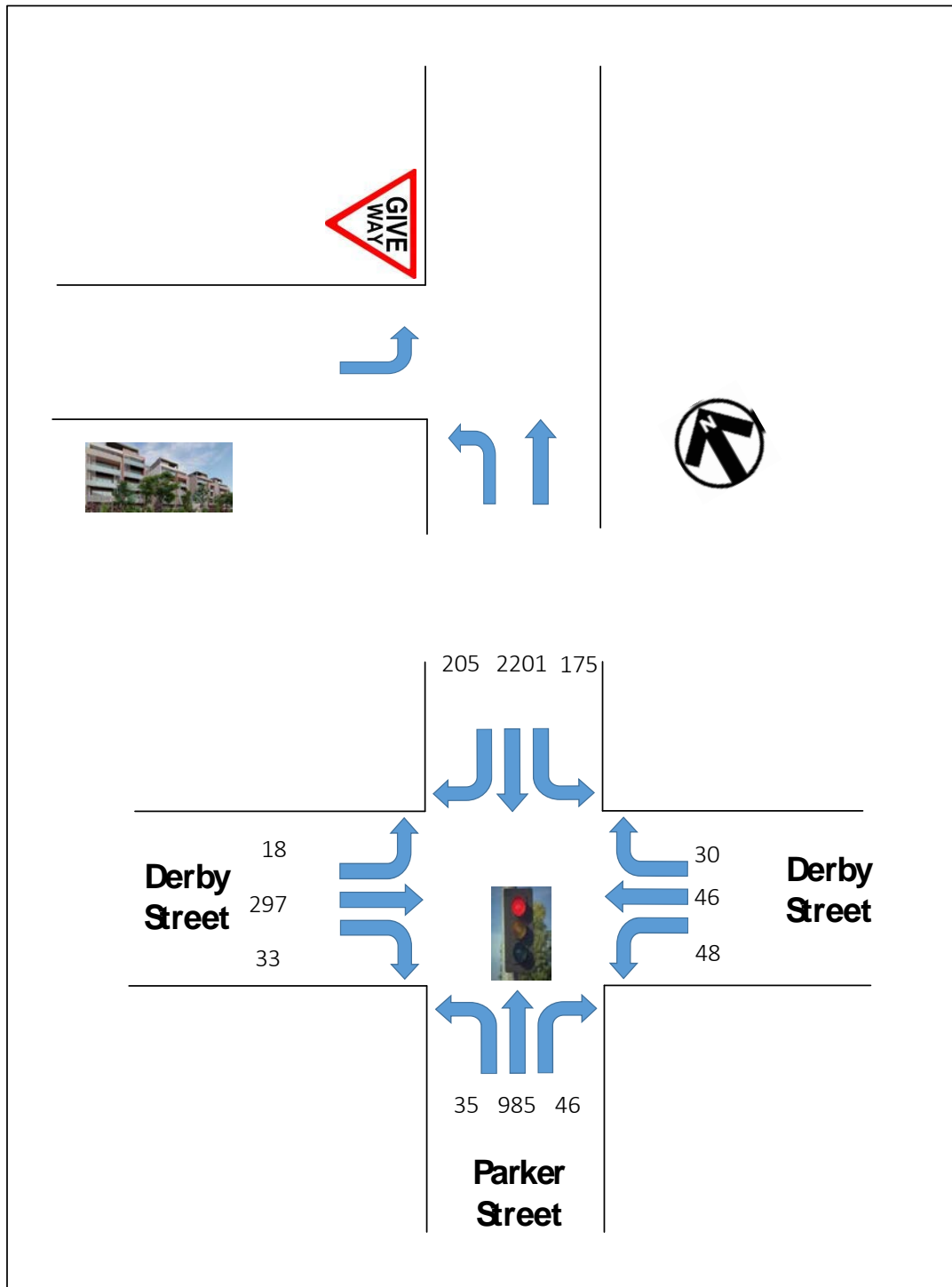


Figure 8: Existing Weekday Traffic Volumes AM Peak Hour

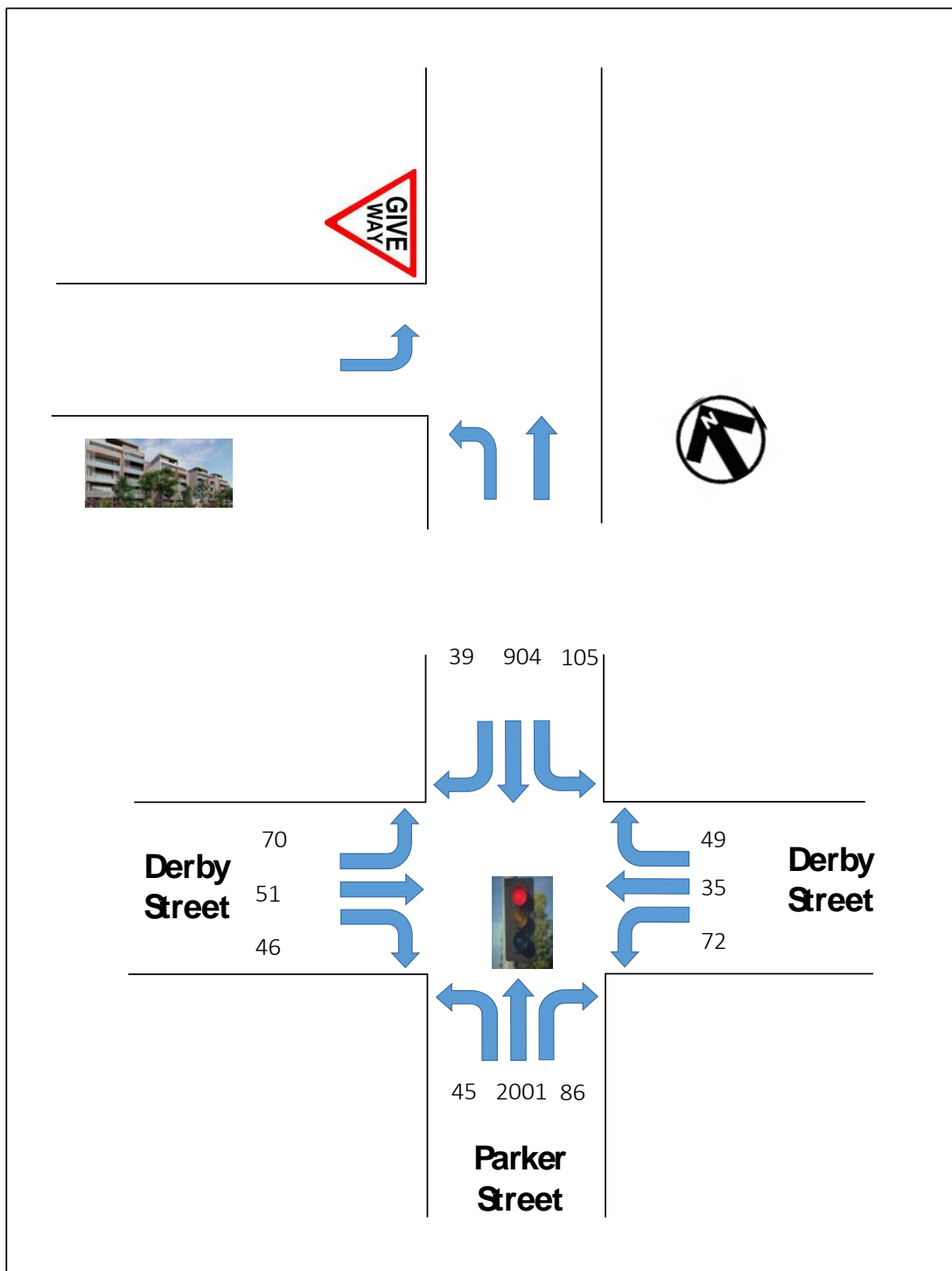


Figure 9: Existing Weekday Traffic Volumes PM Peak Hour

2.5 Intersection Assessment

An intersection assessment has been undertaken for the two surveyed intersections.

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:

Signalised intersection of Parker Street with Derby Street

- The intersection has an overall LoS D and B for the AM and PM peak hours respectively
- There is spare capacity at this intersection

Priority-controlled intersection of Parker Street with Hope Street

- All turn movements have a LoS A for both the AM and PM 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 public parking is available on Hope Street. Site observations (see Figure 4 for a photograph) showed that all car spaces are occupied by hospital staff during business hours.

2.7 Public Transport

The development site is located 1.29 kilometres away south west of Kingswood Train Station. The nearest bus stop to the development site is 235 metres away on Derby Street. This stop is serviced by bus route 774, 775 and 776. Another bus stop nearby is 244 metres away on Parker Street. This stop is serviced by bus route 789. These provide access to suburbs including South Penrith, Luddenham, Kingswood, St Marys, Oxley Park, Mount Druiitt, St Clair, and Erskine Park.

Figure 10a and 10b show the proximity of the site to the public transport.

Overall, the site has good access to public transport.

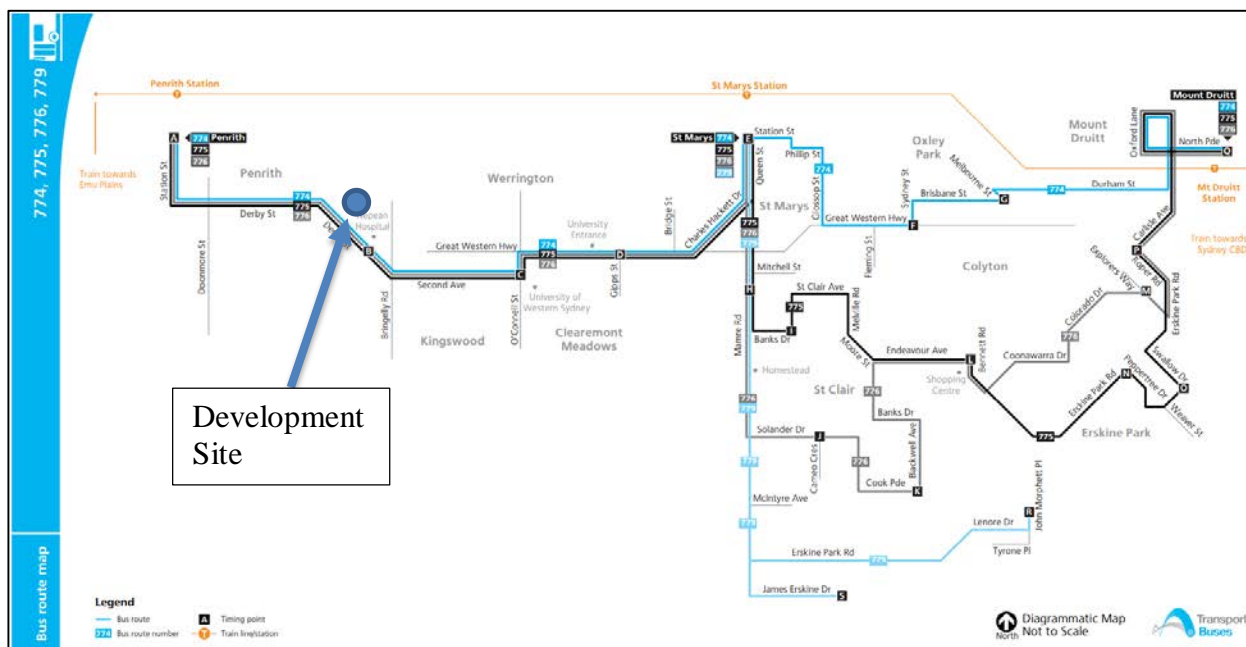


Figure 10a: Bus route 774, 775 and 776 near to the site

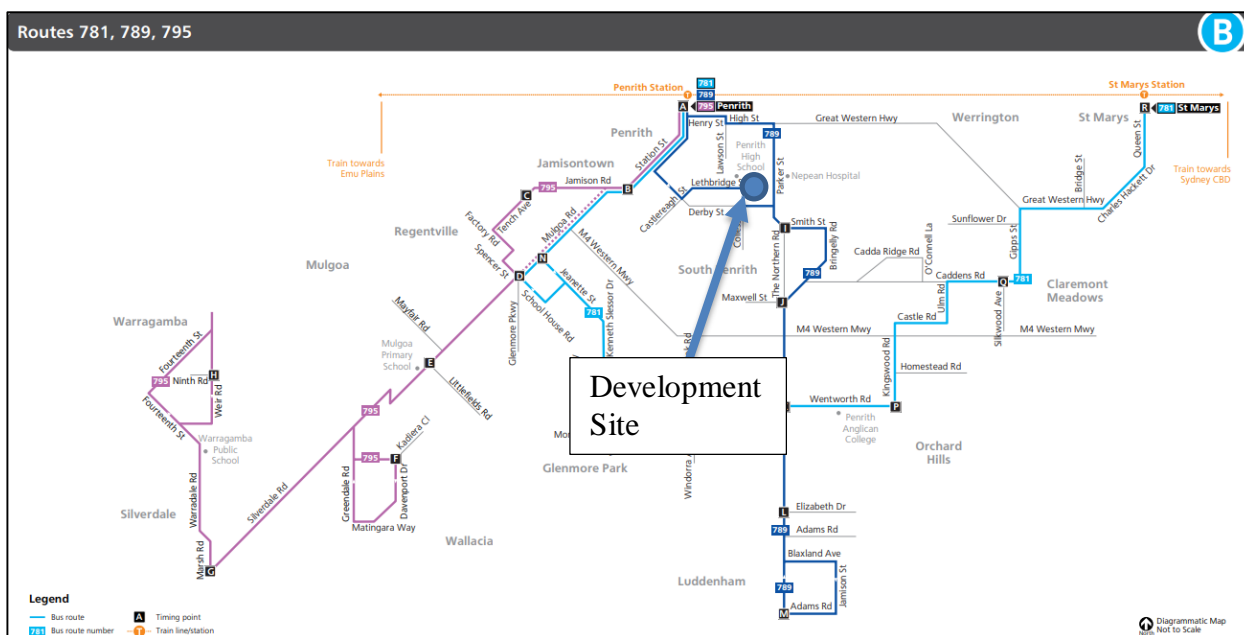


Figure 10b: Bus route 789 relative to the site

2.8 Conclusions on the Existing Conditions

The proposed residential development is located in an area where there are no vacant car spaces on Hope Street during hospital business hours as a consequence of hospital staff parking on Hope Street.

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

The site has good access to public transport.

3. PROPOSED RESIDENTIAL DEVELOPMENT

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

Residential

- One one-bedroom apartments
- Seventy-one two-bedroom apartments
- Four three-bedroom apartments
- A total of seventy-six apartments

Car Parking

- 98 car spaces via two basement levels including:
 - 72 resident car spaces
 - 8 disabled car spaces
 - 15 visitor car spaces
 - 2 car wash bays
 - 1 service vehicle space

Vehicle access and egress is via Hope Street.

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

4. PARKING CONSIDERATIONS

4.1 Penrith City Council's Development Control Plan

The parking requirements for parking are presented in Penrith City Council's Development Control Plan. The parking requirements as it applies to a residential dwelling are as follows:

Medium Density Residential Development

- 1 car space per one-bedroom apartment
- 1 car space per two-bedroom apartment
- 2 car spaces per three-bedroom apartment
- 1 visitor car space per five apartments
- 1 car space per forty apartments for service vehicles
- 1 car wash bay for every fifty apartments

Table 3 summarises the car parking requirements for the development.

Apartments	Number	Car Parking Rate per Apartment	Car Spaces Required	Car Spaces Provided
1 Bedroom	1	1	1	98
2 Bedroom	71	1	71	
3 Bedroom	4	2	8	
Visitor Parking	76	0.2	16	
Service Vehicles	76	0.025	2	
Car Washing	76	0.02	2	
		Total	100	

Table 3: Car Parking Requirements

4.2 Adequacy of Car Parking Provision

The proposed residential development requires 100 car spaces versus the 98 car spaces provided. The residential development is two car spaces short of meeting Council

S parking requirements. It is, however, noted that the development is within the vicinity of Nepean Hospital which is likely where most of the tenants are employed and thus they have a lower car ownership rate.

Two car spaces can also be met on the development frontage of the site without affecting the availability of nearby residents in retaining their frontage for on street parking.

5. VEHICLE TRAFFIC IMPACT CONSIDERATIONS

5.1 Traffic Generation

The RTA Guide to Traffic Generating Developments publishes trip rates for houses (existing) and apartments as follows for the weekday peak hours:

Residential houses (existing)

- 0.85 trips per house

Apartments (proposed)

- 0.5 trips per one or two-bedroom apartment
- 0.65 trips per three or more-bedroom apartment

Table 4 summarises the proposed and existing trip generation for the respective land uses.

Table 5 summarises the trip distribution for the proposed residential development.

The proposed residential development will generate a moderate number of additional trips in the AM and PM peak hours.

Proposed			
Apartments	Number	Trip Rate per Apartment	Trips
One Bedroom	1	0.5	38.6
Two Bedroom	71		
Three Bedroom	4	0.65	
Existing			
Component / Use	Number	Trip Rate per House	Trips
Houses	5	0.85	4.25
Net Trips			35

Table 4: Summary of Trip Generation for the Existing and Proposed residential development

Trip Distribution			
Weekday Rates	Origin	Destination	Total
AM Peak Hour	30	5	35
PM Peak Hour	5	30	35

Table 5: Trip Distribution for the Proposed residential development

5.2 Forecast Traffic Volumes

The following figures present the existing with development traffic volumes of the surveyed intersections for the AM and PM peak hours respectively.

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.

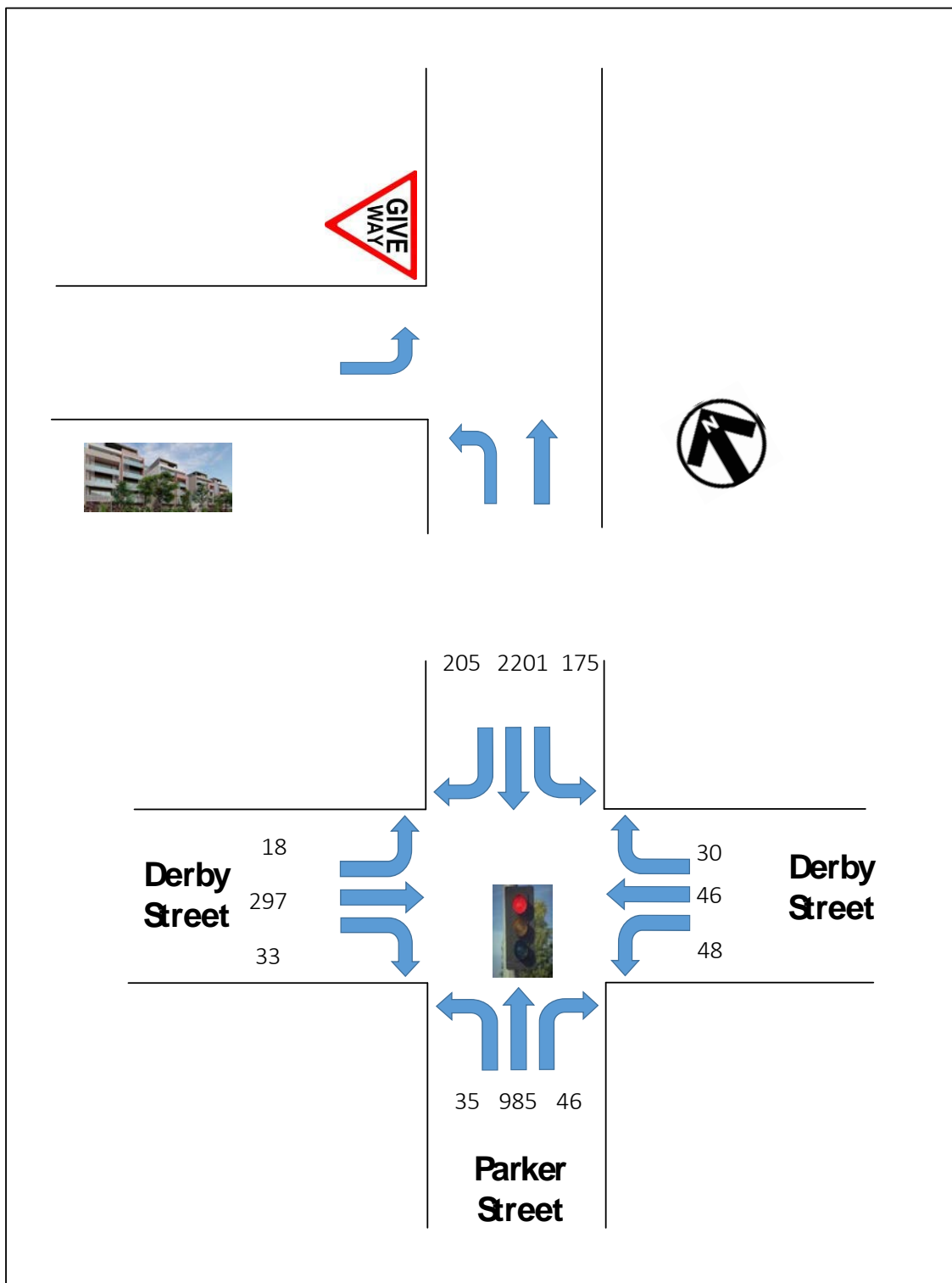


Figure 11: Existing Weekday AM Peak Hour Traffic Volumes with Development Traffic

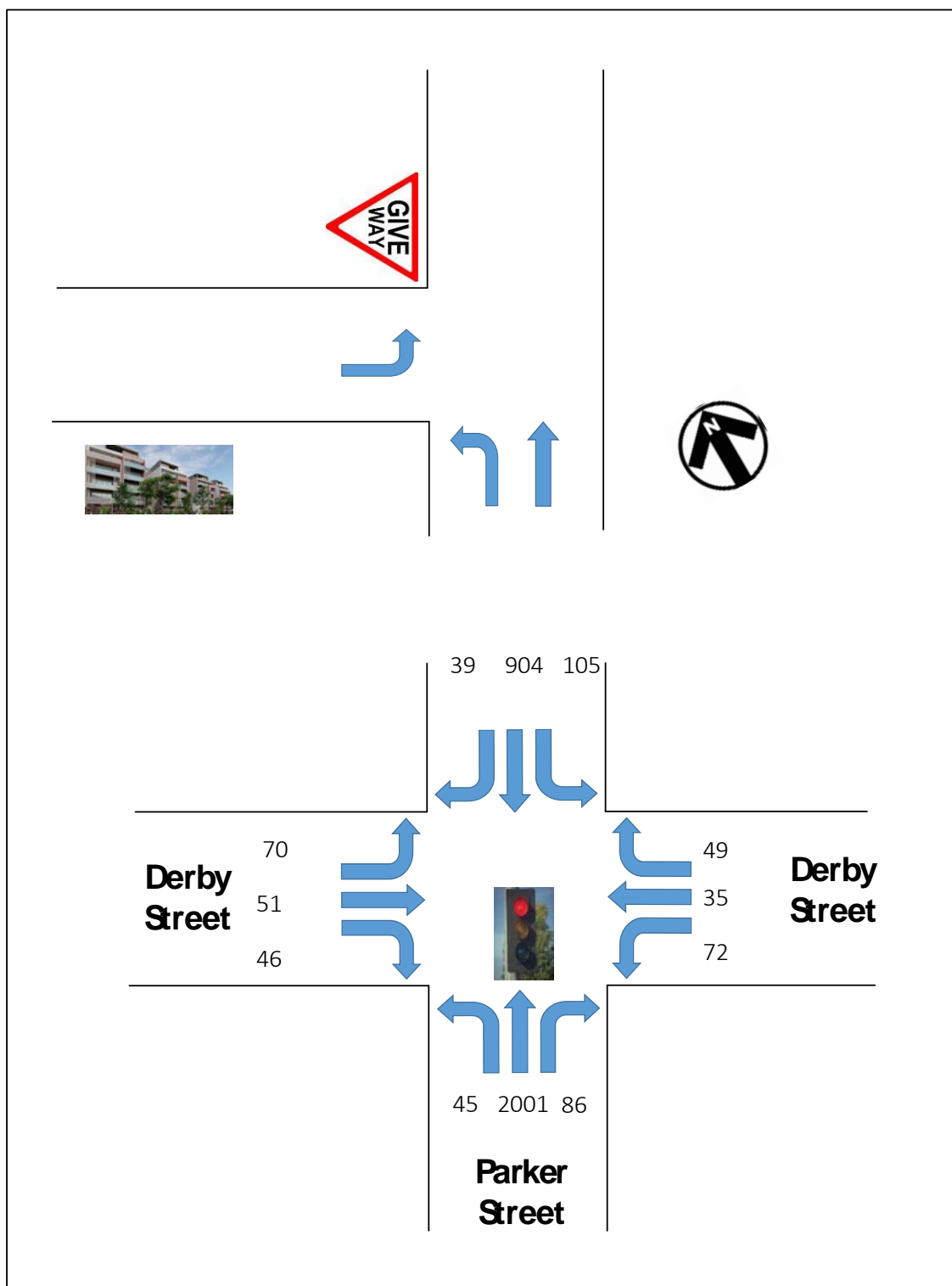


Figure 12: Existing Weekday PM Peak Hour Traffic Volumes with Development Traffic

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:

Signalised intersection of Parker Street with Derby Street

- The intersection has an overall LoS E for the AM peak hour and overall LoS B for the PM peak hour
- The additional trips only affected the intersection performance on Parker Street southbound traffic

Priority-controlled intersection of Parker Street with Hope Street

- All turn movements have a LoS A for both the AM and PM peak hours
- The additional trips do not change the overall LoS

The full SIDRA results are presented in Appendix B for the existing conditions with the development 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 residential development is two car spaces short of meeting Council's car parking requirements.
- However, the proximity to Nepean Hospital is likely to lead to some tenants to not own a car and walk to and from the Hospital work place and use public transport and Uber for social trips.
- The proximity of public transport (Kingswood Train Station and bus services nearby) also encourages some tenants to rely on public transport rather than car ownership.

Two car spaces can be found on the on-street area of the property frontage without affecting the availability of nearby residents in retaining their frontage for on street parking.

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Traffic

- The proposed residential development is a moderate trip generator for the weekday AM and PM peak hours.
- The additional trips from the proposed residential development can be accommodated at the nearby intersections with only minor effects on intersection performance, delays or queues.
- There are no traffic engineering reasons why a planning permit for the proposed residential development at 16-24 Hope Street in Penrith, should be refused.

APPENDIX A

SIDRA Intersection Results for Existing Traffic Conditions

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	v/c	sec		veh	m				km/h
South: Parker Street south												
1	L2	35	0.0	0.380	24.4	LOS C	10.7	75.1	0.70	0.62	0.70	44.6
2	T1	985	0.0	0.380	18.9	LOS B	10.8	75.5	0.70	0.61	0.70	45.7
3	R2	46	0.0	0.206	49.7	LOS D	2.1	14.6	0.94	0.74	0.94	32.7
Approach		1066	0.0	0.380	20.4	LOS C	10.8	75.5	0.71	0.62	0.71	44.9
East: Derby Street east												
4	L2	48	0.0	0.093	29.3	LOS C	1.9	13.2	0.72	0.68	0.72	35.7
5	T1	46	0.0	0.373	42.0	LOS D	3.2	22.4	0.92	0.74	0.92	31.2
6	R2	30	0.0	0.373	50.4	LOS D	3.2	22.4	0.96	0.75	0.96	30.3
Approach		124	0.0	0.373	39.1	LOS D	3.2	22.4	0.85	0.72	0.85	32.5
North: Parker Street north												
7	L2	175	0.0	0.934	56.3	LOS E	52.2	365.6	1.00	1.14	1.32	31.9
8	T1	2201	0.0	0.934	50.9	LOS D	52.7	368.6	0.97	1.14	1.31	32.6
9	R2	205	0.0	0.920	69.7	LOS E	12.3	86.2	1.00	1.08	1.62	27.7
Approach		2581	0.0	0.934	52.7	LOS D	52.7	368.6	0.98	1.14	1.33	32.1
West: Derby Street west												
10	L2	18	0.0	0.178	36.4	LOS D	3.2	22.6	0.82	0.67	0.82	34.4
11	T1	297	0.0	0.889	50.0	LOS D	14.8	103.8	0.96	1.01	1.29	29.7
12	R2	33	0.0	0.889	59.7	LOS E	14.8	103.8	1.00	1.11	1.43	28.5
Approach		348	0.0	0.889	50.2	LOS D	14.8	103.8	0.96	1.01	1.28	29.8
All Vehicles		4119	0.0	0.934	43.7	LOS D	52.7	368.6	0.90	0.98	1.15	34.4

Table A1: Intersection Performance of Parker Street with Derby Street Weekday AM Peak Hour Existing Conditions

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Parker Street south												
1	L2	15	0.0	0.177	6.3	LOS A	0.0	0.0	0.00	0.03	0.00	65.6
2	T1	1018	0.0	0.177	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	69.7
Approach		1033	0.0	0.177	0.1	NA	0.0	0.0	0.00	0.01	0.00	69.6
West: Hope Street												
10	L2	8	0.0	0.007	5.6	LOS A	0.0	0.2	0.37	0.53	0.37	45.8
Approach		8	0.0	0.007	5.6	LOS A	0.0	0.2	0.37	0.53	0.37	45.8
All Vehicles		1041	0.0	0.177	0.2	NA	0.0	0.2	0.00	0.01	0.00	69.3

Table A2: Intersection Performance of Parker Street with Hope Street Weekday AM Peak Hour Existing Conditions

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Parker Street south												
1	L2	45	0.0	0.727	21.8	LOS C	20.2	141.5	0.85	0.77	0.85	46.2
2	T1	2001	0.0	0.727	16.1	LOS B	20.3	142.0	0.84	0.76	0.84	47.4
3	R2	86	0.0	0.579	44.7	LOS D	3.3	23.2	1.00	0.79	1.07	34.2
Approach		2132	0.0	0.727	17.4	LOS B	20.3	142.0	0.85	0.76	0.85	46.7
East: Derby Street east												
4	L2	72	0.0	0.112	22.5	LOS C	1.8	12.6	0.71	0.71	0.71	37.9
5	T1	35	0.0	0.301	29.5	LOS C	2.8	19.4	0.90	0.74	0.90	34.8
6	R2	49	0.0	0.301	34.1	LOS C	2.8	19.4	0.90	0.74	0.90	34.7
Approach		156	0.0	0.301	27.7	LOS C	2.8	19.4	0.81	0.72	0.81	36.1
North: Parker Street north												
7	L2	105	0.0	0.351	18.1	LOS B	7.5	52.2	0.65	0.63	0.65	47.5
8	T1	904	0.0	0.351	12.5	LOS B	7.6	53.0	0.65	0.58	0.65	49.5
9	R2	39	0.0	0.263	43.0	LOS D	1.4	10.1	0.97	0.73	0.97	34.7
Approach		1048	0.0	0.351	14.2	LOS B	7.6	53.0	0.67	0.59	0.67	48.5
West: Derby Street west												
10	L2	70	0.0	0.109	22.5	LOS C	1.7	12.2	0.71	0.71	0.71	37.9
11	T1	51	0.0	0.335	29.7	LOS C	3.2	22.5	0.91	0.74	0.91	34.9
12	R2	46	0.0	0.335	34.3	LOS C	3.2	22.5	0.91	0.74	0.91	34.9
Approach		167	0.0	0.335	27.9	LOS C	3.2	22.5	0.83	0.73	0.83	36.1
All Vehicles		3503	0.0	0.727	17.4	LOS B	20.3	142.0	0.79	0.70	0.79	45.9

Table A3: Intersection Performance of Parker Street with Derby Street Weekday PM Peak Hour Existing Conditions

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total	HV %				Vehicles	Distance				
		veh/h	%	v/c	sec		veh	m				
South: Parker Street south												
1	L2	8	0.0	0.362	6.4	LOS A	0.0	0.0	0.00	0.01	0.00	66.3
2	T1	2110	0.0	0.362	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.8
Approach		2118	0.0	0.362	0.1	NA	0.0	0.0	0.00	0.00	0.00	69.8
West: Hope Street												
10	L2	13	0.0	0.017	7.7	LOS A	0.1	0.4	0.55	0.67	0.55	44.9
Approach		13	0.0	0.017	7.7	LOS A	0.1	0.4	0.55	0.67	0.55	44.9
All Vehicles		2131	0.0	0.362	0.1	NA	0.1	0.4	0.00	0.01	0.00	69.6

Table A4: Intersection Performance of Parker Street with Hope Street Weekday PM Peak Hour Existing Conditions

APPENDIX B

SIDRA Intersection Results for Existing with Apartment Traffic

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	v/c	sec		veh	m				km/h
South: Parker Street south												
1	L2	37	0.0	0.397	24.7	LOS C	10.6	74.3	0.72	0.64	0.72	44.4
2	T1	987	0.0	0.397	19.2	LOS B	10.7	74.7	0.72	0.63	0.72	45.5
3	R2	46	0.0	0.214	48.1	LOS D	2.0	14.0	0.94	0.74	0.94	33.2
Approach		1070	0.0	0.397	20.6	LOS C	10.7	74.7	0.73	0.63	0.73	44.8
East: Derby Street east												
4	L2	48	0.0	0.090	26.9	LOS C	1.8	12.3	0.70	0.68	0.70	36.6
5	T1	46	0.0	0.362	39.0	LOS D	3.0	21.3	0.91	0.74	0.91	32.0
6	R2	31	0.0	0.362	47.5	LOS D	3.0	21.3	0.96	0.75	0.96	31.0
Approach		125	0.0	0.362	36.5	LOS D	3.0	21.3	0.84	0.72	0.84	33.3
North: Parker Street north												
7	L2	175	0.0	0.969	75.3	LOS E	59.7	418.0	1.00	1.31	1.56	27.4
8	T1	2201	0.0	0.969	70.0	LOS E	60.2	421.4	0.98	1.34	1.56	27.9
9	R2	205	0.0	0.953	77.0	LOS E	12.9	90.0	1.00	1.19	1.87	26.3
Approach		2581	0.0	0.969	71.0	LOS E	60.2	421.4	0.99	1.32	1.58	27.7
West: Derby Street west												
10	L2	18	0.0	0.182	33.9	LOS C	3.3	22.8	0.81	0.66	0.81	35.2
11	T1	309	0.0	0.909	50.4	LOS D	15.5	108.7	0.96	1.06	1.36	29.5
12	R2	39	0.0	0.909	61.4	LOS E	15.5	108.7	1.00	1.18	1.53	28.1
Approach		366	0.0	0.909	50.8	LOS D	15.5	108.7	0.95	1.05	1.36	29.6
All Vehicles		4142	0.0	0.969	55.1	LOS E	60.2	421.4	0.91	1.10	1.32	31.1

Table B1: Intersection Performance of Parker Street with Derby Street Weekday AM Peak Hour Existing Conditions with Apartment Traffic

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total	HV %				Vehicles	Distance				
		veh/h	%	v/c	sec		veh	m				
South: Parker Street south												
1	L2	18	0.0	0.177	6.3	LOS A	0.0	0.0	0.00	0.03	0.00	65.4
2	T1	1018	0.0	0.177	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	69.6
Approach		1036	0.0	0.177	0.1	NA	0.0	0.0	0.00	0.01	0.00	69.6
West: Hope Street												
10	L2	20	0.0	0.016	5.6	LOS A	0.1	0.4	0.37	0.55	0.37	45.8
Approach		20	0.0	0.016	5.6	LOS A	0.1	0.4	0.37	0.55	0.37	45.8
All Vehicles		1056	0.0	0.177	0.2	NA	0.1	0.4	0.01	0.02	0.01	68.9

Table B2: Intersection Performance of Parker Street with Hope Street Weekday AM Peak Hour Existing Conditions with Apartment Traffic

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total	HV %				Vehicles	Distance				
		veh/h	%	v/c	sec		veh	m				
South: Parker Street south												
1	L2	54	0.0	0.708	21.6	LOS C	21.1	147.5	0.82	0.75	0.82	46.2
2	T1	2014	0.0	0.708	15.9	LOS B	21.1	148.0	0.81	0.73	0.81	47.5
3	R2	86	0.0	0.617	47.9	LOS D	3.6	25.0	1.00	0.80	1.10	33.2
Approach		2154	0.0	0.708	17.3	LOS B	21.1	148.0	0.82	0.74	0.83	46.7
East: Derby Street east												
4	L2	72	0.0	0.115	24.2	LOS C	1.9	13.6	0.72	0.71	0.72	37.3
5	T1	35	0.0	0.321	32.3	LOS C	3.2	22.1	0.92	0.75	0.92	33.9
6	R2	54	0.0	0.321	36.9	LOS D	3.2	22.1	0.92	0.75	0.92	33.8
Approach		161	0.0	0.321	30.2	LOS C	3.2	22.1	0.83	0.73	0.83	35.3
North: Parker Street north												
7	L2	105	0.0	0.338	17.9	LOS B	7.6	53.4	0.63	0.61	0.63	47.7
8	T1	904	0.0	0.338	12.3	LOS B	7.7	54.2	0.63	0.56	0.63	49.6
9	R2	42	0.0	0.302	46.0	LOS D	1.7	11.7	0.98	0.73	0.98	33.8
Approach		1051	0.0	0.338	14.2	LOS B	7.7	54.2	0.64	0.57	0.64	48.5
West: Derby Street west												
10	L2	70	0.0	0.112	24.2	LOS C	1.9	13.2	0.72	0.71	0.72	37.3
11	T1	51	0.0	0.338	31.6	LOS C	3.5	24.2	0.91	0.74	0.91	34.3
12	R2	47	0.0	0.338	36.1	LOS D	3.5	24.2	0.91	0.74	0.91	34.3
Approach		168	0.0	0.338	29.8	LOS C	3.5	24.2	0.83	0.73	0.83	35.5
All Vehicles		3534	0.0	0.708	17.6	LOS B	21.1	148.0	0.77	0.69	0.77	45.8

Table B3: Intersection Performance of Parker Street with Derby Street Weekday PM Peak Hour Existing Conditions with Apartment Traffic

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total	HV %				Vehicles	Distance				
		veh/h	%	v/c	sec		veh	m				
South: Parker Street south												
1	L2	26	0.0	0.365	6.4	LOS A	0.0	0.0	0.00	0.02	0.00	65.7
2	T1	2110	0.0	0.365	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	69.7
Approach		2136	0.0	0.365	0.1	NA	0.0	0.0	0.00	0.01	0.00	69.6
West: Hope Street												
10	L2	17	0.0	0.021	7.6	LOS A	0.1	0.5	0.55	0.68	0.55	44.9
Approach		17	0.0	0.021	7.6	LOS A	0.1	0.5	0.55	0.68	0.55	44.9
All Vehicles		2153	0.0	0.365	0.2	NA	0.1	0.5	0.00	0.01	0.00	69.3

Table B4: Intersection Performance of Parker Street with Hope Street Weekday PM Peak Hour Existing Conditions with Apartment Traffic