TRAFFIC AND PARKING IMPACT ASSESSMENT OF A PROPOSED CHILDCARE CENTRE

64 Doncaster Avenue in Claremont Meadows

Traffic and Parking Impact Report

Prepared for: Shobha Designs Architects & Urban Designers Pty. Ltd.

A1815935A (Version 1a)

June 2018

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1. INTRODUCTION

Motion Traffic Engineers was commissioned by Shobha Designs Architects & Urban Designers Pty. Ltd. to undertake a traffic and parking impact assessment of a proposed childcare centre at 64 Doncaster Avenue in Claremont Meadows. The site is currently a vacant lot.

This report focuses on the proposed development and changes in car usage and car park utilisation and additional trips generated 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 Childcare Centre is located in a residential area with Western Sydney University, Kingswood Campus located on the north west of it. Currently the site is a vacant lot.

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 site.

Figure 1: Location of the Subject Site on Aerial

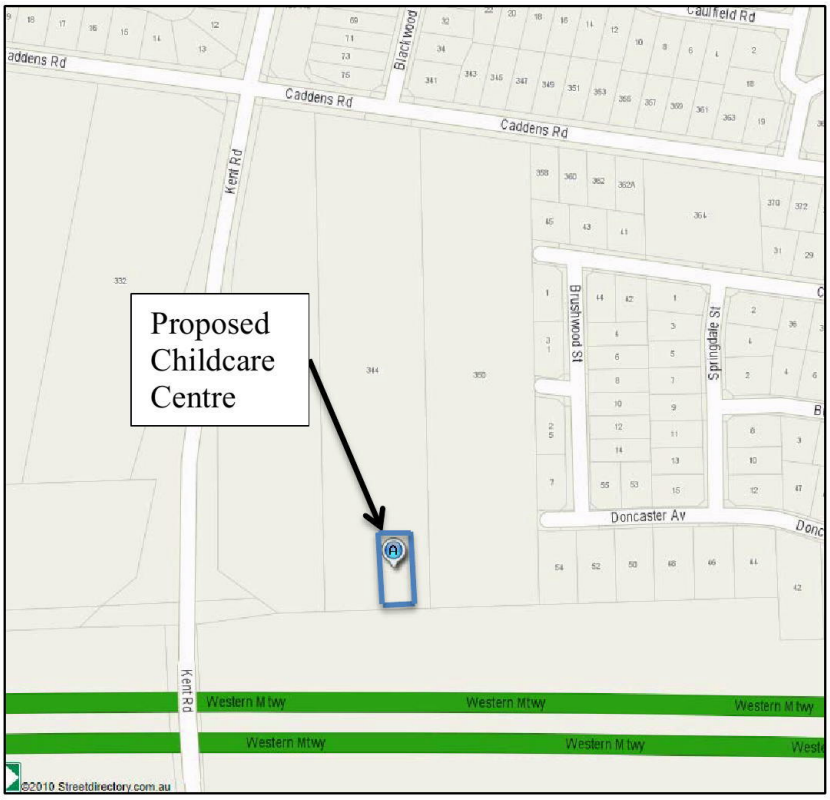

Figure 2: Street Map of the Location of the Development Site

Figure 3: Photo of site from Doncaster Avenue

2.2 Road Network

This section describes the roads near the proposed development.

Doncaster Avenue is a local road with one lane each way with a default speed limit of 50km/hr. Unrestricted on-street parking is permitted on both sides of the road. Figure 4a shows a photograph of Doncaster Avenue.

Caddens Road is a local road with one lane each way with a sign posted speed limit of 60km/hr. Unrestricted on-street parking is permitted on both sides of the road. Figure 4b shows a photograph of Caddens Road.

Kent Road is an arterial road on a divided carriageway near Caddens Road with two lanes each way with a sign posted speed limit of 70km/hr. Parking is not permitted on the road at any time. Figure 4c shows a photograph of Kent Road.

Gipps Street is an arterial road with two lanes each way on a divided carriageway near Caddens Road with a sign posted speed limit of 80 km/hr. Parking is not permitted on the road at any time. Figure 4d shows a photograph of Gipps Street.

Figure 4a: Doncaster Avenue looking West near looking towards childcare site

Figure 4b: Caddens Road looking West from adjacent to Doncaster Avenue

Figure 4c: Kent Road looking North from Caddens Road

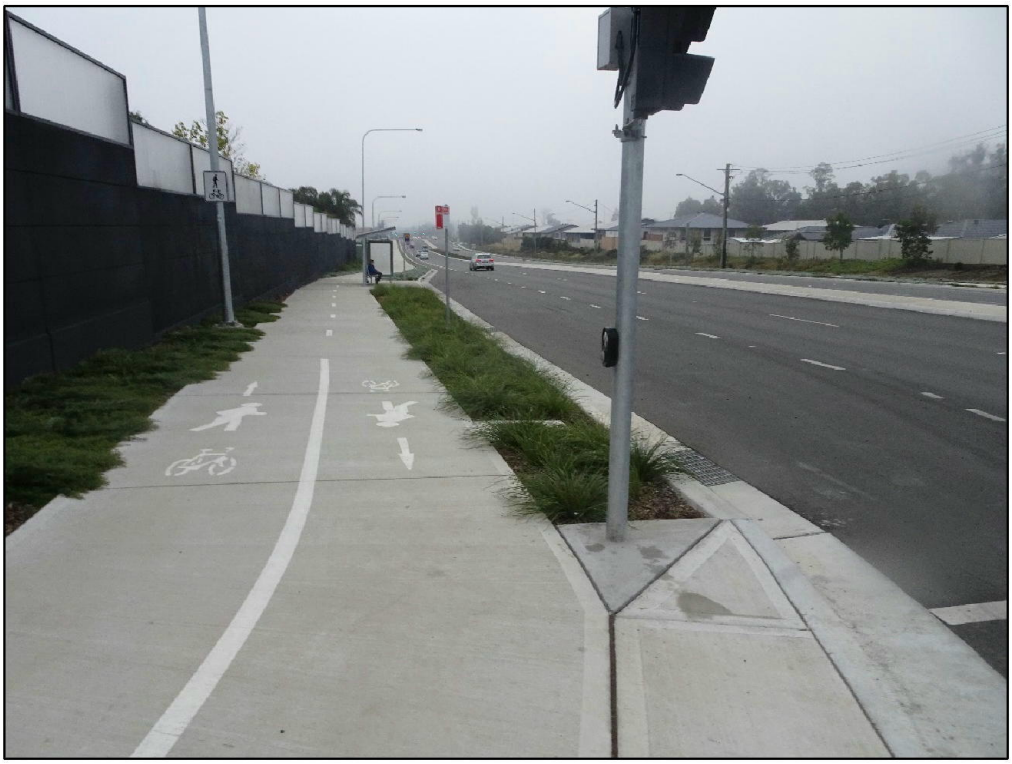

Figure 4d: Gipps Street looking North

2.3 Public Parking Opportunities

The development site is located in a residential area. Site investigations show that Doncaster Avenue have un-restricted on-street parking on both sides of the roads. The local area is residential with all dwellings having on site parking. Currently there is a large number of vacant car spaces

2.4 Intersection Description

As part of the traffic assessment, two intersections are assessed:

- The signalised intersection of Gipps Street and Kent Road with Caddens Road
- The priority-controlled intersection of Caddens Road with Doncaster Avenue and Blackwood Street

External traffic travelling to and from the development site will most likely need to travel through the above intersections.

The signalised intersection of Gipps Street and Kent Road with Caddens Road is a four-leg intersection with all turn movements permitted. Pedestrian crossings are provided on all four approaches. Figure 5 presents the layout of this intersection using SIDRA 8 – an industry standard intersection software. The numbers on the lane represent the length of a short lane in metres.

The priority intersection of Caddens Road with Doncaster Avenue and Blackwood Street is a four-leg intersection with all turn movements permitted. Drivers on Doncaster Avenue need to give way to traffic on Caddens Road. Figure 6 presents the layout of this intersection using SIDRA 8.

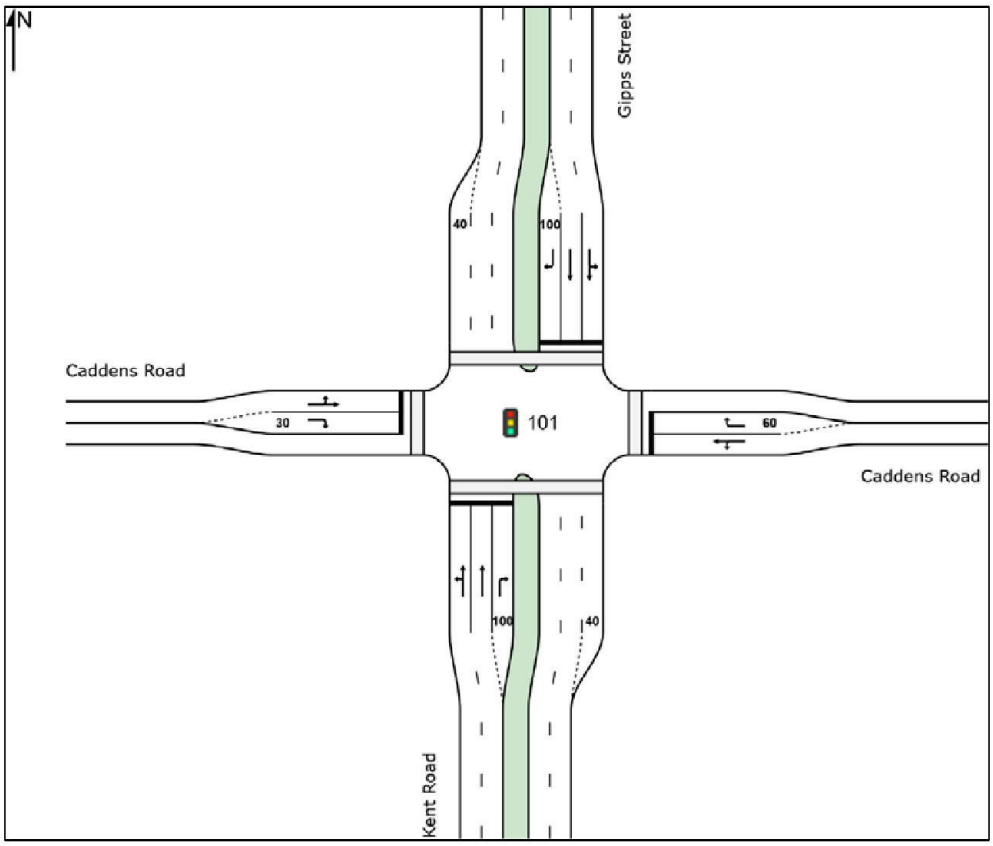

Figure 5: Signalised intersection of Gipps Street and Kent Road with Caddens Road (SIDRA)

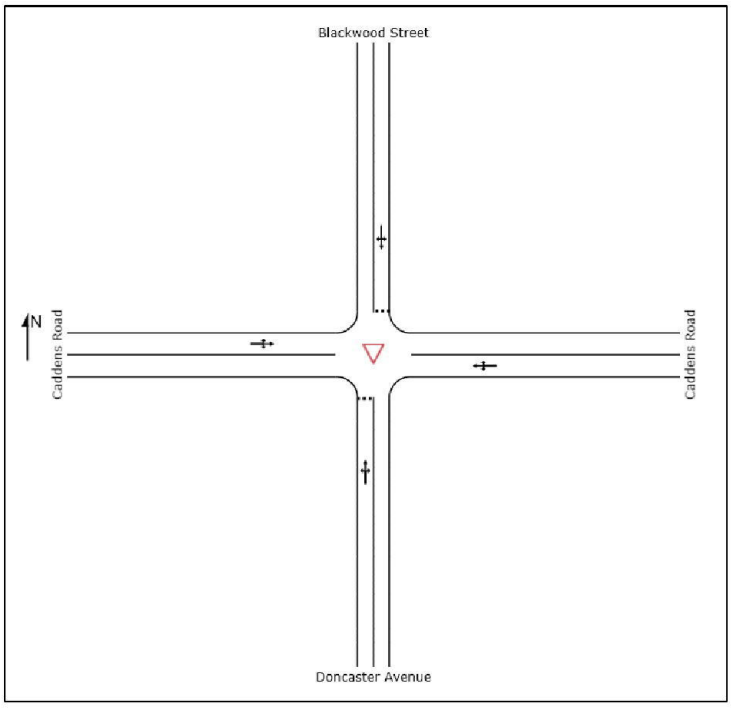

Figure 6: Priority-controlled intersection of Caddens Road with Doncaster Avenue and Blackwood Street (SIDRA)

2.5 Existing Traffic Volumes

As part of the traffic assessment, traffic counts have been undertaken at the intersection for the weekday AM and PM period. The AM peak hour is 8am to 9am, and the PM peak hour is 5pm to 6pm. The traffic surveys were undertaken on a weekday in June 2018.

The following Figures present the traffic volumes in vehicles for the weekday peak hours. Some of the movements do not show cars turning to and from Doncaster Avenue or Blackwood Avenue.

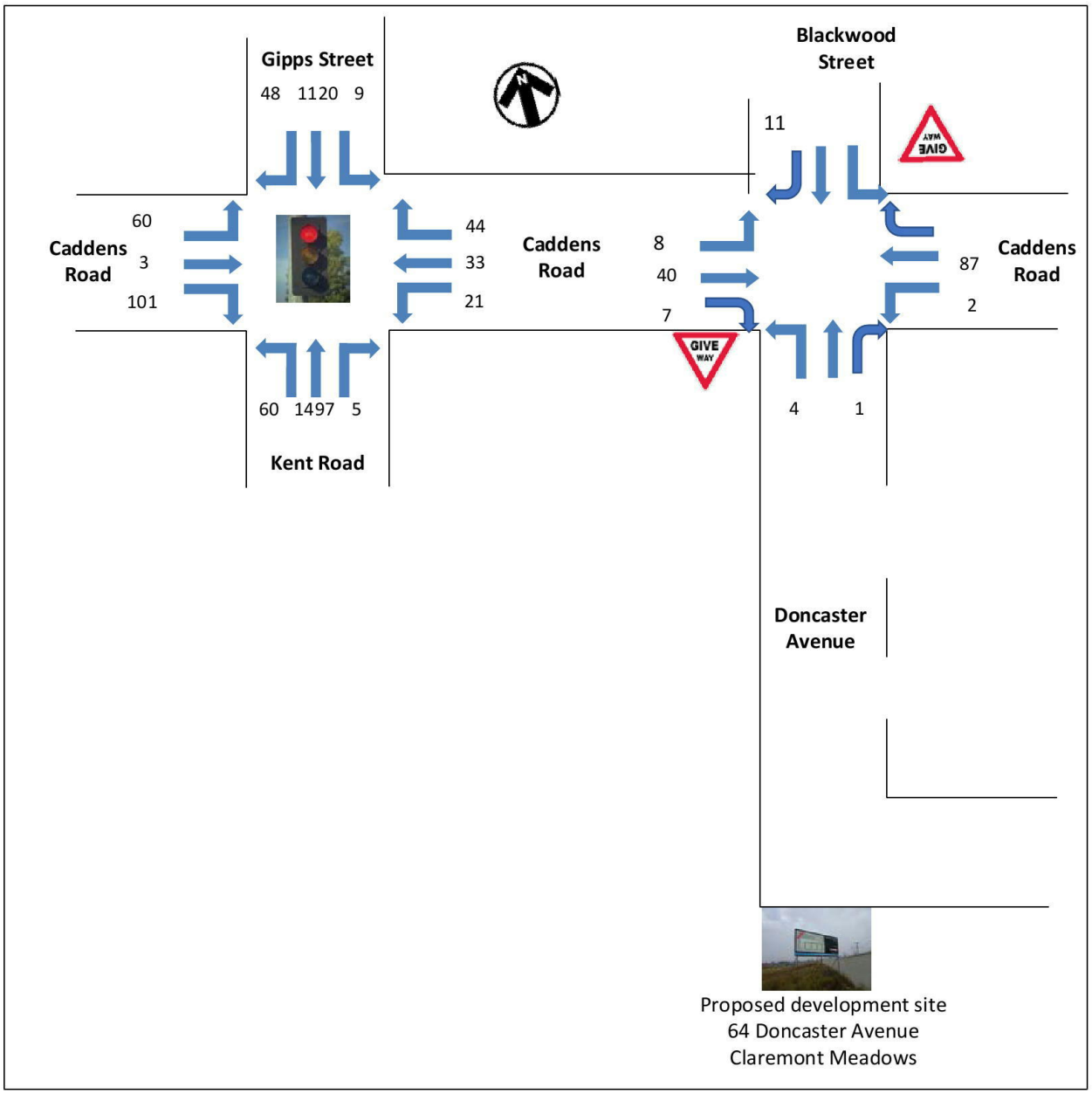

Figure 7: Existing Weekday Traffic Volumes AM Peak Hour

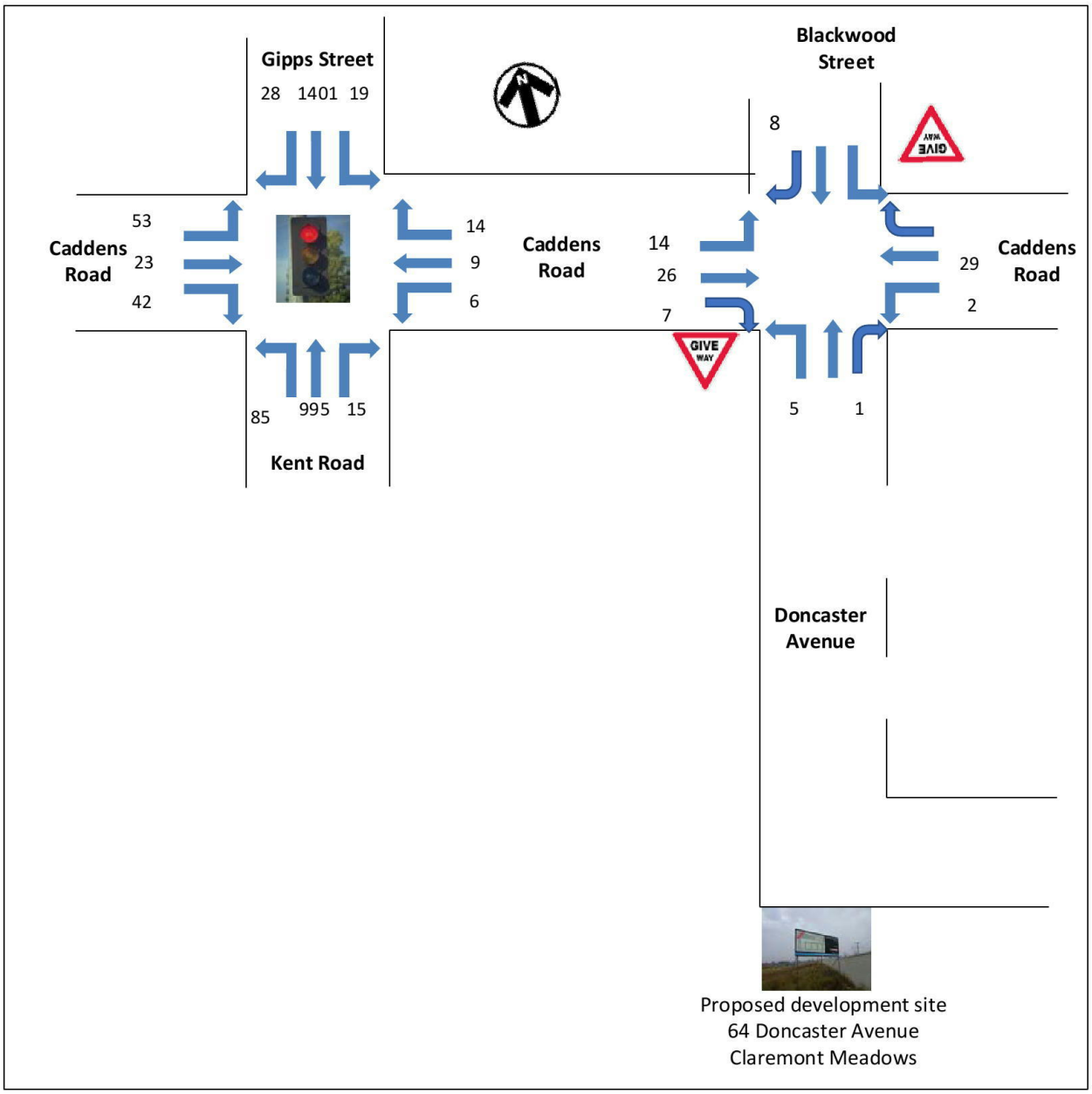

Figure 8: Existing Weekday Traffic Volumes PM Peak Hour

2.6 Intersection Assessment

An intersection assessment has been undertaken for:

- The signalised intersection of Gipps Street and Kent Road with Caddens Road
- The priority-controlled intersection of Caddens Road with Doncaster Avenue and Blackwood Street

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 Gipps Street and Kent Road with Caddens Road

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

Priority intersection of Caddens Road with Doncaster Avenue and Blackwood Street

- All turn movements have a LoS A or B for the weekday AM and PM peak hours
- There is spare capacity at this intersection

The full Sidra results are presented in Appendix A.

2.7 Public Transport

The nearest bus stop to the development site is around 500 metres away. This stop is serviced by bus routes 774 and 778. These provide transport to a range of suburbs including Orchard Hills, Claremont Meadows and St Marys.

Figure 9 and 10 shows the proximity of the site to public transport services.

Overall the site has access to public transport.

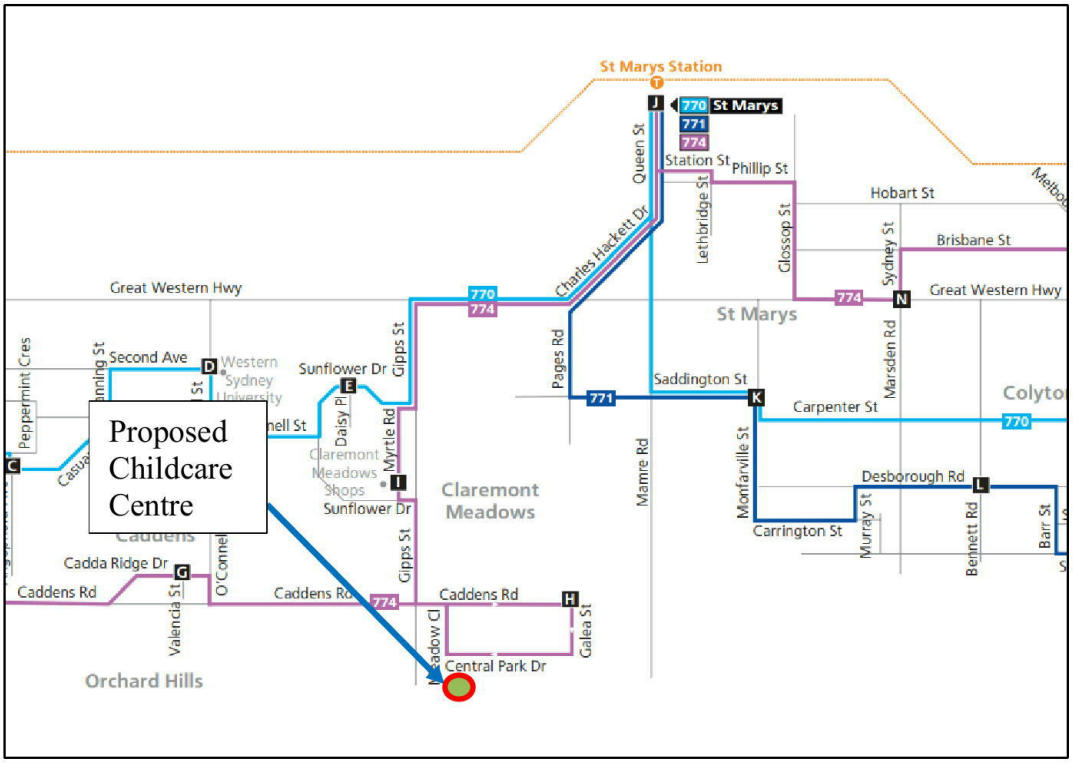

Figure 9: Map of Bus route 774

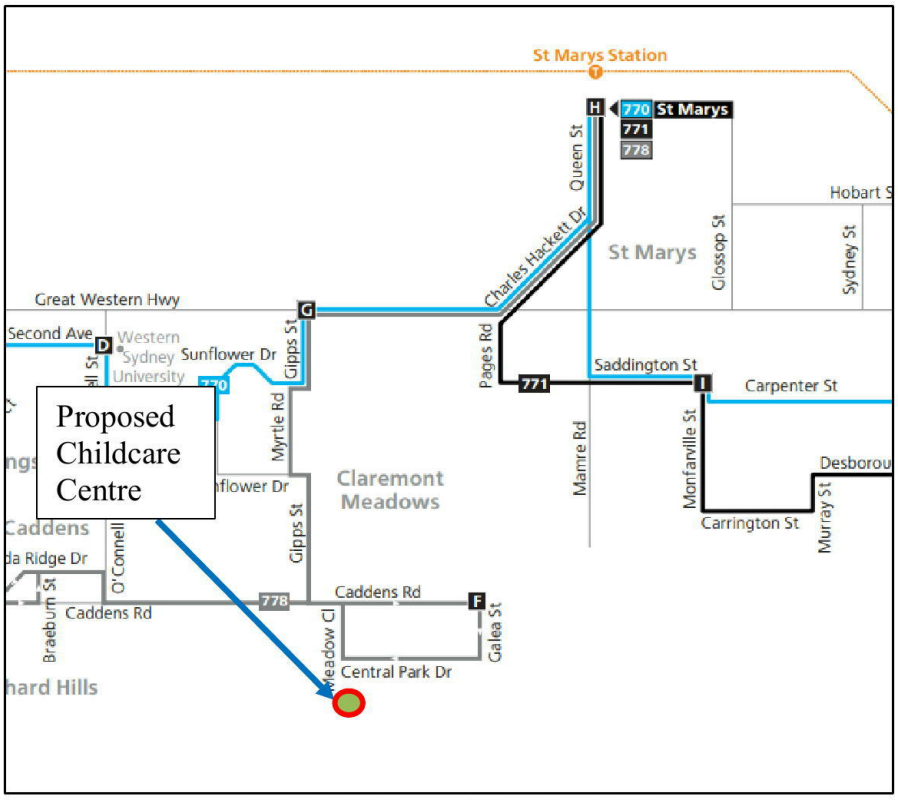

Figure 10: Map of Bus route 778

2.8 Conclusions on the Existing Conditions

The proposed development is located in a residential area with unrestricted on-street parking along Caddens Road and Doncaster Avenue.

The nearby intersections have spare capacity to accommodate additional traffic generated from the proposed development.

The site has good access to public transport.

3. PROPOSED CHILDCARE

The proposed childcare will accommodate 31 children along with four staff.

There are areas on the ground floor level with vehicle access and egress via Doncaster Avenue.

Eight on-site car spaces will be provided on the ground floor carpark including one accessible car space for people with disabilities.

The Childcare Centre will cater for kids ranging from 0-5 years old.

A full scaled plan of the proposed development is provided as part of the Development Application. Scaled measurements should use these plans.

4. CAR PARKING CONSIDERATIONS

4.1 Penrith DCP 2014

The car parking requirements for a childcare are presented in *Penrith Council's Development Control Plan (2014)* with the car parking rates as follows as it applies to the proposed development:

Childcare Centre

- 1 space per 10 children plus 1 per employee plus provision for any dwelling.

The proposed childcare will accommodate 31 children and 4 staff members. Table 3 summarises the car parking requirements for the proposed childcare. The proposed childcare complies with staff parking requirements.

Type	Number	Car Parking Rate	Car Spaces Required	On-Site Parking
Children	31	0.1	4	8
Staff	4	1	4	
Total			**8**	**8**

Table 3: Summary of car parking requirements

4.2 Staff Car Parking demand

Staff arrivals and departures are staged/staggered to ensure that the staff-student ratio is maintained with all staff on site in the core 9am to 5pm hour with peak staff car parking demand in the core period and does not coincide with the main drop off and pick up periods.

5. VEHICLE TRAFFIC IMPACT CONSIDERATIONS

This section discusses the vehicle traffic impacts of the proposed development.

5.1 Traffic Generation

The NSW RTA Guide to Traffic Generating Development document publishes trip generation rates for "long day care" for childcare centres as follows:

- 0.8 trips per child between 7am and 9am
- 0.3 trips per child between 2:30pm and 4pm
- 0.7 trips per child between 4pm and 6pm

Staff will arrive and leave before the drop off period (7am to 9am) and the pickup period (4pm to 6pm) respectively. Table 4 presents the estimated peak period trips.

	Children	Trip Rate per Child	Trips
AM Peak Period	31	0.8	25
PM Peak Period		0.7	22

Table 4: Trips Generated by the Childcare Expansion in the Weekday Peak Periods

Table 5 presents the peak hour trips and trip distribution assuming that the peak hour represents 70 percent of the peak period. The generated trips in the peak hour are modest.

	Origin	Destination	Total
AM Peak Hour	9	9	18
PM Peak Hour	8	8	16

Table 5: Trips Generated by the Childcare in the Weekday Peak Hour

5.2 Traffic Volumes

The additional development trips are assigned onto the local traffic network. The following figures present the existing with the development trips (in red for origin trips and blue for destination trips) for the weekday AM and PM peak hours.

The additional development trips represent a small proportion of the existing traffic volumes.

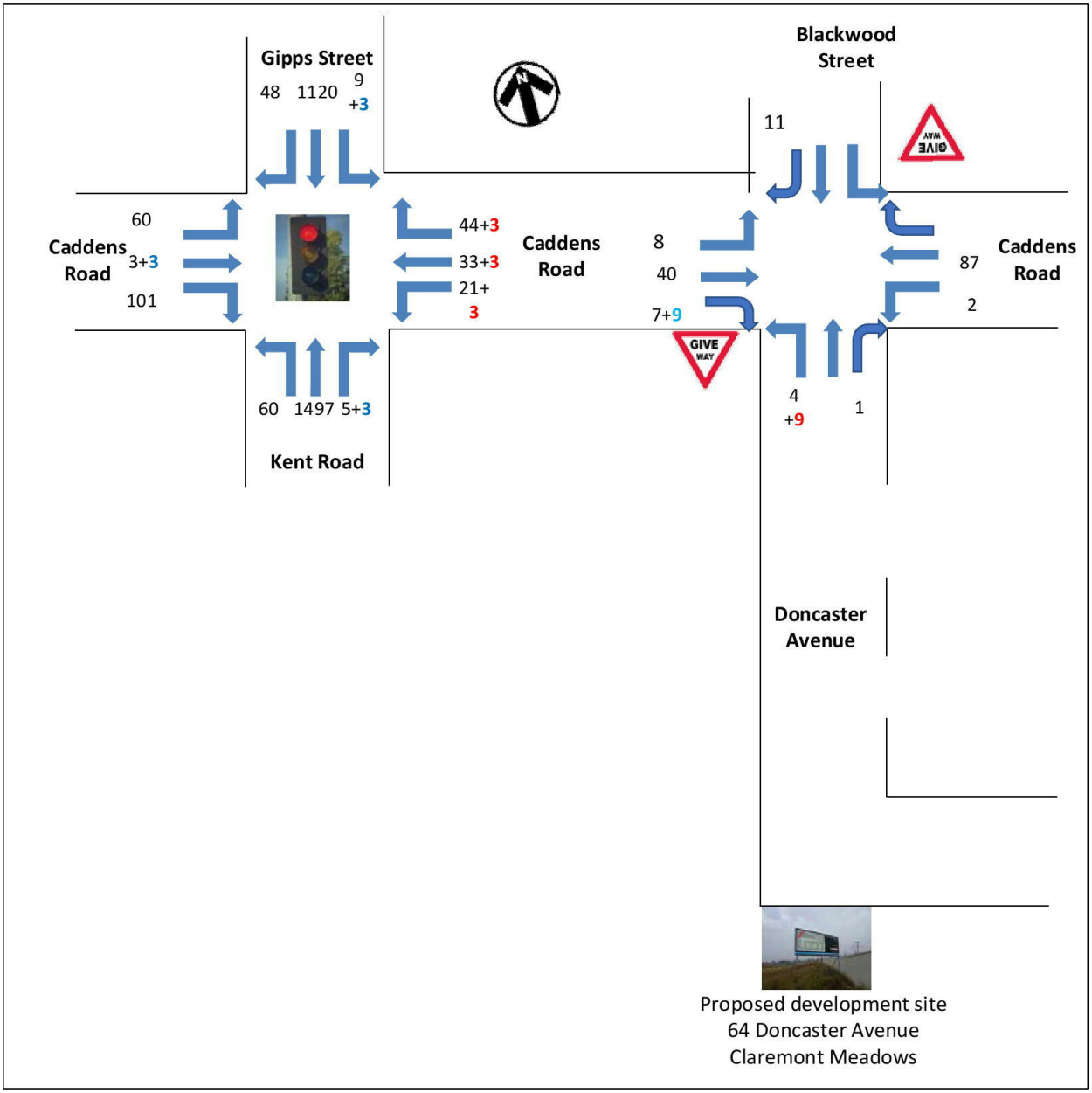

Figure 11: Weekday AM Peak Hour Traffic Volumes (Development Origin Trips in Red and Destination Trips in Blue)

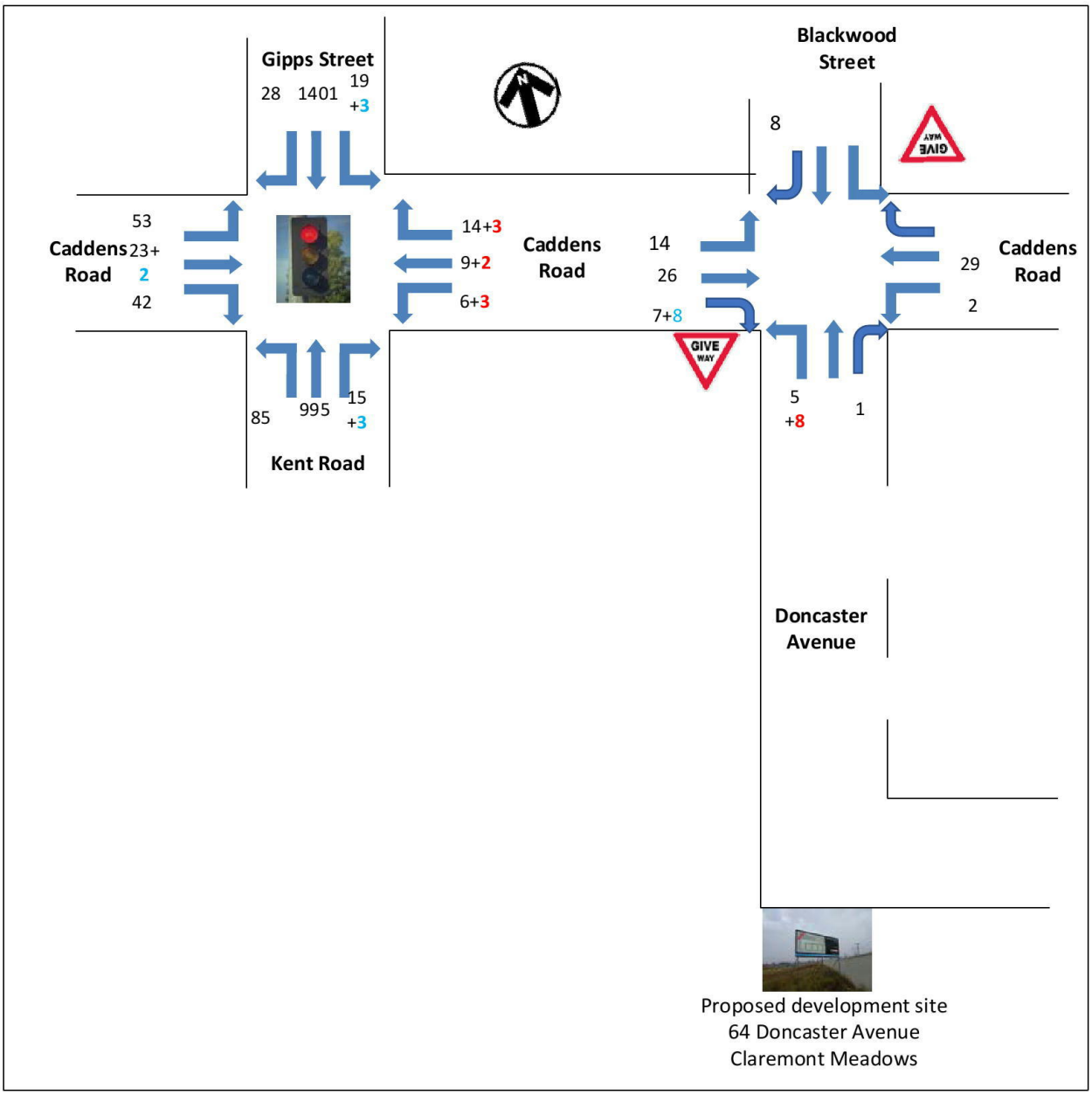

Figure 12: Weekday PM Peak Hour Traffic Volumes (Development Origin Trips in Red and Destination Trips in Blue)

5.3 Intersection Assessment

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

The results of the intersection analysis are as follows for the AM and PM peak hours:

Signalised intersection of Gipps Street and Kent Road with Caddens Road

- The overall intersection has a LoS B and C for the weekday AM and PM peak hours respectively
- The additional trips do not change the LoS of the overall intersection

Priority intersection of Caddens Road with Doncaster Avenue and Blackwood Street

- All turn movements have a LoS A or B for the weekday AM and PM peak hours
- The additional trips do not change the LoS of any turn movements for either peak hours

The full Sidra results with the development traffic are presented in Appendix B.

6. CONCLUSIONS

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

Parking

- The proposed development complies with the council's car parking requirements

Traffic

- The proposed development is a modest trip generator for the weekday AM and PM peak hours.
- The additional trips from the proposed development can be accommodated at the nearby intersections and road network without noticeably affecting intersection performance, delays or queues.
- There are no traffic engineering reasons why a planning consent for the proposed childcare at 64 Doncaster Avenue in Claremont Meadows, should be refused.

APPENDIX A

SIDRA Intersection Results for Existing Traffic Conditions

Movement Performance - Vehicles												
Mov ID	Turn	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	Aver. No. Cycles	Average Speed km/h
South: Kent Road												
1	L2	63	0.0	0.238	16.1	LOS B	8.6	60.3	0.46	0.49	0.46	45.1
2	T1	1576	0.0	0.872	17.4	LOS B	60.3	422.2	0.81	0.77	0.81	48.8
3	R2	5	0.0	0.047	65.0	LOS E	0.3	2.1	0.97	0.64	0.97	16.3
Approach		1644	0.0	0.872	17.5	LOS B	60.3	422.2	0.80	0.76	0.80	48.5
East: Caddens Road												
4	L2	22	0.0	0.178	51.2	LOS D	2.9	20.2	0.90	0.71	0.90	19.9
5	T1	35	0.0	0.178	46.7	LOS D	2.9	20.2	0.90	0.71	0.90	18.4
6	R2	46	0.0	0.220	55.1	LOS D	2.5	17.3	0.92	0.74	0.92	19.8
Approach		103	0.0	0.220	51.4	LOS D	2.9	20.2	0.91	0.72	0.91	19.4
North: Gipps Street												
7	L2	9	0.0	0.213	16.1	LOS B	6.3	44.4	0.45	0.40	0.45	31.3
8	T1	1179	0.0	0.778	14.9	LOS B	37.2	260.7	0.69	0.64	0.69	51.2
9	R2	51	0.0	0.544	69.2	LOS E	3.1	21.8	1.00	0.76	1.03	21.7
Approach		1239	0.0	0.778	17.1	LOS B	37.2	260.7	0.70	0.64	0.71	48.5
West: Caddens Road												
10	L2	63	0.0	0.214	51.6	LOS D	3.4	23.8	0.90	0.75	0.90	25.2
11	T1	3	0.0	0.214	47.1	LOS D	3.4	23.8	0.90	0.75	0.90	17.5
12	R2	106	0.0	0.486	57.4	LOS E	5.9	41.5	0.97	0.79	0.97	22.8
Approach		173	0.0	0.486	55.1	LOS D	5.9	41.5	0.94	0.77	0.94	23.6
All Vehicles		3159	0.0	0.872	20.5	LOS B	60.3	422.2	0.77	0.71	0.77	44.9

Table A1: Existing signalised intersection of Gipps Street and Kent Road with Caddens Road for the Weekday AM Peak Hour

Movement Performance - Vehicles												
Mov ID	Turn	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	Aver. No. Cycles	Average Speed km/h
South: Kent Road												
1	L2	89	0.0	0.143	15.0	LOS B	5.6	38.9	0.43	0.58	0.43	43.7
2	T1	1047	0.0	0.524	12.2	LOS A	27.7	194.2	0.57	0.55	0.57	53.3
3	R2	16	0.0	0.121	65.3	LOS E	0.9	6.4	0.98	0.68	0.98	16.3
Approach		1153	0.0	0.524	13.2	LOS A	27.7	194.2	0.56	0.55	0.56	51.6
East: Caddens Road												
4	L2	6	0.0	0.050	49.8	LOS D	0.8	5.4	0.87	0.64	0.87	20.2
5	T1	9	0.0	0.050	45.2	LOS D	0.8	5.4	0.87	0.64	0.87	18.7
6	R2	15	0.0	0.073	54.5	LOS D	0.8	5.4	0.90	0.69	0.90	19.9
Approach		31	0.0	0.073	50.6	LOS D	0.8	5.4	0.89	0.67	0.89	19.6
North: Gipps Street												
7	L2	20	0.0	0.263	16.5	LOS B	8.2	57.2	0.47	0.43	0.47	30.9
8	T1	1475	0.0	0.964	42.2	LOS C	85.0	595.2	0.89	0.99	1.08	34.3
9	R2	29	0.0	0.317	67.8	LOS E	1.8	12.5	1.00	0.72	1.00	21.9
Approach		1524	0.0	0.964	42.4	LOS C	85.0	595.2	0.89	0.97	1.07	33.9
West: Caddens Road												
10	L2	56	0.0	0.255	52.0	LOS D	4.1	28.9	0.91	0.74	0.91	25.4
11	T1	24	0.0	0.255	47.4	LOS D	4.1	28.9	0.91	0.74	0.91	17.8
12	R2	44	0.0	0.177	51.7	LOS D	2.3	15.9	0.90	0.74	0.90	24.1
Approach		124	0.0	0.255	51.0	LOS D	4.1	28.9	0.91	0.74	0.91	23.8
All Vehicles		2832	0.0	0.964	31.0	LOS C	85.0	595.2	0.76	0.79	0.86	38.6

Table A2: Existing signalised intersection of Gipps Street and Kent Road with Caddens Road for the Weekday PM Peak Hour

Movement Performance - Vehicles												
Mov ID	Turn	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	Aver. No. Cycles	Average Speed km/h
South: Doncaster Avenue												
1	L2	4	0.0	0.005	4.8	LOS A	0.0	0.1	0.19	0.49	0.19	28.9
2	T1	1	0.0	0.005	3.9	LOS A	0.0	0.1	0.19	0.49	0.19	36.8
3	R2	1	0.0	0.005	5.2	LOS A	0.0	0.1	0.19	0.49	0.19	42.4
Approach		6	0.0	0.005	4.7	LOS A	0.0	0.1	0.19	0.49	0.19	33.0
East: Caddens Road												
4	L2	2	0.0	0.046	5.6	LOS A	0.0	0.1	0.00	0.02	0.00	54.3
5	T1	92	0.0	0.046	0.0	LOS A	0.0	0.1	0.00	0.02	0.00	59.3
6	R2	1	0.0	0.046	5.6	LOS A	0.0	0.1	0.00	0.02	0.00	53.3
Approach		95	0.0	0.046	0.2	NA	0.0	0.1	0.00	0.02	0.00	59.1
North: Blackwood Street												
7	L2	1	0.0	0.014	4.7	LOS A	0.0	0.3	0.21	0.52	0.21	42.7
8	T1	1	0.0	0.014	3.9	LOS A	0.0	0.3	0.21	0.52	0.21	36.4
9	R2	12	0.0	0.014	5.2	LOS A	0.0	0.3	0.21	0.52	0.21	22.8
Approach		14	0.0	0.014	5.1	LOS A	0.0	0.3	0.21	0.52	0.21	25.3
West: Caddens Road												
10	L2	8	0.0	0.029	4.5	LOS A	0.1	0.4	0.07	0.15	0.07	45.4
11	T1	42	0.0	0.029	0.1	LOS A	0.1	0.4	0.07	0.15	0.07	55.7
12	R2	7	0.0	0.029	4.5	LOS A	0.1	0.4	0.07	0.15	0.07	44.0
Approach		58	0.0	0.029	1.3	NA	0.1	0.4	0.07	0.15	0.07	53.4
All Vehicles		173	0.0	0.046	1.1	NA	0.1	0.4	0.05	0.12	0.05	52.4

Table A3: Existing priority-controlled intersection of Caddens Road with Doncaster Avenue and Blackwood Street for the Weekday AM Peak Hour

Movement Performance - Vehicles												
Mov ID	Turn	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	Aver. No. Cycles	Average Speed km/h
South: Doncaster Avenue												
1	L2	5	0.0	0.005	4.6	LOS A	0.0	0.1	0.09	0.49	0.09	29.4
2	T1	1	0.0	0.005	3.6	LOS A	0.0	0.1	0.09	0.49	0.09	37.4
3	R2	1	0.0	0.005	4.8	LOS A	0.0	0.1	0.09	0.49	0.09	42.9
Approach		7	0.0	0.005	4.5	LOS A	0.0	0.1	0.09	0.49	0.09	32.9
East: Caddens Road												
4	L2	2	0.0	0.016	5.6	LOS A	0.0	0.1	0.01	0.06	0.01	53.5
5	T1	31	0.0	0.016	0.0	LOS A	0.0	0.1	0.01	0.06	0.01	58.2
6	R2	1	0.0	0.016	5.6	LOS A	0.0	0.1	0.01	0.06	0.01	52.5
Approach		34	0.0	0.016	0.5	NA	0.0	0.1	0.01	0.06	0.01	57.6
North: Blackwood Street												
7	L2	1	0.0	0.010	4.6	LOS A	0.0	0.2	0.14	0.51	0.14	43.1
8	T1	1	0.0	0.010	3.6	LOS A	0.0	0.2	0.14	0.51	0.14	36.9
9	R2	8	0.0	0.010	4.9	LOS A	0.0	0.2	0.14	0.51	0.14	23.1
Approach		11	0.0	0.010	4.7	LOS A	0.0	0.2	0.14	0.51	0.14	26.3
West: Caddens Road												
10	L2	15	0.0	0.025	4.4	LOS A	0.1	0.4	0.04	0.25	0.04	43.3
11	T1	27	0.0	0.025	0.0	LOS A	0.1	0.4	0.04	0.25	0.04	53.9
12	R2	7	0.0	0.025	4.3	LOS A	0.1	0.4	0.04	0.25	0.04	42.0
Approach		49	0.0	0.025	2.0	NA	0.1	0.4	0.04	0.25	0.04	49.8
All Vehicles		101	0.0	0.025	2.0	NA	0.1	0.4	0.05	0.23	0.05	47.6

Table A4: Existing priority-controlled intersection of Caddens Road with Doncaster Avenue and Blackwood Street for the Weekday PM Peak Hour

APPENDIX B

SIDRA Intersection Results for Existing and Childcare Traffic

Movement Performance - Vehicles												
Mov ID	Turn	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	Aver. No. Cycles	Average Speed km/h
South: Kent Road												
1	L2	63	0.0	0.239	16.1	LOS B	8.6	60.4	0.46	0.49	0.46	45.1
2	T1	1576	0.0	0.874	17.5	LOS B	60.5	423.3	0.81	0.77	0.81	48.7
3	R2	8	0.0	0.076	65.4	LOS E	0.5	3.4	0.98	0.66	0.98	16.2
Approach		1647	0.0	0.874	17.7	LOS B	60.5	423.3	0.80	0.76	0.80	48.3
East: Caddens Road												
4	L2	25	0.0	0.198	51.4	LOS D	3.2	22.5	0.90	0.71	0.90	19.8
5	T1	38	0.0	0.198	46.9	LOS D	3.2	22.5	0.90	0.71	0.90	18.3
6	R2	49	0.0	0.238	55.3	LOS D	2.6	18.5	0.93	0.75	0.93	19.7
Approach		113	0.0	0.238	51.6	LOS D	3.2	22.5	0.91	0.73	0.91	19.3
North: Gipps Street												
7	L2	13	0.0	0.213	16.1	LOS B	6.4	44.5	0.45	0.40	0.45	31.2
8	T1	1179	0.0	0.780	14.9	LOS B	37.4	262.1	0.70	0.64	0.70	51.1
9	R2	51	0.0	0.544	69.2	LOS E	3.1	21.8	1.00	0.76	1.03	21.7
Approach		1242	0.0	0.780	17.1	LOS B	37.4	262.1	0.71	0.64	0.71	48.4
West: Caddens Road												
10	L2	63	0.0	0.223	51.7	LOS D	3.6	24.9	0.91	0.75	0.91	25.2
11	T1	6	0.0	0.223	47.1	LOS D	3.6	24.9	0.91	0.75	0.91	17.6
12	R2	106	0.0	0.497	57.6	LOS E	6.0	41.7	0.97	0.79	0.97	22.8
Approach		176	0.0	0.497	55.1	LOS D	6.0	41.7	0.94	0.77	0.94	23.5
All Vehicles		3178	0.0	0.874	20.7	LOS B	60.5	423.3	0.78	0.72	0.78	44.6

Table B1: Existing signalised intersection of Gipps Street and Kent Road with Caddens Road for the Weekday AM Peak Hour with Childcare traffic

Movement Performance - Vehicles												
Mov ID	Turn	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	Aver. No. Cycles	Average Speed km/h
South: Kent Road												
1	L2	89	0.0	0.144	15.0	LOS B	5.6	39.0	0.43	0.58	0.43	43.7
2	T1	1047	0.0	0.525	12.2	LOS A	27.7	194.1	0.57	0.55	0.57	53.3
3	R2	19	0.0	0.146	65.5	LOS E	1.1	7.7	0.99	0.69	0.99	16.2
Approach		1156	0.0	0.525	13.3	LOS A	27.7	194.1	0.56	0.55	0.56	51.4
East: Caddens Road												
4	L2	9	0.0	0.066	50.0	LOS D	1.0	7.3	0.87	0.66	0.87	20.1
5	T1	12	0.0	0.066	45.4	LOS D	1.0	7.3	0.87	0.66	0.87	18.6
6	R2	18	0.0	0.090	54.7	LOS D	0.9	6.6	0.91	0.70	0.91	19.9
Approach		39	0.0	0.090	50.8	LOS D	1.0	7.3	0.89	0.68	0.89	19.6
North: Gipps Street												
7	L2	23	0.0	0.264	16.5	LOS B	8.2	57.3	0.47	0.43	0.47	30.8
8	T1	1475	0.0	0.966	43.2	LOS D	86.0	602.3	0.89	0.99	1.09	33.9
9	R2	29	0.0	0.317	67.8	LOS E	1.8	12.5	1.00	0.72	1.00	21.9
Approach		1527	0.0	0.966	43.2	LOS D	86.0	602.3	0.89	0.98	1.08	33.6
West: Caddens Road												
10	L2	56	0.0	0.261	52.1	LOS D	4.2	29.7	0.91	0.75	0.91	25.4
11	T1	26	0.0	0.261	47.5	LOS D	4.2	29.7	0.91	0.75	0.91	17.8
12	R2	44	0.0	0.180	52.6	LOS D	2.3	16.0	0.90	0.74	0.90	23.9
Approach		126	0.0	0.261	51.3	LOS D	4.2	29.7	0.91	0.74	0.91	23.6
All Vehicles		2848	0.0	0.966	31.6	LOS C	86.0	602.3	0.76	0.79	0.86	38.2

Table B2: Existing signalised intersection of Gipps Street and Kent Road with Caddens Road for the Weekday PM Peak Hour with Childcare traffic

Movement Performance - Vehicles												
Mov ID	Turn	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	Aver. No. Cycles	Average Speed km/h
South: Doncaster Avenue												
1	L2	14	0.0	0.011	4.8	LOS A	0.0	0.3	0.18	0.49	0.18	28.8
2	T1	1	0.0	0.011	3.9	LOS A	0.0	0.3	0.18	0.49	0.18	36.6
3	R2	1	0.0	0.011	5.2	LOS A	0.0	0.3	0.18	0.49	0.18	42.3
Approach		16	0.0	0.011	4.8	LOS A	0.0	0.3	0.18	0.49	0.18	30.5
East: Caddens Road												
4	L2	2	0.0	0.046	5.6	LOS A	0.0	0.1	0.00	0.02	0.00	54.3
5	T1	92	0.0	0.046	0.0	LOS A	0.0	0.1	0.00	0.02	0.00	59.3
6	R2	1	0.0	0.046	5.6	LOS A	0.0	0.1	0.00	0.02	0.00	53.3
Approach		95	0.0	0.046	0.2	NA	0.0	0.1	0.00	0.02	0.00	59.1
North: Blackwood Street												
7	L2	1	0.0	0.014	4.7	LOS A	0.0	0.3	0.22	0.52	0.22	42.7
8	T1	1	0.0	0.014	3.9	LOS A	0.0	0.3	0.22	0.52	0.22	36.3
9	R2	12	0.0	0.014	5.3	LOS A	0.0	0.3	0.22	0.52	0.22	22.8
Approach		14	0.0	0.014	5.2	LOS A	0.0	0.3	0.22	0.52	0.22	25.3
West: Caddens Road												
10	L2	8	0.0	0.035	4.5	LOS A	0.1	0.8	0.12	0.20	0.12	43.5
11	T1	42	0.0	0.035	0.1	LOS A	0.1	0.8	0.12	0.20	0.12	54.1
12	R2	17	0.0	0.035	4.5	LOS A	0.1	0.8	0.12	0.20	0.12	42.2
Approach		67	0.0	0.035	1.8	NA	0.1	0.8	0.12	0.20	0.12	50.6
All Vehicles		192	0.0	0.046	1.5	NA	0.1	0.8	0.07	0.16	0.07	50.2

Table B3: Existing priority-controlled intersection of Caddens Road with Doncaster Avenue and Blackwood Street for the Weekday AM Peak Hour with Childcare traffic

Movement Performance - Vehicles												
Mov ID	Turn	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	Aver. No. Cycles	Average Speed km/h
South: Doncaster Avenue												
1	L2	14	0.0	0.011	4.8	LOS A	0.0	0.3	0.18	0.49	0.18	28.8
2	T1	1	0.0	0.011	3.9	LOS A	0.0	0.3	0.18	0.49	0.18	36.6
3	R2	1	0.0	0.011	5.2	LOS A	0.0	0.3	0.18	0.49	0.18	42.3
Approach		16	0.0	0.011	4.8	LOS A	0.0	0.3	0.18	0.49	0.18	30.5
East: Caddens Road												
4	L2	2	0.0	0.046	5.6	LOS A	0.0	0.1	0.00	0.02	0.00	54.3
5	T1	92	0.0	0.046	0.0	LOS A	0.0	0.1	0.00	0.02	0.00	59.3
6	R2	1	0.0	0.046	5.6	LOS A	0.0	0.1	0.00	0.02	0.00	53.3
Approach		95	0.0	0.046	0.2	NA	0.0	0.1	0.00	0.02	0.00	59.1
North: Blackwood Street												
7	L2	1	0.0	0.014	4.7	LOS A	0.0	0.3	0.22	0.52	0.22	42.7
8	T1	1	0.0	0.014	3.9	LOS A	0.0	0.3	0.22	0.52	0.22	36.3
9	R2	12	0.0	0.014	5.3	LOS A	0.0	0.3	0.22	0.52	0.22	22.8
Approach		14	0.0	0.014	5.2	LOS A	0.0	0.3	0.22	0.52	0.22	25.3
West: Caddens Road												
10	L2	8	0.0	0.035	4.5	LOS A	0.1	0.8	0.12	0.20	0.12	43.5
11	T1	42	0.0	0.035	0.1	LOS A	0.1	0.8	0.12	0.20	0.12	54.1
12	R2	17	0.0	0.035	4.5	LOS A	0.1	0.8	0.12	0.20	0.12	42.2
Approach		67	0.0	0.035	1.8	NA	0.1	0.8	0.12	0.20	0.12	50.6
All Vehicles		192	0.0	0.046	1.5	NA	0.1	0.8	0.07	0.16	0.07	50.2

Table B4: Existing priority-controlled intersection of Caddens Road with Doncaster Avenue and Blackwood Street for the Weekday PM Peak Hour with Childcare traffic