



## **PROPOSED CHILD CARE CENTRE**

**39 CAIRO AVENUE, REVESBY**

## **TRAFFIC AND PARKING ASSESSMENT REPORT**

**1<sup>ST</sup> OCTOBER 2021**

**REF 20069**

Prepared by

**Terraflow Pty Ltd**

Traffic and Parking Consultants



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## 1. INTRODUCTION

This report has been prepared to accompany a Development Application (DA) to Canterbury Bankstown Council for a proposed Child Care Centre at 39 Cairo Avenue, Revesby (Figures 1 and 2).

The development site is located on the north-eastern corner of the Sphinx Avenue/Cairo Avenue intersection. It has a total site area of 932.7m<sup>2</sup> with frontages of approximately 54m to Cairo Avenue and 19m to Sphinx Avenue.



**Aerial photograph of the site**

The existing site development comprises a single dwelling that gains vehicular access to Cairo Avenue via a single width access driveway located adjacent to the eastern site boundary.

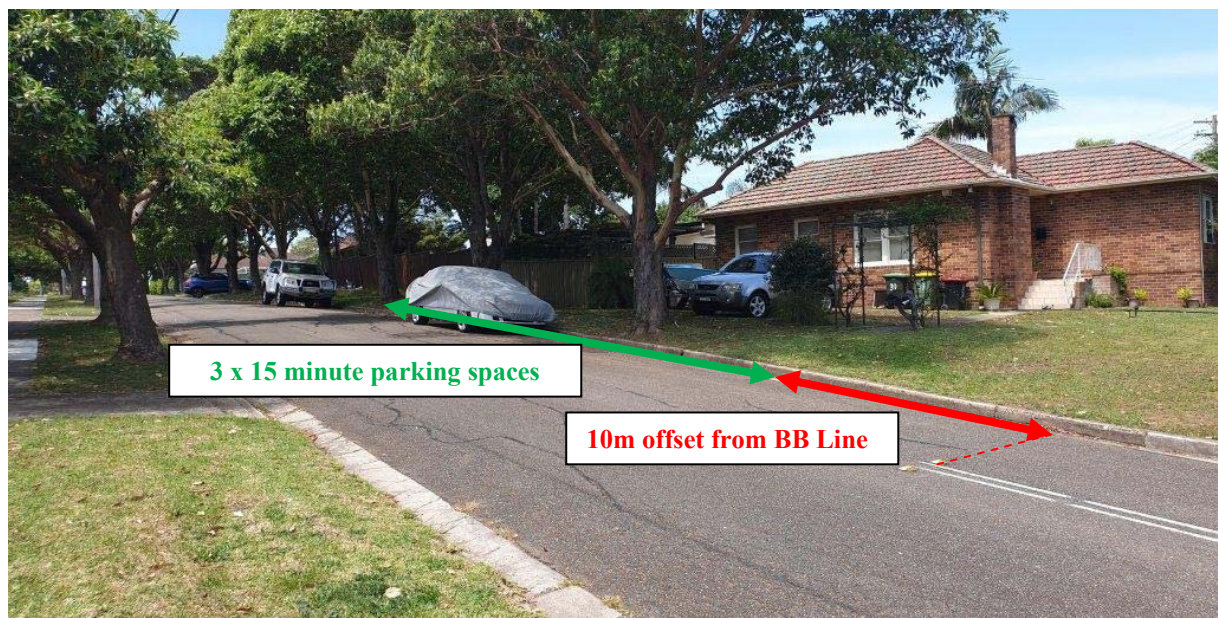
The proposed development comprises the demolition of the existing dwelling and construction of a Child Care Centre containing 40 children and 6 employees. The Centre is expected to operate from 7.00am to 6.00pm Monday to Friday (excluding public holidays).





The Centre will be served by a total of 10 spaces comprising 5 staff spaces and 5 visitor spaces for child drop-off and pick up. Of that visitor parking provision, one space will be made available to disabled users.

A further 3 on-street visitor spaces will be provided on Cairo Avenue for convenient drop-off and pick up. As required by Council, these 3 spaces are to be located 10m north of the double white (BB) line on Cairo Avenue and will be signposted accordingly to Council's specifications. It is expected that Council will require a 15 minute restriction during the peak drop-off and pick up periods.



**Location of proposed short-term parking spaces on Cairo Avenue**

Vehicular access to the site is via a 6.1m wide combined entry/exit driveway off Sphinx Avenue located approximately 15m east of the Cairo Avenue intersection. This driveway will also be located 1.5m from the existing power pole on Sphinx Avenue as per the Ausgrid requirements and will be designed in accordance with Council's STANDARD MEDIUM DUTY VEHICULAR FOOTWAY CROSSING – Standard Drawing S-008. A copy of the Standard Drawing is reproduced in the following pages.

The existing driveway serving the dwelling will be made redundant.



The subject site has convenient access to the following bus service operating along Sphinx Avenue:

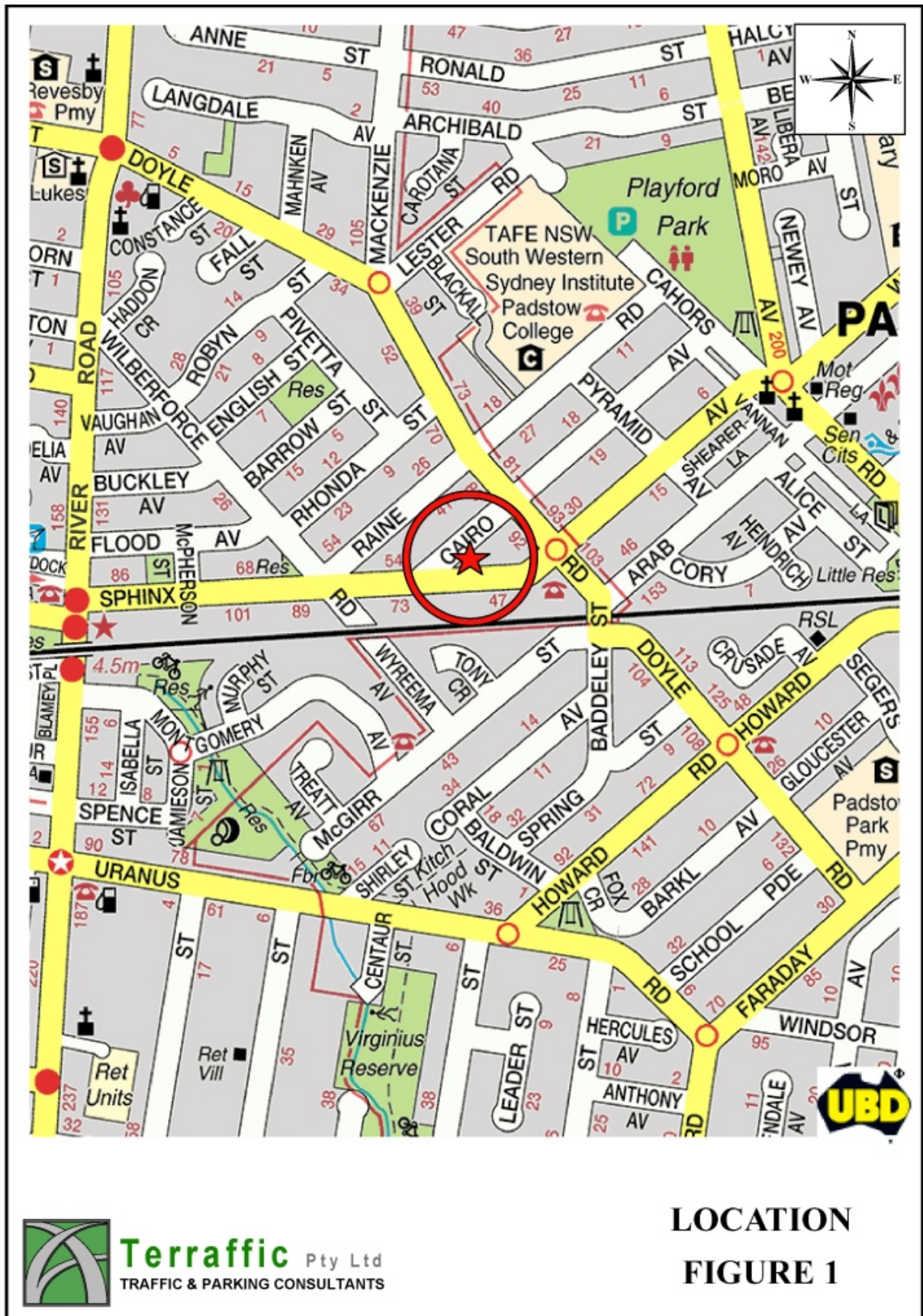
<b>Route 962</b>	East Hills to Miranda via Revesby, Padstow, Illawong, Menai, Bangor, Sutherland and Gymea. Service operates daily
<b>Route S5</b>	Padstow to Milperra via Revesby and Panania. Operates weekdays only

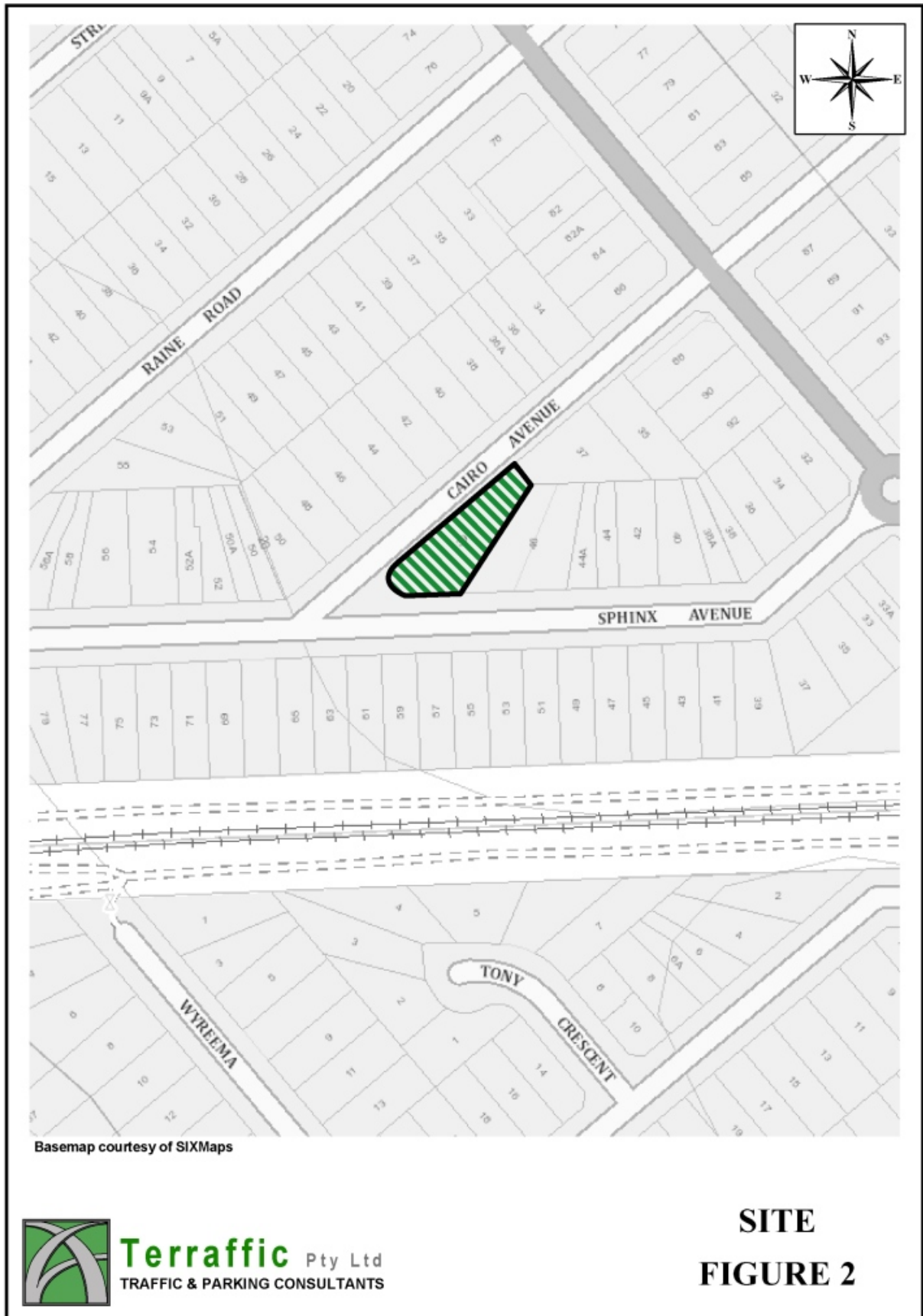
Bus stops are located on Sphinx Avenue in the vicinity of the site.

Plans of the proposed development prepared by MD+A Architects are reproduced in Appendix A.

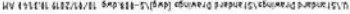
The purpose of this report is to assess the traffic and parking implications of the proposed development.















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## 2. PARKING ASSESSMENT

### *Council Off-Street Parking Requirements*

Section 2 in Part B5 of the Bankstown Development Control Plan 2015 specifies the following parking requirements that apply to Child Care Centres:

- 1 space per 4 children, and
- 2 additional spaces for the exclusive use of any associated dwelling

Application of this parking rate to the proposed Child Care Centre yields a total parking requirement of 10 spaces calculated as follows:

40 children @ 1 space per 4 children      10 spaces

The proposed development satisfies the DCP requirement with the provision of 10 spaces comprising 5 staff and 5 visitor spaces. Of the visitor parking provision, one space will be designed for disabled users.

Subject to Council's approval, it is recommended that the disabled space be utilised by both regular and disabled visitors to the Centre. In order to eliminate any confusion by visitors, the disabled linemarking and signposting will be removed however provision for wheelchair access will be retained.

In situations where use of the disabled space is required by a disabled user, the visitor will phone the Centre on the approach and request a staff member to go down to the basement and ensure that the space is vacant. To support this approach, reference is made to Section D3.5 of the Building Code of Australia (BCA) as part of the National Construction Code 2019 (NCC) which states the following:

#### ***D3.5 Accessible carparking***

##### *Accessible carparking spaces*

*(d) need not be identified within signage where there is a total of not more than 5 carparking spaces, so as to restrict the use of the car parking space only for people with a disability.*



### ***Carpark Compliance***

The proposed carpark and access arrangements have been designed to satisfy the following requirements of the Australian Standard AS/NZS2890.1:2004 – “*Off-street Car Parking*”:

- User class 1A “long-stay” staff parking spaces have a minimum length of 5.4m and width of 2.4m
- User class 3 “short-stay” visitor parking spaces have a minimum length of 5.4m and width of 2.6m
- An additional 0.3m has been provided for spaces adjacent to a wall or obstruction
- The access/manoeuvring aisle is a minimum 5.8m wide for User Class 1A and 3 parking facilities
- Pavement grades do not exceed 5% (1 in 20) in any direction
- The disabled shared zone provides the blind aisle extension for space 10
- The access driveway has a minimum width of 6.0m
- The grade of the access ramp for the first 6.0m into the site does not exceed 5% (1 in 20)
- A minimum headroom clearance of 2.2m has been provided
- Pedestrian sight line triangles have been provided in accordance with Figure 3.3

The disabled parking space has also been designed in accordance with the Australian Standard AS/NZS2890.6:2009 – “*Off-street parking for people with disabilities*” as follows:

- A 5.4m long x 2.4m wide dedicated (non-shared) parking space
- An adjacent shared area that is also 5.4m long x 2.4m wide
- A minimum headroom of 2.5m above the disabled spaces
- Pavement cross-falls in disabled spaces do not exceed 2.5% (1 in 40) in any direction

Deliveries to the Centre will be made with vans that will be capable of accessing the site during non-peak periods when the visitor spaces are under-utilised.

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



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### 3. TRAFFIC ASSESSMENT

#### *Road Hierarchy*

The road hierarchy allocated to the road network in the vicinity of the site by the Roads and Maritime Services (RMS) is illustrated on Figure 3 and comprises the following:

<b>State Roads</b>	<b>Regional Roads</b>
Nil	Sphinx Avenue
	The River Road
	Gibson Avenue
	Uranus Road

As can be seen, Sphinx Avenue is a classified Regional Road performing a collector road function. It connects The River Road to the west with Gibson Avenue, Watson Road and ultimately Davies Road/Fairford Road to the east. It has a pavement width of approximately 12.5m with un-restricted parking along both alignments. Sphinx Avenue is restricted to a speed limit of 60km/h.

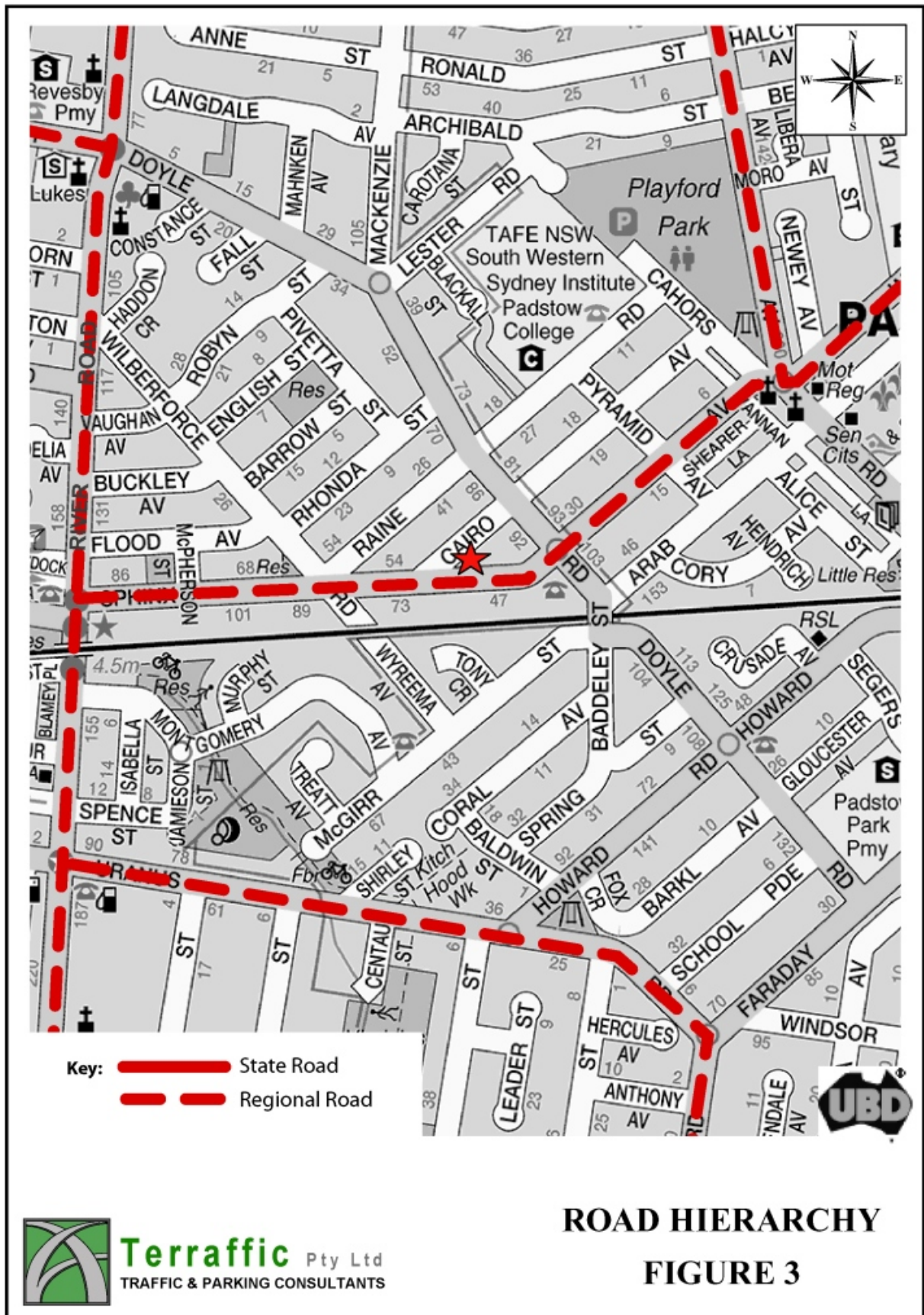
Cairo Avenue is an unclassified *Local Road* linking Sphinx Avenue to Cahors Road. It has a pavement width of approximately 7.3m with unrestricted parking permitted along both kerblines. Cairo Avenue is restricted to a speed limit of 50km/h.

#### *Existing Traffic Conditions*

An indication of existing traffic conditions on the road network serving the site is provided from a count of traffic activity at the Sphinx Avenue/Cairo Avenue intersection conducted between 7.00am - 9.00am and 4.00pm - 6.00pm on Monday 14<sup>th</sup> December 2020. The results of these counts of traffic activity are reproduced in Appendix B revealing that:

- the AM peak period occurred between 8.00 – 9.00am. At that time, there were 564 vehicles per hour (vph) on Sphinx Avenue comprising 272vph eastbound and 292vph westbound vehicles. At that time, there were 48vph on Cairo Street comprising 5vph southbound and 45vph northbound vehicles







- the PM peak period occurred between 4.15 – 5.15pm. At that time, there were 653vph on Sphinx Avenue comprising 300vph eastbound and 353vph westbound vehicles. At that time, there were 13vph on Cairo Street comprising 5vph heading southbound and 8vph northbound vehicles

### ***Projected Traffic Generation***

The Roads and Maritime Services publication “*Guide to Traffic Generating Developments*” (October 2002) specifies the following traffic generation rates for child care centres:

Morning Peak Period	0.8vtph per child
Evening Peak Period	0.7vtph per child

Application of these traffic generation rates to the proposed child care centre yields a traffic generation potential of 32vtph during the morning peak period and 28vtph during the evening peak period as follows:

Morning Peak Period	40 children @ 0.8vtph per child	32vtph (18 inbound, 14 outbound)
Evening Peak Period	40 children @ 0.7vtph per child	28vtph (12 inbound, 16 outbound)

	<b>Staff</b>			<b>Visitors</b>		
	Entry	Exit	<b>Total</b>	Entry	Exit	<b>Total</b>
<b>AM Peak (32vtph)</b>	4	0	<b>4</b>	14	14	<b>28</b>
<b>PM Peak (28vtph)</b>	0	4	<b>4</b>	12	12	<b>24</b>

While there is no way of accurately predicting the origin and destination of staff and visitors, this assessment will assume traffic will approach and depart the site as follows:

- 50% to/from the east (Davies Road)
- 50% to/from the west (The River Road)

The assignment of the traffic generated by the proposed development is illustrated on Figure 4 for the morning and evening peak periods.



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***Traffic Implications***

The main traffic implication of the proposed development in terms of road network capacity concerns the ability of traffic generated by the development to access the site and the impacts on through traffic along Sphinx Avenue. That effect 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 results of the SIDRA analysis of the operating performance of the Sphinx Avenue Access Driveway are set out in Table 3.1 and on the SIDRA MOVEMENT SUMMARY SHEETS reproduced in Appendix C revealing that the intersection will operate satisfactorily with a good level of service and minimal delays.

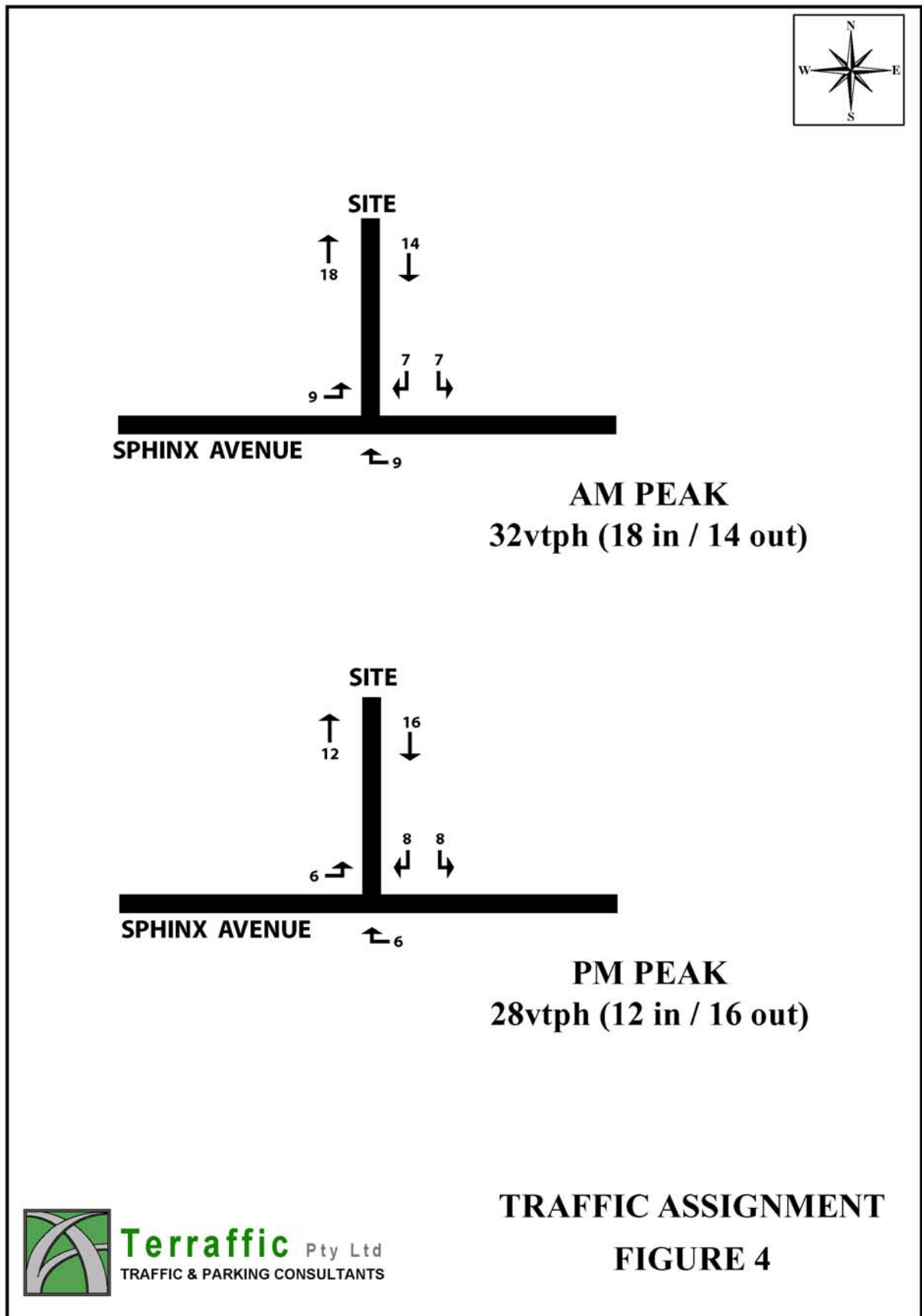
**TABLE 3.1 – RESULTS OF SIDRA ANALYSIS OF THE  
SPHINX AVENUE ACCESS DRIVEWAY**

	<b>Level of Service</b>	<b>Degree of Saturation</b>	<b>Total Average Vehicle Delay (sec)</b>
<b>Proposed AM Peak</b>	A	0.163	0.4
<b>Proposed PM Peak</b>	A	0.190	0.2

As the site has direct access to the higher order road network, there is no need for traffic generated by the proposal to travel on local residential streets. To that end, the proposed development will have no traffic-related environmental effect.

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	At capacity and requires other control mode.
'F'	control mode. 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 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.

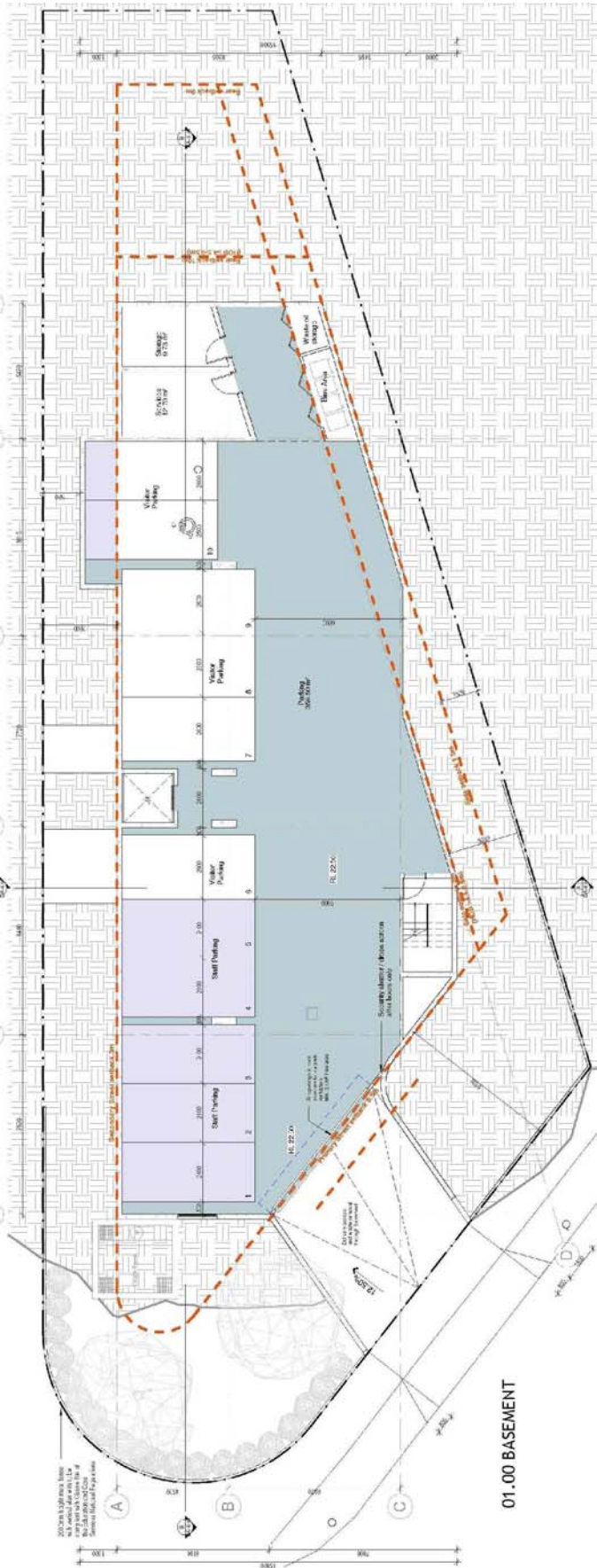


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**APPENDIX A**

**PLANS OF THE PROPOSED DEVELOPMENT**







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**APPENDIX B**

**TRAFFIC SURVEY RESULTS**



**R.O.A.R. DATA**  
Reliable, Original & Authentic Results  
Ph.88196847, Mob.0418-239019

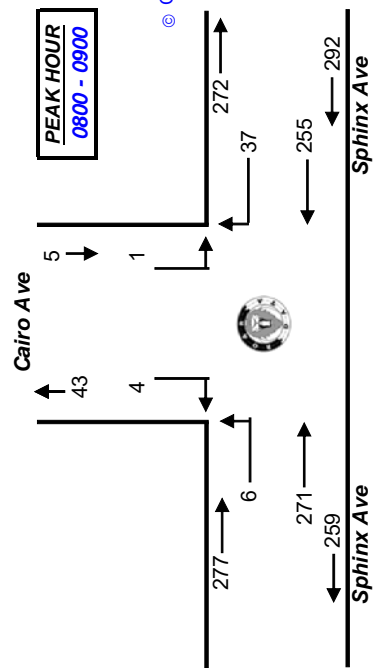
Client : Terrafic Pty. Ltd.  
Job No/Name : 7466 REVESBY Cairo Ave  
Day/Date : Monday 14th December 2020

#### All Vehicles

Time Per	WEST			NORTH			EAST		
	Sphinx Ave	L	T	R	Cairo Ave	L	T	R	Sphinx Ave
0700 - 0715		0	41	0	0	0	32	0	73
0715 - 0730		0	48	0	1	1	35	1	85
0730 - 0745		1	55	0	1	1	55	0	112
0745 - 0800		5	57	1	1	0	41	0	104
0800 - 0815		0	61	1	1	1	45	1	109
0815 - 0830		1	63	2	0	0	42	0	108
0830 - 0845		1	82	0	0	0	82	0	165
0845 - 0900		4	65	1	1	0	86	36	192
Period End		12	472	5	3	418	38		948

Peak Per	WEST			NORTH			EAST		
	Sphinx Ave	L	T	R	Cairo Ave	L	T	R	Sphinx Ave
0700 - 0800		6	201	1	2	163	1		374
0715 - 0815		6	221	2	3	176	2		410
0730 - 0830		7	236	4	2	183	1		433
0745 - 0845		7	263	4	1	210	1		486
0800 - 0900		6	271	4	1	255	37		574

PEAK HR	6	271	4	1	255	37	574
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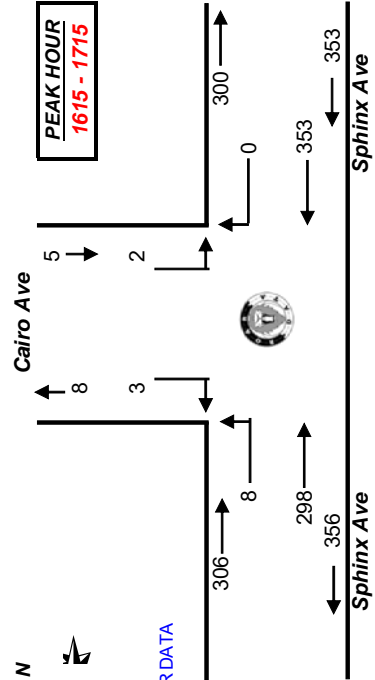


#### All Vehicles

Time Per	WEST			NORTH			EAST		
	Sphinx Ave	L	T	R	Cairo Ave	L	T	R	Sphinx Ave
1600 - 1615		1	62	0	0	64	0		127
1615 - 1630		1	79	2	0	83	0		165
1630 - 1645		2	67	1	0	84	0		154
1645 - 1700		1	72	0	0	86	0		159
1700 - 1715		4	80	0	2	100	0		186
1715 - 1730		0	52	1	0	74	0		127
1730 - 1745		1	54	1	0	91	0		147
1745 - 1800		2	68	0	1	86	0		157
Period End		12	534	5	3	668	0		1222

Peak Per	WEST			NORTH			EAST		
	Sphinx Ave	L	T	R	Cairo Ave	L	T	R	Sphinx Ave
1600 - 1700		5	280	3	0	317	0		605
1615 - 1715		8	298	3	2	353	0		664
1630 - 1730		7	271	2	2	344	0		626
1645 - 1745		6	258	2	2	351	0		619
1700 - 1800		7	254	2	3	351	0		617

PEAK HOUR	8	298	3	2	353	0	617
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**APPENDIX C**

**SIDRA MOVEMENT SUMMARY SHEETS**



## MOVEMENT SUMMARY

▽ Site: [Sphinx Avenue and Site Access Driveway - AM Peak  
(Site Folder: General)]

Proposed AM Peak  
Site Category: (None)  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist m				
East: Sphinx Avenue														
5	T1	292	3.0	292	3.0	0.163	0.1	LOSA	0.1	0.8	0.04	0.02	0.04	59.6
6	R2	11	0.0	11	0.0	0.163	6.9	LOSA	0.1	0.8	0.04	0.02	0.04	30.5
Approach		303	2.9	303	2.9	0.163	0.3	NA	0.1	0.8	0.04	0.02	0.04	57.6
North: Site Access														
7	L2	9	0.0	9	0.0	0.022	0.8	LOSA	0.1	0.6	0.44	0.32	0.44	28.8
9	R2	9	0.0	9	0.0	0.022	4.4	LOSA	0.1	0.6	0.44	0.32	0.44	28.7
Approach		18	0.0	18	0.0	0.022	2.6	LOSA	0.1	0.6	0.44	0.32	0.44	28.7
West: Sphinx Avenue														
10	L2	11	0.0	11	0.0	0.006	5.6	LOSA	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	272	3.0	272	3.0	0.142	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
Approach		283	2.9	283	2.9	0.142	0.3	NA	0.0	0.0	0.00	0.02	0.00	59.7
All Vehicles		604	2.8	604	2.8	0.163	0.4	NA	0.1	0.8	0.03	0.03	0.03	56.8

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



## MOVEMENT SUMMARY

▽ Site: [Sphinx Avenue and Site Access Driveway - PM Peak  
(Site Folder: General)]

Proposed PM Peak  
Site Category: (None)  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: Sphinx Avenue														
5	T1	353	3.0	353	3.0	0.190	0.0	LOS A	0.1	0.5	0.02	0.01	0.02	59.8
6	R2	6	0.0	6	0.0	0.190	7.1	LOS A	0.1	0.5	0.02	0.01	0.02	30.6
Approach		359	2.9	359	2.9	0.190	0.2	NA	0.1	0.5	0.02	0.01	0.02	58.9
North: Site Access														
7	L2	8	0.0	8	0.0	0.022	1.0	LOS A	0.1	0.6	0.47	0.35	0.47	28.7
9	R2	8	0.0	8	0.0	0.022	5.3	LOS A	0.1	0.6	0.47	0.35	0.47	28.6
Approach		16	0.0	16	0.0	0.022	3.1	LOS A	0.1	0.6	0.47	0.35	0.47	28.6
West: Sphinx Avenue														
10	L2	6	0.0	6	0.0	0.003	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	300	3.0	300	3.0	0.157	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		306	2.9	306	2.9	0.157	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles		681	2.9	681	2.9	0.190	0.2	NA	0.1	0.6	0.02	0.02	0.02	57.8

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.