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Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

19 April 2022

Reference: 220012.01FA

Loucas Architects
Level 3, Suite 309, 7-9 Gibbons Street
Redfern NSW 2016
Attention: Mirko Cizmic

S4.55 TRAFFIC AND PARKING IMPACT ASSESSMENT OF CHILDCARE CENTRE AT 21-23 NORFOLK ROAD, EPPING

Dear Mirko,

Reference is made to your request to provide a S4.55 traffic and parking impact assessment for the proposed childcare centre at 21-23 Norfolk Road, Epping (Concept Site layout in **Annexure A**). The subject site is subject to an existing approval for a child care centre through the Land and Environment Court (*Guo v Parramatta City Council [2020] NSWLEC 1311*) of which M^CLaren Traffic Engineering was involved with the Applicant, with the original approved TPIA (200102.01FA) finalised on 2 March 2020. The scale of both the approved development and proposed development following modifications, as relevant to traffic and parking impacts, is summarised in **Table 1**.

TABLE 1: PROPOSED SCALE OF DEVELOPMENT

Category	Sub-Category	Approved Scale	Proposed Scale
Childcare Centre	0-2 years old	16	17
	2-3 years old	17	25
	3-6 years old	20	40
Parking Spaces	N/A	14	23

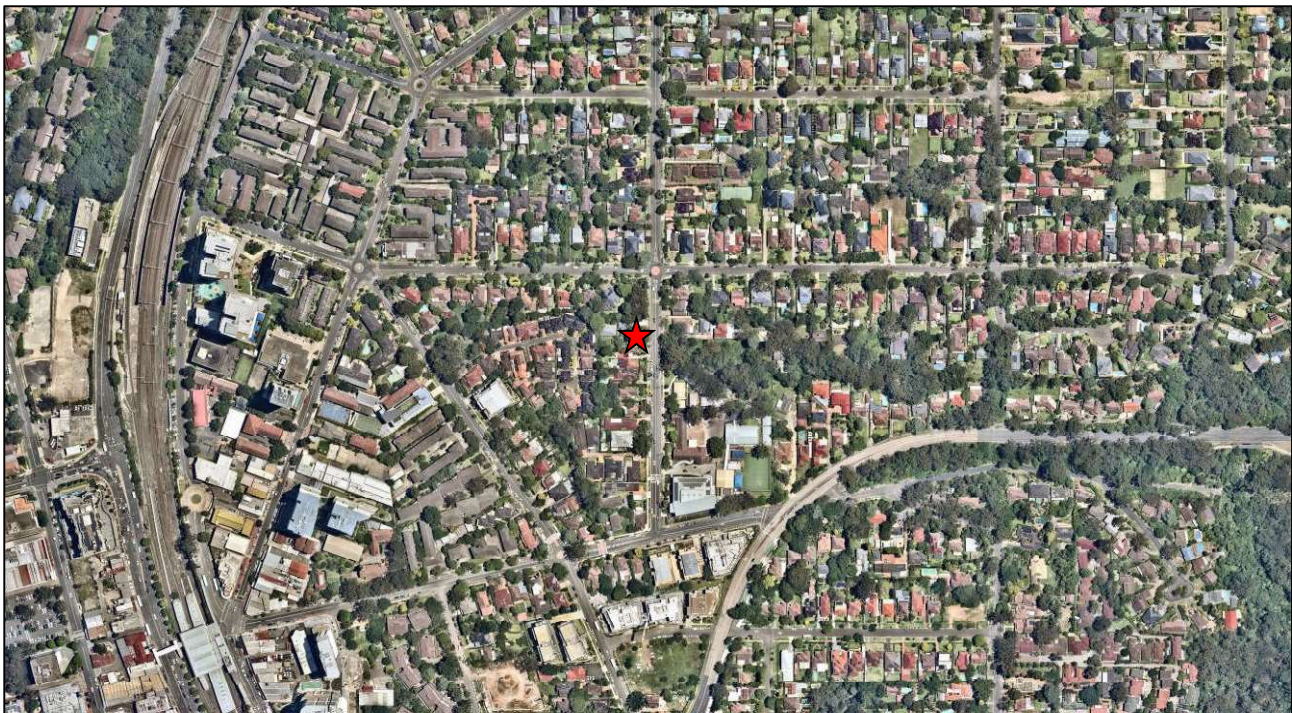
The proposed childcare centre will accommodate 23 car parking spaces within a basement car park operated as a one-way system with a combined entry/exit driveway from Norfolk Road. This was increased from the existing approval of 14 spaces to accommodate a higher volume of children within the childcare centre – a planned increase from the originally approved 53 children capacity to 82 children. As such, the basement car parking area has been redesigned to allow for additional visitor and staff parking. The design of the visitor parking spaces has been designed in accordance with User Class 3A parking spaces in accordance with AS2890.1:2004. User Class 3A designs are typical of shopping centres and has been used within the child care centre to provide for an efficient and safe car parking layout.

The assessment of traffic and parking impacts relating to the updated development is provided in Sections 1-3 of this letter, with a summary of the relevant findings below:

- The proposed design includes a total of 23 car parking spaces including one (1) accessible parking space, satisfying the requirements of the *Hornsby Shire Council Development Control Plan 2013*.
- The design of the parking and access facilities has been assessed to comply with the relevant requirements of AS2890.1 and AS2890.6.
- The traffic generation of the proposed development is estimated at some 66 trips in the AM peak hour and 58 in the PM peak hour, which has been assessed to have minimal adverse impact on the surrounding road network.
 - It is noted that the traffic generation of the approved DA was expected to be 42 (21 IN, 21 OUT) in the AM peak period and 37 (19 IN, 18 OUT) in the PM peak period.

1 Site Location and Access

The location of the site is depicted on an aerial image in **Figure 1**. The characteristics of the site and the surrounding transport network are summarised in **Table 2**.



★ Site Location

FIGURE 1: SITE CONTEXT – AERIAL IMAGE

TABLE 2: SITE CONTEXT

Zoning	The site is zoned R2 – Low Density Residential under the Hornsby Local Environmental Plan 2013
Roads Fronting Site	<p>The site fronts the following road:</p> <ul style="list-style-type: none"> Norfolk Road (Local) <p>The approved two-way access driveway from Norfolk Road is unchanged as part of the proposed development.</p>
State Planning Controls	The site is neither of sufficient size or capacity or fronted by or provided access via a classified road and is therefore not required to be referred to the Transport for NSW (TfNSW) as part of the Development Application process.
Public Transport	<p>The subject site has access to the existing bus routes 288, 290 and 291 provided by Busways North West with the nearest bus stop (Stop ID: 212123) located approximately 270m walking distance to the south of the site, near the intersection of Epping Road / Pembroke St. The bus routes provide access between Epping, North Ryde, Lane Cove, North Sydney and City.</p> <p>Epping Train Station is located 700m west of the site and services the T9 – Northern Line and the Central Coast & Newcastle Line routes.</p>

2 Parking and Access Design

The car parking, access and servicing requirements of the site have been assessed, with the relevant details summarised in **Table 3**.

TABLE 3: PARKING ASSESSMENT SUMMARY

Category	Control	Compliance with Control
Car Parking Provision	<i>Child Care Centre: - 1 space per 4 children</i>	Yes – 23 spaces are proposed where a minimum of 21 spaces (rounded from 20.5) are required.
Bicycle Parking	<i>No applicable controls are provided within the Council's DCP.</i>	Yes – Since bicycle parking spaces have not been outlined, it can be assumed they are not required. Regardless, four (4) bicycle parking spaces are proposed to be provided.
Motorcycle Parking	<i>In all buildings that provide on site parking, 1 space suitable for motor cycles should be provided per 50 car parking spaces provided, or part thereof. Each motor cycle parking space is to be designated and located so that parked motorcycles are not vulnerable to being struck by a manoeuvring vehicle.</i>	Yes – One (1) motorcycle parking space is required and one (1) motorcycle parking space has been provided in compliance with requirements.
Accessible Parking	<i>Minimum number of Accessible Spaces for Educational Establishments is 2-3% of total number of parking spaces required.</i>	Yes – One (1) accessible parking space is required. The site provides one (1) accessible parking space in compliance with DCP requirements.
Loading and Servicing Facilities	<i>The on site loading and unloading area in a non residential development should incorporate provision for 1 car space and 1 motorcycle space for use by couriers, sited in a convenient location. Larger developments may require more.</i>	Yes – The site can accommodate delivery vehicles (up to a B99 design vehicle) between 9am and 4pm – outside of peak parent pick-up/drop-off times, during which times the delivery vehicle can utilise one of the vacant visitor car parking spaces. A motorcycle parking space has also been provided in compliance with requirements. Waste collection for the childcare centre can be conducted on street via kerbside collection, similar to residential development types.
Car Parking Design	<i>Design and dimensions of car parks, loading areas and driveways should comply with AS2890.1 and AS2890.2. Planning and design layout of parking areas for people with disabilities should be in accordance with AS2890.6 and AS1428.1.</i>	Yes - relevant swept path testing is provided in Annexure B .

3 Traffic Generation and Impact

The traffic generation of the site has been calculated and its impact on the surrounding road network assessed, with the relevant details of this assessment provided in **Table 4**.

TABLE 4: TRAFFIC ASSESSMENT SUMMARY

Traffic Generation	<i>Long-day care ⁽¹⁾</i> <ul style="list-style-type: none"> - 7.00-9.00am: 0.8 peak vehicle trips per child - 2.30-4.00pm: 0.3 peak vehicle trips per child - 4.00-6.00pm: 0.7 peak vehicle trips per child 	<p>The traffic generation of the childcare centre is expected to be 66 (33 IN, 33 OUT) in the AM peak period and 58 (29 IN, 29 OUT) in the PM peak period.</p> <p>The traffic generation of the approved DA was expected to be 42 (21 IN, 21 OUT) in the AM peak period and 37 (19 IN, 18 OUT) in the PM peak period.</p>
	<i>Likely impact of development: ⁽²⁾</i> <ul style="list-style-type: none"> - Low Impact (<10 Trips): No Detailed Assessment Required - Moderate Impact (10-100 Trips): Traffic Impact Statement Required - High Impact (>100 Trips): Traffic Impact Assessment Required 	<p>The traffic generation of the site is between 10 – 100 trips and therefore an assessment of traffic impacts is required.</p> <p>Detailed assessment is presented in Section 3.1 and 3.2 below.</p>

Notes:

(1) Source: RTA Guide to Traffic Generating Developments 2002

(2) Source: Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development Figure 4.1

3.1 Traffic Assignment

The road network and the locations of residential areas surrounding the site have been assessed and the following traffic assignment has been assumed for all traffic to and from the site:

- 50% of traffic to / from the north via the Chester St / Norfolk Rd intersection
- 50% of traffic to / from the south via the Pembroke St / Norfolk Rd intersection.
 - 35% to / from Pembroke St (E)
 - 15% to / from Pembroke St (W)

It is noted that this traffic assignment is consistent with the traffic assignment utilised for the assessment undertaken by *McLaren Traffic Engineering* for the approved child care centre development. The adopted traffic assignment is shown in **Figure 2** below.

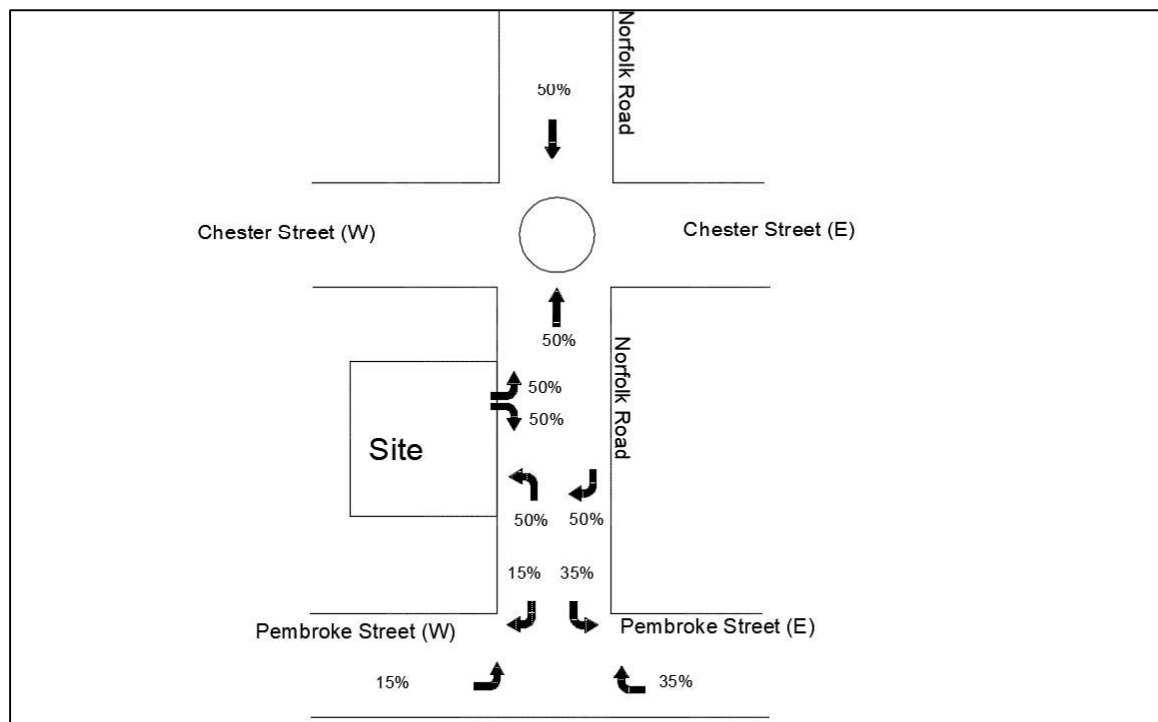


FIGURE 2: TRAFFIC ASSIGNMENT

3.2 Traffic Impact

The traffic generation outlined in **Section 3** above has been added to the existing traffic volumes. SIDRA INTERSECTION 9.0 was used to assess the intersections performance. The purpose of this assessment is to compare the existing intersection operations to the future scenario with the addition of the school and the child care centre under the increased traffic load. The results of this assessment are shown in **Table 5** and **Table 6**, with detailed SIDRA results reproduced in **Annexure C** for reference.

TABLE 5: EXISTING INTERSECTION PERFORMANCES (SIDRA INTERSECTION 9.0)

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay ⁽²⁾ (sec/veh)	Level of Service ⁽³⁾⁽⁴⁾	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE							
Norfolk Rd / Chester St	AM	0.31	6.3 (Worst: 10.7)	A (Worst: A)	Round-about	UT from Chester Street	1.9 veh (13.1m) Norfolk Road
	PM	0.28	5.7 (Worst: 9.7)	A (Worst: A)		UT from Chester Street	1.7 veh (11.9m) Norfolk Road
Pembroke St / Norfolk Rd	AM	0.42	5.2 (Worst: 8.1)	NA (Worst: A)	Give Way	RT from Norfolk Road	2.4 veh (16.5m) Norfolk Road
	PM	0.28	4.9 (Worst: 8.1)	NA (Worst: A)		RT from Norfolk Road	1.1 veh (7.9m) Pembroke Street

NOTES:

(1) Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.

(2) The average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.

(3) The Level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with A representing the best operational condition and level of service F the worst. The LoS of the intersection is shown in bold, and the LoS of the most disadvantaged movement is shown in brackets. (

(4) No overall Level of Service is provided for Give Way and Stop controlled intersections as the low delays associated with the dominant movements skew the average delay of the intersection. The Level of Service of the worst approach is an indicator of the operation of the intersection, with a worse Level of Service corresponding to long delays and reduced safety outcomes for that approach.

TABLE 6: FUTURE INTERSECTION PERFORMANCES (SIDRA INTERSECTION 9.0)

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay ⁽²⁾ (sec/veh)	Level of Service ⁽³⁾	Control Type	Worst Movement	95th Percentile Queue
FUTURE PERFORMANCE (EXISTING + SCHOOL)							
Norfolk Rd/ Chester St	AM	0.41	6.7 (Worst: 11.5)	A (Worst: A)	Round- about	RT from Chester Street	2.8 veh (19.3m) Norfolk Road
	PM	0.36	5.9 (Worst: 9.9)	A (Worst: A)		UT from Chester Street	2.4 veh (17m) Norfolk Road
Pembroke St / Norfolk Rd	AM	0.55	6.1 (Worst: 9.8)	NA (Worst: A)	Give Way	RT from Norfolk Road	4.6 veh (32m) Norfolk Road
	PM	0.39	5.6 (Worst: 9.6)	NA (Worst: A)		RT from Norfolk Road	2 veh (14m) Norfolk Road
FUTURE PERFORMANCE (EXISTING + SCHOOL + CHILD CARE CENTRE) FOR ORIGINAL APPROVAL							
Norfolk Rd / Chester St	AM	0.42	6.7 (Worst: 11.6)	A (Worst: A)	Round- about	RT from Chester Street	2.9 veh (20.1m) Norfolk Road
	PM	0.37	5.9 (Worst: 9.9)	A (Worst: A)		UT from Chester Street	2.5 veh (17.5m) Norfolk Road
Pembroke St / Norfolk Rd	AM	0.57	6.3 (Worst: 10)	NA (Worst: A)	Give Way	RT from Norfolk Road	4.9 veh (34m) Norfolk Road
	PM	0.40	5.7 (Worst: 9.8)	NA (Worst: A)		RT from Norfolk Road	2.1 veh (15m) Norfolk Road
FUTURE PERFORMANCE (EXISTING + SCHOOL + CHILD CARE CENTRE) FOR S4.55 APPROVAL							
Chester Street/Norfolk Road	AM	0.43	6.7 (Worst: 11.6)	A (Worst: A)	Round- about	RT from Chester Street	2.9 veh (20.4m) Norfolk Road
	PM	0.37	5.9 (Worst: 9.9)	A (Worst: A)		UT from Chester Street	2.5 veh (17.8m) Norfolk Road
Pembroke Street/Norfolk Road	AM	0.57	6.3 (Worst: 10.1)	NA (Worst: A)	Give Way	RT from Norfolk Road	5 veh (34.9m) Norfolk Road
	PM	0.41	5.7 (Worst: 9.9)	NA (Worst: A)		RT from Norfolk Road	2.2 veh (15.5m) Norfolk Road

NOTES:

(1) Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.

(2) The average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.

(3) The Level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with A representing the best operational condition and level of service F the worst. The LoS of the intersection is shown in bold, and the LoS of the most disadvantaged movement is shown in brackets.

(4) No overall Level of Service is provided for Give Way and Stop controlled intersections as the low delays associated with the dominant movements skew the average delay of the intersection. The Level of Service of the worst approach is an indicator of the operation of the intersection, with a worse Level of Service corresponding to long delays and reduced safety outcomes for that approach.

As shown in **Table 5** and **Table 6**, the surrounding intersections remain unaltered under the future proposed scenario from the current approval. The existing Level of Service has been retained with minimal delays and additional capacity maintained. The routes to and from the site do not utilise any residential precincts and are along local arterial or State roads. Therefore, residential amenity will not be impacted by the traffic generated by the proposed development.

Please contact Mr Laen Stewart or the undersigned on 02 9521 7199 should you require further information or assistance.

Yours faithfully

M^cLaren Traffic Engineering



Matthew M^cCarthy

Senior Traffic Engineer

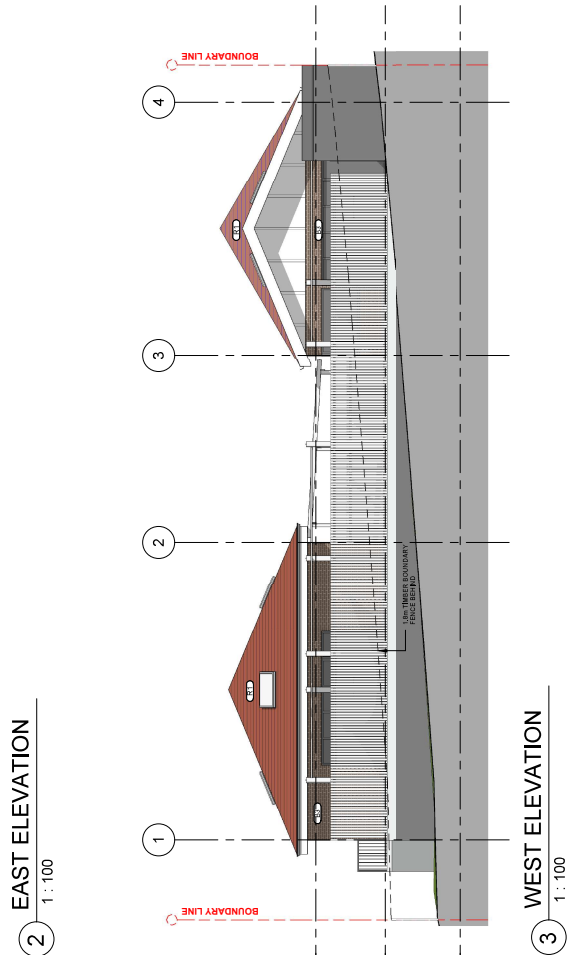
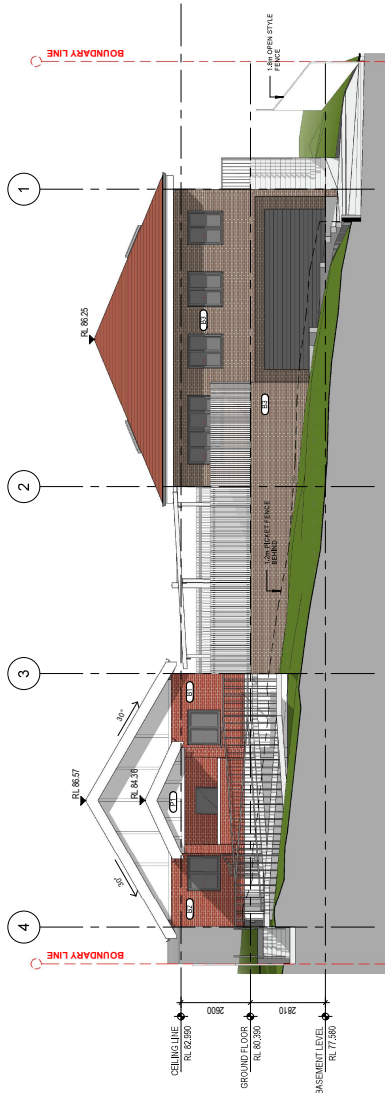
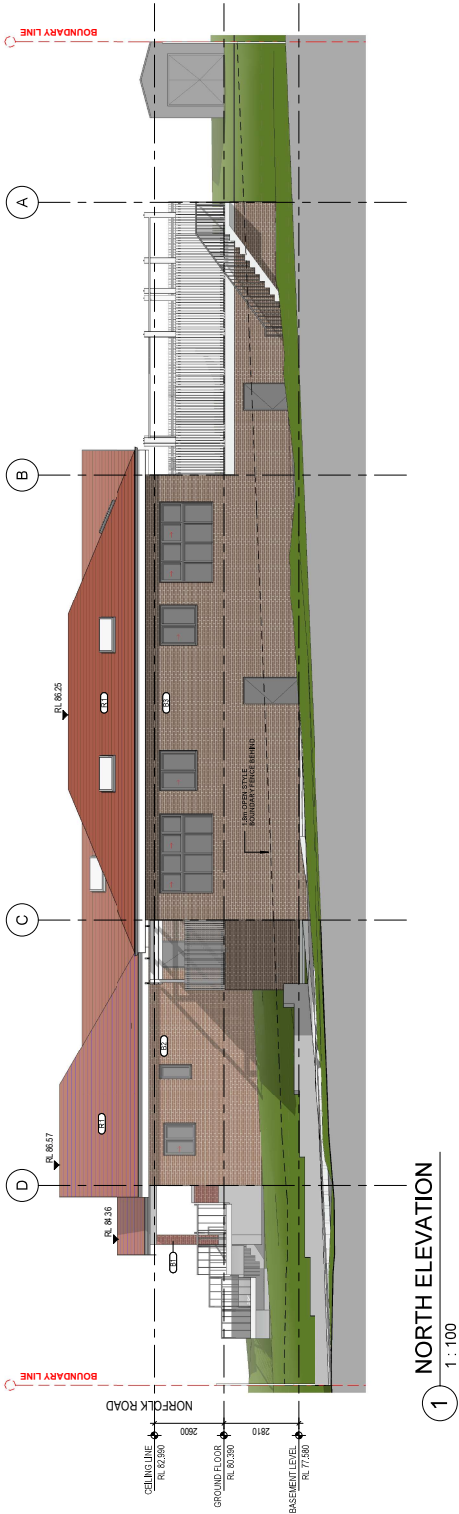
BE Civil Engineering

Masters of Engineering Science

RMS Accredited Level 2 Road Safety Auditor



**ANNEXURE A: REDUCED PLANS
(3 SHEETS)**



EXTERNAL FINISHES SCHEDULE			
MARK	DESCRIPTION	COMMENTS	IMAGE
B1	BRICK - EXISTING - RED BRICK	TO BE REFINED AND PROTECTED	
B2	BRICK - EXISTING - BROWN BRICK	NEW TO MATCH EXISTING	
B3	BRICK - PROPOSED	FOH - VELOUR VOLCANIC	
P1	PAINT - GFF WHITE / NEW TO MATCH EXISTING	NEW TO MATCH EXISTING	
P2	PAINT - EXISTING - GFF WHITE / NEW TO MATCH EXISTING	NEW TO MATCH EXISTING	
P3	PAINT - WOODLAND GREY	COLORBOND - WOODLAND GREY	
R1	BRICK - EXISTING - BROWN BRICK	NEW TO MATCH EXISTING	

Revision Schedule

Issue

Description

Date

APPRO

Client:

Oggi Investment Group PL

Architect

LOUCAS ARCHITECTS
Level 3, Suite 307, 7-9 Gibbons St,
Academ NSW, Australia
T:61 (02) 8052 8600
Email: admin@loucas.com.au
Nominated Architect:
Jim Acostas / 7490

LOUCAS ARCHITECTS

Project Details

21-23 Norfolk Rd Epping NSW

Drawing

ELEVATIONS 01

Project Number:

Ph-21017

Series No - Sheet

200-000

Drawn

Author

Checked

Checker

Revision

Drawing

Preliminary Only

Scale:

1 : 100 @ A1

Date Printed:

3/09/2022 13:05:18 PM

0

1

2

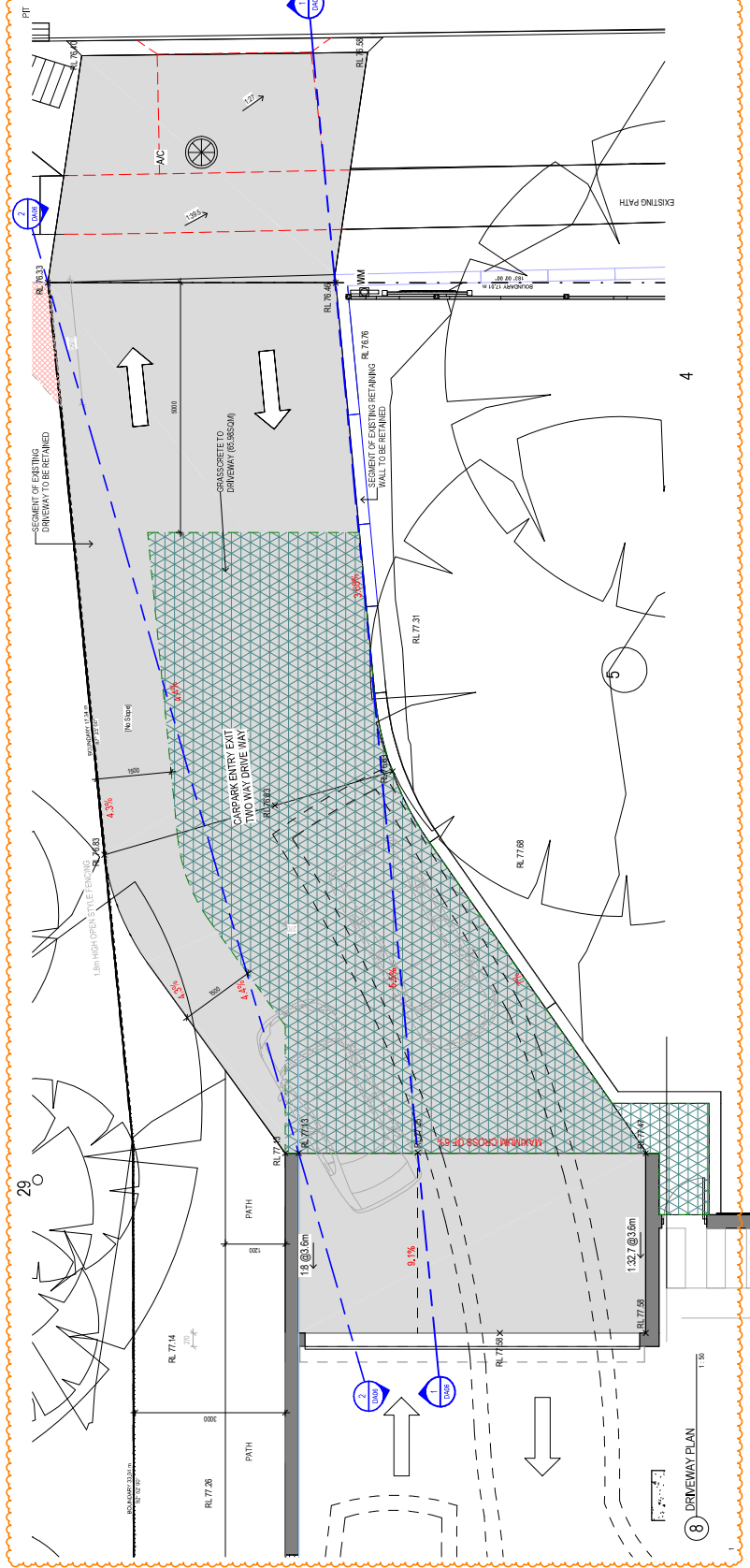
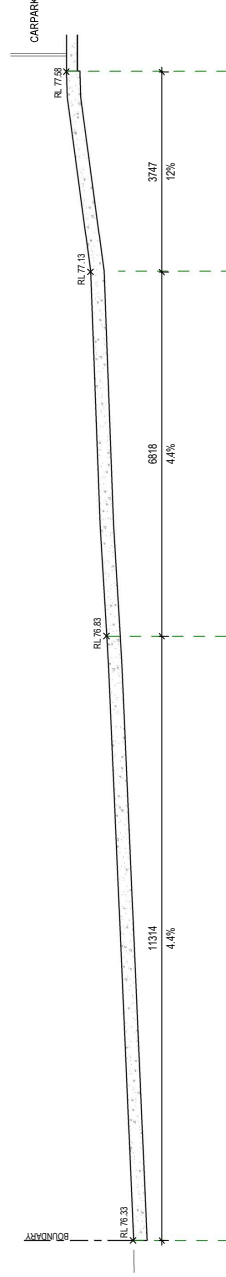
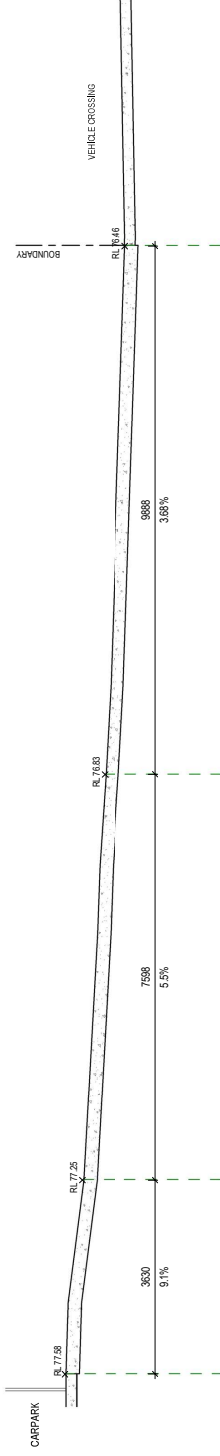
3

4

5

1:100

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DEVELOPMENT APPLICATION

J	Update library file to Root Entry & Add Comments	RK	20/08/20
H	Update Extra Commands Menu Screens & Add Comments	RK	20/08/20
G	Revised Screen to Display	RK	27/08/20
F	Revised Screen to Count reeling	RK	11/09/20
E	Revised Screen to Long reeling	RK	10/09/20
C	Revised Screen to Long reeling	RK	20/09/19
B	Revised Screen to Long reeling	RK	20/09/19
A	Library Details and Sections	RK	20/09/19

ARTIVA

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Project **CHILD CARE CENTRE**
21-23 NORFOLK
ROAD
EPHING NSW 2122

Proj No. **1706** Client **YANNA GUO** Drawing Title

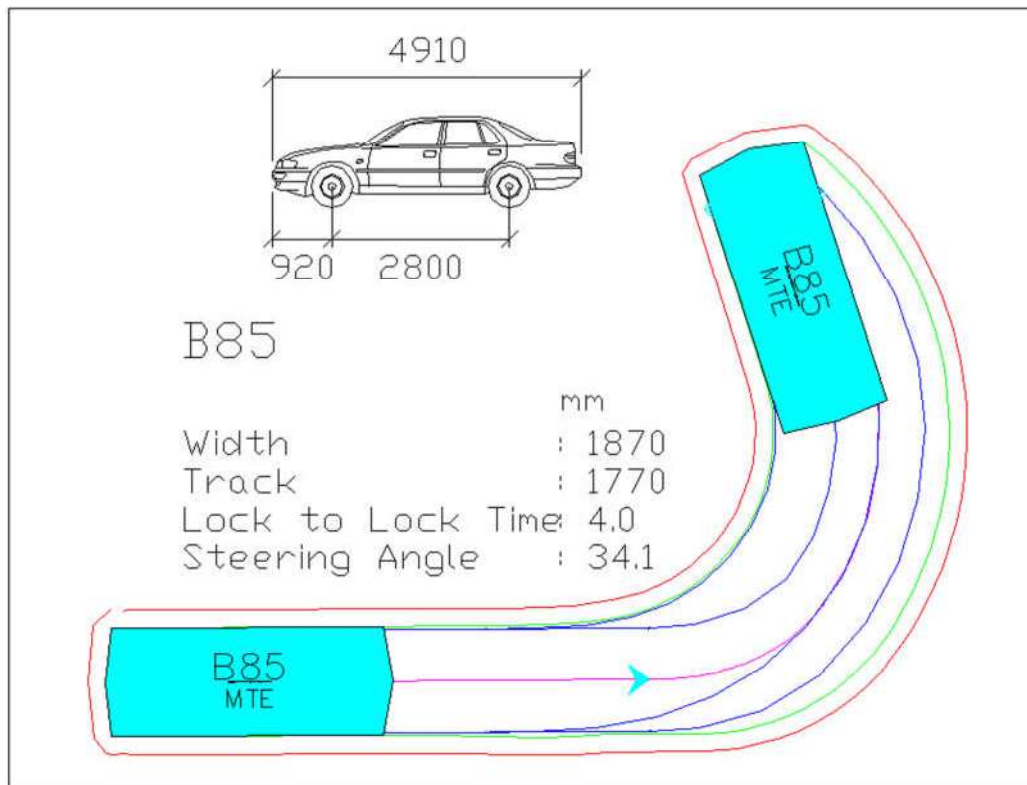
DRIVEWAY DETAILS

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Check by:	RK		

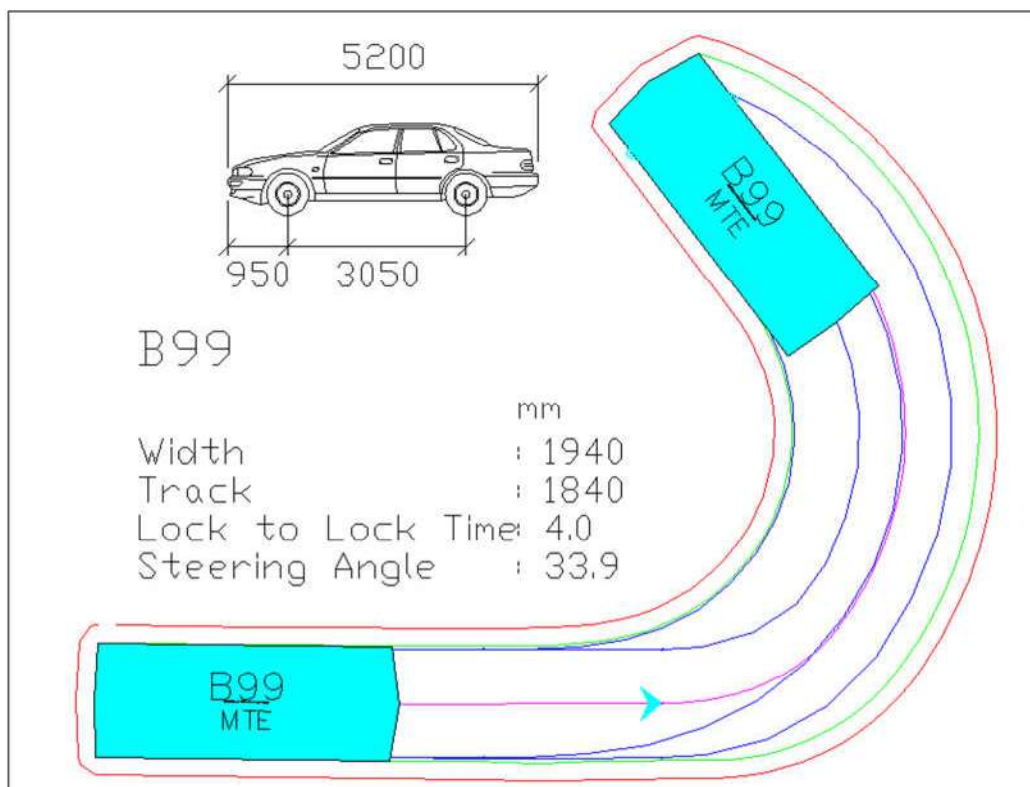
Drawing No.	Revision
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**ANNEXURE B: SWEPT PATH TESTING
(4 SHEETS)**

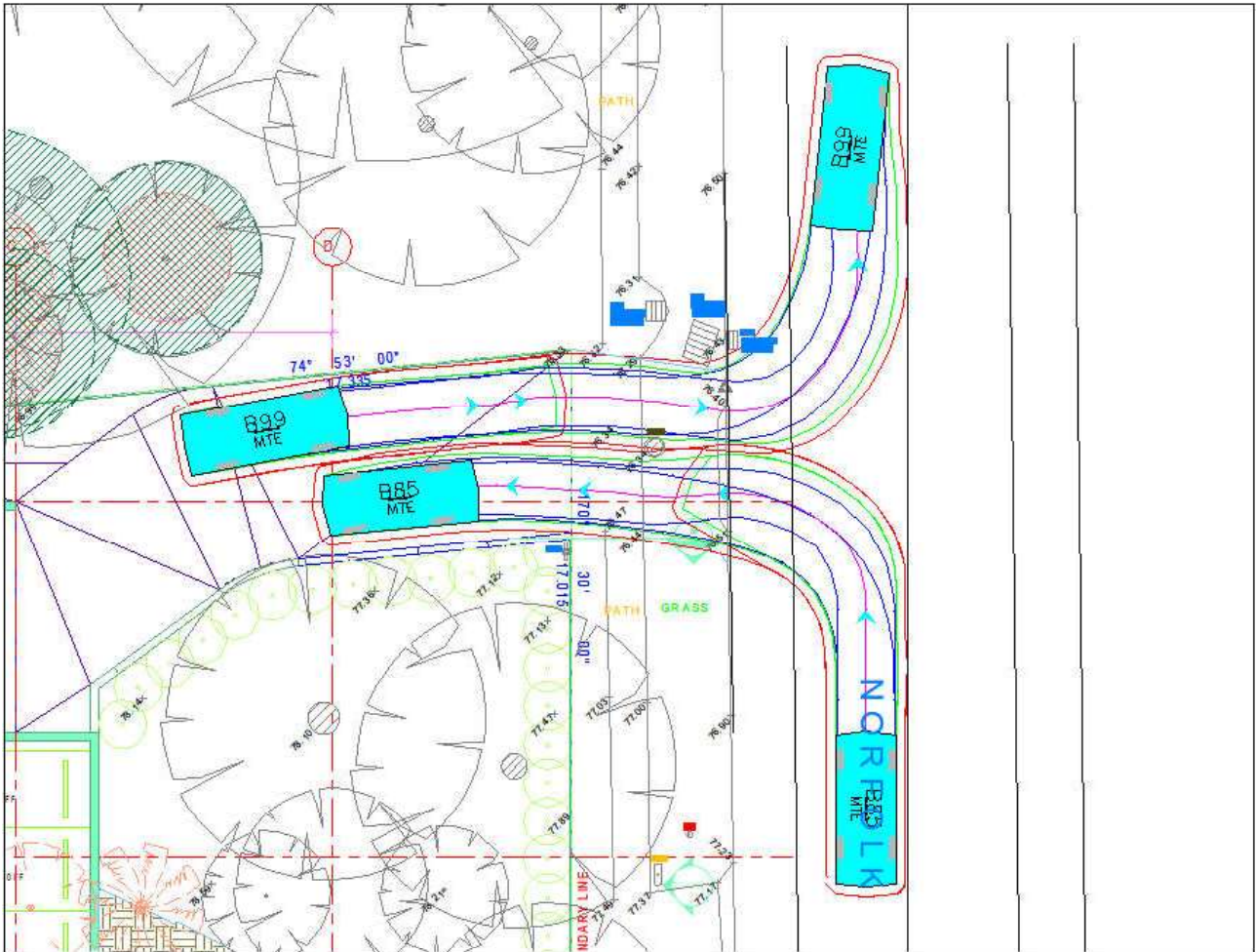


AUSTRALIAN STANDARD 85TH PERCENTILE SIZE VEHICLE (B85)



AUSTRALIAN STANDARD 99.8TH PERCENTILE SIZE VEHICLE (B99)

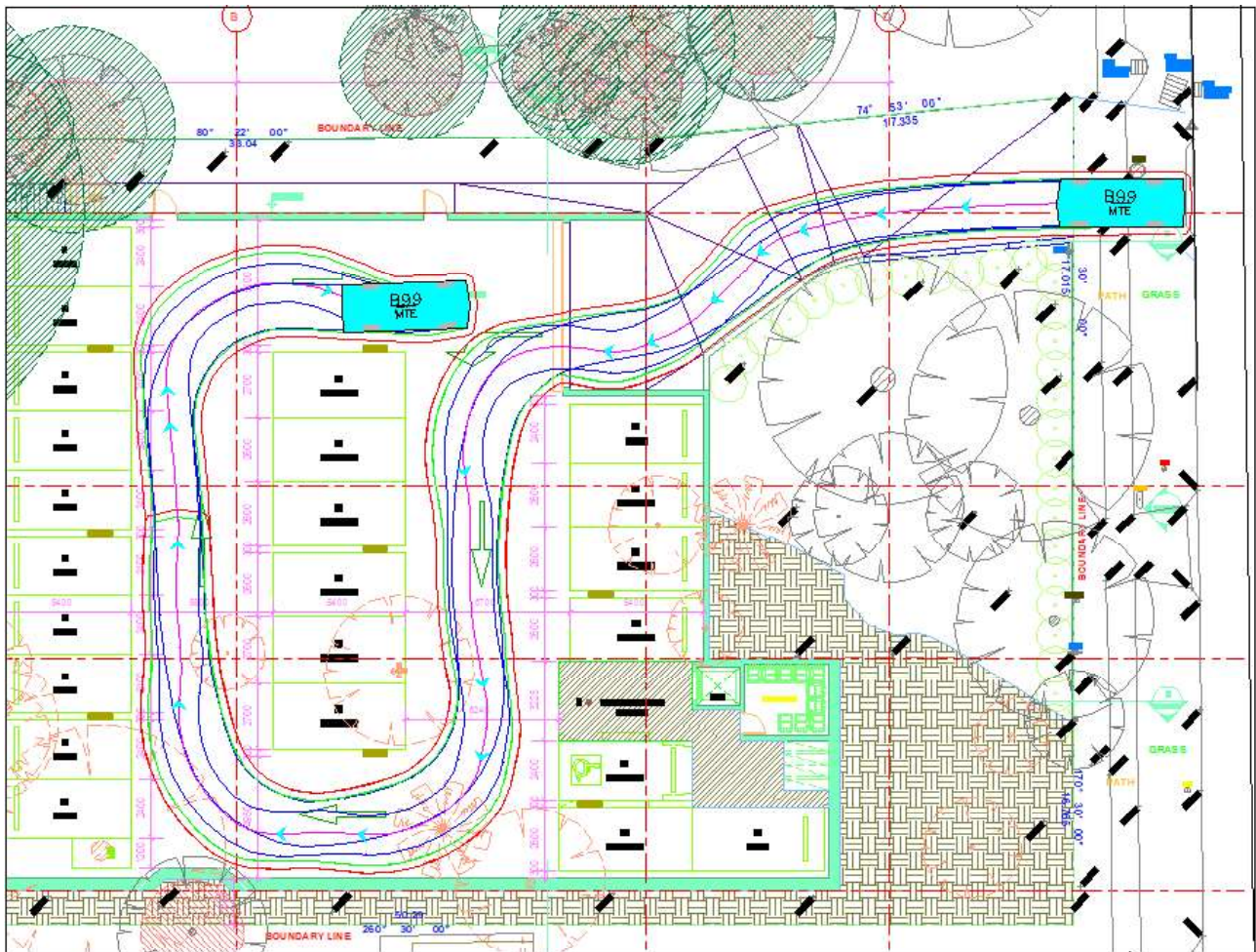
Blue – Tyre Path
 Green – Vehicle Body
 Red – 300mm Clearance



Driveway Two-way Passing
B85 Left Turn IN / B99 Left Turn OUT
Successful



Successful



B99 basement circulation
Successful



**ANNEXURE C: SIDRA MOVEMENT SUMMARY
(16 SHEETS)**

MOVEMENT SUMMARY

 Site: 101 [Norfolk Rd / Chester St EX AM (Site Folder: General)]

Norfolk Road / Chester Street
Existing conditions
AM peak period
Site Category: (None)
Roundabout

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				
South: Norfolk Road														
1	L2	11	0.0	12	0.0	0.207	5.1	LOS A	1.2	8.2	0.19	0.56	0.19	52.4
2	T1	161	0.0	169	0.0	0.207	5.0	LOS A	1.2	8.2	0.19	0.56	0.19	53.2
3	R2	30	0.0	32	0.0	0.207	8.0	LOS A	1.2	8.2	0.19	0.56	0.19	52.8
3u	U	60	0.0	63	0.0	0.207	9.6	LOS A	1.2	8.2	0.19	0.56	0.19	53.3
Approach		262	0.0	276	0.0	0.207	6.4	LOS A	1.2	8.2	0.19	0.56	0.19	53.1
East: Chester Street														
4	L2	42	0.0	44	0.0	0.069	7.4	LOS A	0.4	2.5	0.55	0.65	0.55	51.9
5	T1	13	0.0	14	0.0	0.069	7.3	LOS A	0.4	2.5	0.55	0.65	0.55	52.7
6	R2	1	0.0	1	0.0	0.069	10.3	LOS A	0.4	2.5	0.55	0.65	0.55	52.3
Approach		56	0.0	59	0.0	0.069	7.4	LOS A	0.4	2.5	0.55	0.65	0.55	52.1
North: Norfolk Road														
7	L2	3	0.0	3	0.0	0.307	5.7	LOS A	1.9	13.1	0.35	0.54	0.35	52.6
8	T1	316	0.0	333	0.0	0.307	5.5	LOS A	1.9	13.1	0.35	0.54	0.35	53.4
9	R2	26	0.0	27	0.0	0.307	8.6	LOS A	1.9	13.1	0.35	0.54	0.35	53.0
9u	U	3	0.0	3	0.0	0.307	10.1	LOS A	1.9	13.1	0.35	0.54	0.35	53.5
Approach		348	0.0	366	0.0	0.307	5.8	LOS A	1.9	13.1	0.35	0.54	0.35	53.4
West: Chester Street														
10	L2	17	0.0	18	0.0	0.052	6.3	LOS A	0.3	1.8	0.42	0.63	0.42	51.6
11	T1	7	0.0	7	0.0	0.052	6.1	LOS A	0.3	1.8	0.42	0.63	0.42	52.3
12	R2	20	0.0	21	0.0	0.052	9.2	LOS A	0.3	1.8	0.42	0.63	0.42	51.9
12u	U	5	0.0	5	0.0	0.052	10.7	LOS A	0.3	1.8	0.42	0.63	0.42	52.4
Approach		49	0.0	52	0.0	0.052	7.9	LOS A	0.3	1.8	0.42	0.63	0.42	51.9
All Vehicles		715	0.0	753	0.0	0.307	6.3	LOS A	1.9	13.1	0.32	0.56	0.32	53.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: 101 [Norfolk Rd / Chester St FUT AM School (Site Folder: General)]**

Norfolk Road / Chester Street
Future conditions with school
AM peak period
Site Category: (None)
Roundabout

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				
South: Norfolk Road														
1	L2	14	0.0	15	0.0	0.277	5.1	LOS A	1.7	12.2	0.21	0.57	0.21	52.2
2	T1	204	0.0	215	0.0	0.277	5.0	LOS A	1.7	12.2	0.21	0.57	0.21	53.0
3	R2	38	0.0	40	0.0	0.277	8.0	LOS A	1.7	12.2	0.21	0.57	0.21	52.6
3u	U	101	0.0	106	0.0	0.277	9.6	LOS A	1.7	12.2	0.21	0.57	0.21	53.1
Approach		357	0.0	376	0.0	0.277	6.6	LOS A	1.7	12.2	0.21	0.57	0.21	52.9
East: Chester Street														
4	L2	54	0.0	57	0.0	0.097	8.5	LOS A	0.5	3.8	0.65	0.72	0.65	51.1
5	T1	13	0.0	14	0.0	0.097	8.4	LOS A	0.5	3.8	0.65	0.72	0.65	51.8
6	R2	1	0.0	1	0.0	0.097	11.5	LOS A	0.5	3.8	0.65	0.72	0.65	51.5
Approach		68	0.0	72	0.0	0.097	8.6	LOS A	0.5	3.8	0.65	0.72	0.65	51.2
North: Norfolk Road														
7	L2	3	0.0	3	0.0	0.411	6.2	LOS A	2.8	19.3	0.47	0.59	0.47	52.2
8	T1	405	0.0	426	0.0	0.411	6.1	LOS A	2.8	19.3	0.47	0.59	0.47	53.0
9	R2	27	0.0	28	0.0	0.411	9.1	LOS A	2.8	19.3	0.47	0.59	0.47	52.6
9u	U	3	0.0	3	0.0	0.411	10.7	LOS A	2.8	19.3	0.47	0.59	0.47	53.1
Approach		438	0.0	461	0.0	0.411	6.3	LOS A	2.8	19.3	0.47	0.59	0.47	53.0
West: Chester Street														
10	L2	17	0.0	18	0.0	0.063	6.8	LOS A	0.3	2.2	0.49	0.66	0.49	51.1
11	T1	7	0.0	7	0.0	0.063	6.7	LOS A	0.3	2.2	0.49	0.66	0.49	51.8
12	R2	26	0.0	27	0.0	0.063	9.8	LOS A	0.3	2.2	0.49	0.66	0.49	51.5
12u	U	5	0.0	5	0.0	0.063	11.3	LOS A	0.3	2.2	0.49	0.66	0.49	51.9
Approach		55	0.0	58	0.0	0.063	8.6	LOS A	0.3	2.2	0.49	0.66	0.49	51.5
All Vehicles		918	0.0	966	0.0	0.411	6.7	LOS A	2.8	19.3	0.39	0.59	0.39	52.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: 101 [Norfolk Rd / Chester St FUT AM School + CCC (Site Folder: General)]**

Norfolk Road / Chester Street
Future conditions with school and CCC
AM peak period
Site Category: (None)
Roundabout

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				
South: Norfolk Road														
1	L2	14	0.0	15	0.0	0.285	5.1	LOS A	1.8	12.7	0.22	0.56	0.22	52.3
2	T1	216	0.0	227	0.0	0.285	5.0	LOS A	1.8	12.7	0.22	0.56	0.22	53.0
3	R2	38	0.0	40	0.0	0.285	8.0	LOS A	1.8	12.7	0.22	0.56	0.22	52.7
3u	U	101	0.0	106	0.0	0.285	9.6	LOS A	1.8	12.7	0.22	0.56	0.22	53.1
Approach		369	0.0	388	0.0	0.285	6.6	LOS A	1.8	12.7	0.22	0.56	0.22	53.0
East: Chester Street														
4	L2	54	0.0	57	0.0	0.098	8.7	LOS A	0.5	3.8	0.66	0.72	0.66	51.0
5	T1	13	0.0	14	0.0	0.098	8.5	LOS A	0.5	3.8	0.66	0.72	0.66	51.8
6	R2	1	0.0	1	0.0	0.098	11.6	LOS A	0.5	3.8	0.66	0.72	0.66	51.4
Approach		68	0.0	72	0.0	0.098	8.7	LOS A	0.5	3.8	0.66	0.72	0.66	51.2
North: Norfolk Road														
7	L2	3	0.0	3	0.0	0.422	6.2	LOS A	2.9	20.1	0.48	0.59	0.48	52.2
8	T1	417	0.0	439	0.0	0.422	6.1	LOS A	2.9	20.1	0.48	0.59	0.48	53.0
9	R2	27	0.0	28	0.0	0.422	9.2	LOS A	2.9	20.1	0.48	0.59	0.48	52.6
9u	U	3	0.0	3	0.0	0.422	10.7	LOS A	2.9	20.1	0.48	0.59	0.48	53.1
Approach		450	0.0	474	0.0	0.422	6.3	LOS A	2.9	20.1	0.48	0.59	0.48	53.0
West: Chester Street														
10	L2	17	0.0	18	0.0	0.064	6.9	LOS A	0.3	2.2	0.50	0.67	0.50	51.1
11	T1	7	0.0	7	0.0	0.064	6.8	LOS A	0.3	2.2	0.50	0.67	0.50	51.8
12	R2	26	0.0	27	0.0	0.064	9.8	LOS A	0.3	2.2	0.50	0.67	0.50	51.4
12u	U	5	0.0	5	0.0	0.064	11.4	LOS A	0.3	2.2	0.50	0.67	0.50	51.9
Approach		55	0.0	58	0.0	0.064	8.7	LOS A	0.3	2.2	0.50	0.67	0.50	51.4
All Vehicles		942	0.0	992	0.0	0.422	6.7	LOS A	2.9	20.1	0.39	0.59	0.39	52.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: 101 [UPDATED Norfolk Rd / Chester St FUT AM School
+ CCC (Site Folder: General)]

Norfolk Road / Chester Street
Updated future conditions with school and CCC
AM peak period
Site Category: (None)
Roundabout

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				
South: Norfolk Road														
1	L2	14	0.0	15	0.0	0.289	5.1	LOS A	1.8	12.9	0.22	0.56	0.22	52.3
2	T1	221	0.0	233	0.0	0.289	5.0	LOS A	1.8	12.9	0.22	0.56	0.22	53.0
3	R2	38	0.0	40	0.0	0.289	8.0	LOS A	1.8	12.9	0.22	0.56	0.22	52.7
3u	U	101	0.0	106	0.0	0.289	9.6	LOS A	1.8	12.9	0.22	0.56	0.22	53.1
Approach		374	0.0	394	0.0	0.289	6.5	LOS A	1.8	12.9	0.22	0.56	0.22	53.0
East: Chester Street														
4	L2	54	0.0	57	0.0	0.099	8.7	LOS A	0.6	3.9	0.66	0.72	0.66	51.0
5	T1	13	0.0	14	0.0	0.099	8.6	LOS A	0.6	3.9	0.66	0.72	0.66	51.7
6	R2	1	0.0	1	0.0	0.099	11.6	LOS A	0.6	3.9	0.66	0.72	0.66	51.4
Approach		68	0.0	72	0.0	0.099	8.7	LOS A	0.6	3.9	0.66	0.72	0.66	51.1
North: Norfolk Road														
7	L2	3	0.0	3	0.0	0.426	6.3	LOS A	2.9	20.4	0.48	0.59	0.48	52.2
8	T1	422	0.0	444	0.0	0.426	6.1	LOS A	2.9	20.4	0.48	0.59	0.48	53.0
9	R2	27	0.0	28	0.0	0.426	9.2	LOS A	2.9	20.4	0.48	0.59	0.48	52.6
9u	U	3	0.0	3	0.0	0.426	10.7	LOS A	2.9	20.4	0.48	0.59	0.48	53.1
Approach		455	0.0	479	0.0	0.426	6.3	LOS A	2.9	20.4	0.48	0.59	0.48	53.0
West: Chester Street														
10	L2	17	0.0	18	0.0	0.064	7.0	LOS A	0.3	2.3	0.50	0.67	0.50	51.0
11	T1	7	0.0	7	0.0	0.064	6.8	LOS A	0.3	2.3	0.50	0.67	0.50	51.8
12	R2	26	0.0	27	0.0	0.064	9.9	LOS A	0.3	2.3	0.50	0.67	0.50	51.4
12u	U	5	0.0	5	0.0	0.064	11.4	LOS A	0.3	2.3	0.50	0.67	0.50	51.9
Approach		55	0.0	58	0.0	0.064	8.7	LOS A	0.3	2.3	0.50	0.67	0.50	51.4
All Vehicles		952	0.0	1002	0.0	0.426	6.7	LOS A	2.9	20.4	0.39	0.59	0.39	52.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: 101 [Norfolk Rd / Chester St EX PM (Site Folder: General)]

Norfolk Road / Chester Street
 Existing conditions
 PM peak period
 Site Category: (None)
 Roundabout

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]				
South: Norfolk Road														
1	L2	20	0.0	21	0.0	0.277	5.2	LOS A	1.7	11.8	0.22	0.52	0.22	52.9
2	T1	280	0.0	295	0.0	0.277	5.0	LOS A	1.7	11.8	0.22	0.52	0.22	53.7
3	R2	37	0.0	39	0.0	0.277	8.1	LOS A	1.7	11.8	0.22	0.52	0.22	53.3
3u	U	16	0.0	17	0.0	0.277	9.6	LOS A	1.7	11.8	0.22	0.52	0.22	53.8
Approach		353	0.0	372	0.0	0.277	5.6	LOS A	1.7	11.8	0.22	0.52	0.22	53.6
East: Chester Street														
4	L2	34	0.0	36	0.0	0.064	6.3	LOS A	0.3	2.2	0.43	0.59	0.43	52.4
5	T1	20	0.0	21	0.0	0.064	6.2	LOS A	0.3	2.2	0.43	0.59	0.43	53.2
6	R2	6	0.0	6	0.0	0.064	9.2	LOS A	0.3	2.2	0.43	0.59	0.43	52.8
Approach		60	0.0	63	0.0	0.064	6.6	LOS A	0.3	2.2	0.43	0.59	0.43	52.7
North: Norfolk Road														
7	L2	7	0.0	7	0.0	0.202	5.3	LOS A	1.1	7.8	0.25	0.51	0.25	52.9
8	T1	207	0.0	218	0.0	0.202	5.1	LOS A	1.1	7.8	0.25	0.51	0.25	53.7
9	R2	25	0.0	26	0.0	0.202	8.2	LOS A	1.1	7.8	0.25	0.51	0.25	53.3
9u	U	3	0.0	3	0.0	0.202	9.7	LOS A	1.1	7.8	0.25	0.51	0.25	53.8
Approach		242	0.0	255	0.0	0.202	5.5	LOS A	1.1	7.8	0.25	0.51	0.25	53.7
West: Chester Street														
10	L2	10	0.0	11	0.0	0.035	6.7	LOS A	0.2	1.2	0.48	0.63	0.48	51.5
11	T1	8	0.0	8	0.0	0.035	6.6	LOS A	0.2	1.2	0.48	0.63	0.48	52.3
12	R2	12	0.0	13	0.0	0.035	9.7	LOS A	0.2	1.2	0.48	0.63	0.48	51.9
12u	U	1	0.0	1	0.0	0.035	11.2	LOS A	0.2	1.2	0.48	0.63	0.48	52.3
Approach		31	0.0	33	0.0	0.035	8.0	LOS A	0.2	1.2	0.48	0.63	0.48	51.9
All Vehicles		686	0.0	722	0.0	0.277	5.7	LOS A	1.7	11.8	0.26	0.53	0.26	53.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Intersection and Approach LOS values are based on average delay for all vehicle movements.
 Roundabout Capacity Model: SIDRA Standard.
 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: 101 [Norfolk Rd / Chester St FUT PM School (Site Folder: General)]**

Norfolk Road / Chester Street
Future conditions with school
PM peak period
Site Category: (None)
Roundabout

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				
South: Norfolk Road														
1	L2	26	0.0	27	0.0	0.358	5.2	LOS A	2.4	17.0	0.25	0.52	0.25	52.8
2	T1	364	0.0	383	0.0	0.358	5.1	LOS A	2.4	17.0	0.25	0.52	0.25	53.6
3	R2	48	0.0	51	0.0	0.358	8.1	LOS A	2.4	17.0	0.25	0.52	0.25	53.2
3u	U	25	0.0	26	0.0	0.358	9.7	LOS A	2.4	17.0	0.25	0.52	0.25	53.7
Approach		463	0.0	487	0.0	0.358	5.6	LOS A	2.4	17.0	0.25	0.52	0.25	53.5
East: Chester Street														
4	L2	45	0.0	47	0.0	0.082	6.9	LOS A	0.4	2.9	0.50	0.63	0.50	52.1
5	T1	20	0.0	21	0.0	0.082	6.7	LOS A	0.4	2.9	0.50	0.63	0.50	52.9
6	R2	6	0.0	6	0.0	0.082	9.8	LOS A	0.4	2.9	0.50	0.63	0.50	52.5
Approach		71	0.0	75	0.0	0.082	7.1	LOS A	0.4	2.9	0.50	0.63	0.50	52.4
North: Norfolk Road														
7	L2	7	0.0	7	0.0	0.265	5.5	LOS A	1.6	11.0	0.31	0.52	0.31	52.8
8	T1	273	0.0	287	0.0	0.265	5.3	LOS A	1.6	11.0	0.31	0.52	0.31	53.6
9	R2	26	0.0	27	0.0	0.265	8.4	LOS A	1.6	11.0	0.31	0.52	0.31	53.2
9u	U	3	0.0	3	0.0	0.265	9.9	LOS A	1.6	11.0	0.31	0.52	0.31	53.7
Approach		309	0.0	325	0.0	0.265	5.6	LOS A	1.6	11.0	0.31	0.52	0.31	53.5
West: Chester Street														
10	L2	10	0.0	11	0.0	0.044	7.5	LOS A	0.2	1.6	0.55	0.67	0.55	50.9
11	T1	8	0.0	8	0.0	0.044	7.3	LOS A	0.2	1.6	0.55	0.67	0.55	51.7
12	R2	16	0.0	17	0.0	0.044	10.4	LOS A	0.2	1.6	0.55	0.67	0.55	51.3
12u	U	1	0.0	1	0.0	0.044	11.9	LOS A	0.2	1.6	0.55	0.67	0.55	51.8
Approach		35	0.0	37	0.0	0.044	8.9	LOS A	0.2	1.6	0.55	0.67	0.55	51.3
All Vehicles		878	0.0	924	0.0	0.358	5.9	LOS A	2.4	17.0	0.30	0.53	0.30	53.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: 101 [Norfolk Rd / Chester St FUT PM School +CCC (Site Folder: General)]**

Norfolk Road / Chester Street
Future conditions with school and CCC
PM peak period
Site Category: (None)
Roundabout

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				
South: Norfolk Road														
1	L2	26	0.0	27	0.0	0.365	5.2	LOS A	2.5	17.5	0.25	0.52	0.25	52.8
2	T1	374	0.0	394	0.0	0.365	5.1	LOS A	2.5	17.5	0.25	0.52	0.25	53.6
3	R2	48	0.0	51	0.0	0.365	8.1	LOS A	2.5	17.5	0.25	0.52	0.25	53.2
3u	U	25	0.0	26	0.0	0.365	9.7	LOS A	2.5	17.5	0.25	0.52	0.25	53.7
Approach		473	0.0	498	0.0	0.365	5.6	LOS A	2.5	17.5	0.25	0.52	0.25	53.5
East: Chester Street														
4	L2	45	0.0	47	0.0	0.082	6.9	LOS A	0.4	3.0	0.51	0.63	0.51	52.1
5	T1	20	0.0	21	0.0	0.082	6.8	LOS A	0.4	3.0	0.51	0.63	0.51	52.9
6	R2	6	0.0	6	0.0	0.082	9.8	LOS A	0.4	3.0	0.51	0.63	0.51	52.5
Approach		71	0.0	75	0.0	0.082	7.1	LOS A	0.4	3.0	0.51	0.63	0.51	52.3
North: Norfolk Road														
7	L2	7	0.0	7	0.0	0.273	5.5	LOS A	1.6	11.4	0.31	0.52	0.31	52.8
8	T1	283	0.0	298	0.0	0.273	5.3	LOS A	1.6	11.4	0.31	0.52	0.31	53.6
9	R2	26	0.0	27	0.0	0.273	8.4	LOS A	1.6	11.4	0.31	0.52	0.31	53.2
9u	U	3	0.0	3	0.0	0.273	9.9	LOS A	1.6	11.4	0.31	0.52	0.31	53.7
Approach		319	0.0	336	0.0	0.273	5.6	LOS A	1.6	11.4	0.31	0.52	0.31	53.5
West: Chester Street														
10	L2	10	0.0	11	0.0	0.044	7.5	LOS A	0.2	1.6	0.56	0.67	0.56	50.9
11	T1	8	0.0	8	0.0	0.044	7.4	LOS A	0.2	1.6	0.56	0.67	0.56	51.6
12	R2	16	0.0	17	0.0	0.044	10.4	LOS A	0.2	1.6	0.56	0.67	0.56	51.3
12u	U	1	0.0	1	0.0	0.044	12.0	LOS A	0.2	1.6	0.56	0.67	0.56	51.7
Approach		35	0.0	37	0.0	0.044	8.9	LOS A	0.2	1.6	0.56	0.67	0.56	51.2
All Vehicles		898	0.0	945	0.0	0.365	5.9	LOS A	2.5	17.5	0.30	0.53	0.30	53.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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: 101 [UPDATED Norfolk Rd / Chester St FUT PM School
+CCC (Site Folder: General)]

Norfolk Road / Chester Street
Updated future conditions with school and CCC
PM peak period
Site Category: (None)
Roundabout

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				
South: Norfolk Road														
1	L2	26	0.0	27	0.0	0.369	5.2	LOS A	2.5	17.8	0.25	0.52	0.25	52.8
2	T1	379	0.0	399	0.0	0.369	5.1	LOS A	2.5	17.8	0.25	0.52	0.25	53.6
3	R2	48	0.0	51	0.0	0.369	8.1	LOS A	2.5	17.8	0.25	0.52	0.25	53.2
3u	U	25	0.0	26	0.0	0.369	9.7	LOS A	2.5	17.8	0.25	0.52	0.25	53.7
Approach		478	0.0	503	0.0	0.369	5.6	LOS A	2.5	17.8	0.25	0.52	0.25	53.5
East: Chester Street														
4	L2	45	0.0	47	0.0	0.083	7.0	LOS A	0.4	3.0	0.51	0.64	0.51	52.1
5	T1	20	0.0	21	0.0	0.083	6.8	LOS A	0.4	3.0	0.51	0.64	0.51	52.8
6	R2	6	0.0	6	0.0	0.083	9.9	LOS A	0.4	3.0	0.51	0.64	0.51	52.5
Approach		71	0.0	75	0.0	0.083	7.2	LOS A	0.4	3.0	0.51	0.64	0.51	52.3
North: Norfolk Road														
7	L2	7	0.0	7	0.0	0.277	5.5	LOS A	1.7	11.6	0.31	0.52	0.31	52.8
8	T1	288	0.0	303	0.0	0.277	5.3	LOS A	1.7	11.6	0.31	0.52	0.31	53.6
9	R2	26	0.0	27	0.0	0.277	8.4	LOS A	1.7	11.6	0.31	0.52	0.31	53.2
9u	U	3	0.0	3	0.0	0.277	9.9	LOS A	1.7	11.6	0.31	0.52	0.31	53.7
Approach		324	0.0	341	0.0	0.277	5.6	LOS A	1.7	11.6	0.31	0.52	0.31	53.5
West: Chester Street														
10	L2	10	0.0	11	0.0	0.044	7.6	LOS A	0.2	1.6	0.56	0.67	0.56	50.9
11	T1	8	0.0	8	0.0	0.044	7.4	LOS A	0.2	1.6	0.56	0.67	0.56	51.6
12	R2	16	0.0	17	0.0	0.044	10.5	LOS A	0.2	1.6	0.56	0.67	0.56	51.2
12u	U	1	0.0	1	0.0	0.044	12.0	LOS A	0.2	1.6	0.56	0.67	0.56	51.7
Approach		35	0.0	37	0.0	0.044	9.0	LOS A	0.2	1.6	0.56	0.67	0.56	51.2
All Vehicles		908	0.0	956	0.0	0.369	5.9	LOS A	2.5	17.8	0.30	0.53	0.30	53.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
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: 101 [Norfolk Rd / Pembroke St EX AM (Site Folder: General)]

Norfolk Road / Pembroke Street
Existing Conditions
AM Peak Period
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: Pembroke Street														
5	T1	89	0.0	94	0.0	0.129	0.8	LOS A	0.6	4.4	0.35	0.34	0.35	56.0
6	R2	106	0.0	112	0.0	0.129	6.4	LOS A	0.6	4.4	0.35	0.34	0.35	54.0
Approach		195	0.0	205	0.0	0.129	3.9	NA	0.6	4.4	0.35	0.34	0.35	54.9
North: Norfolk Road														
7	L2	266	0.0	280	0.0	0.422	6.3	LOS A	2.4	16.5	0.32	0.63	0.35	52.4
9	R2	197	0.0	207	0.0	0.422	8.1	LOS A	2.4	16.5	0.32	0.63	0.35	51.9
Approach		463	0.0	487	0.0	0.422	7.1	LOS A	2.4	16.5	0.32	0.63	0.35	52.2
West: Pembroke Street														
10	L2	143	0.0	151	0.0	0.144	5.6	LOS A	0.0	0.0	0.00	0.32	0.00	55.6
11	T1	117	0.0	123	0.0	0.144	0.0	LOS A	0.0	0.0	0.00	0.32	0.00	57.1
Approach		260	0.0	274	0.0	0.144	3.1	NA	0.0	0.0	0.00	0.32	0.00	56.3
All Vehicles		918	0.0	966	0.0	0.422	5.3	NA	2.4	16.5	0.24	0.48	0.25	53.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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.

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MOVEMENT SUMMARY

 **Site: 101 [Norfolk Rd / Pembroke St FUT AM School (Site Folder: General)]**

Norfolk Road / Pembroke Street
 Future Conditions with school
 AM Peak Period
 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: Pembroke Street														
5	T1	91	0.0	96	0.0	0.158	1.1	LOS A	0.8	5.6	0.41	0.39	0.41	55.6
6	R2	136	0.0	143	0.0	0.158	6.7	LOS A	0.8	5.6	0.41	0.39	0.41	53.6
Approach		227	0.0	239	0.0	0.158	4.4	NA	0.8	5.6	0.41	0.39	0.41	54.4
North: Norfolk Road														
7	L2	337	0.0	355	0.0	0.553	7.1	LOS A	4.6	32.0	0.37	0.69	0.49	51.6
9	R2	250	0.0	263	0.0	0.553	9.8	LOS A	4.6	32.0	0.37	0.69	0.49	51.1
Approach		587	0.0	618	0.0	0.553	8.2	LOS A	4.6	32.0	0.37	0.69	0.49	51.4
West: Pembroke Street														
10	L2	183	0.0	193	0.0	0.168	5.6	LOS A	0.0	0.0	0.00	0.36	0.00	55.3
11	T1	119	0.0	125	0.0	0.168	0.0	LOS A	0.0	0.0	0.00	0.36	0.00	56.8
Approach		302	0.0	318	0.0	0.168	3.4	NA	0.0	0.0	0.00	0.36	0.00	55.9
All Vehicles		1116	0.0	1175	0.0	0.553	6.1	NA	4.6	32.0	0.28	0.54	0.34	53.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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: 101 [Norfolk Rd / Pembroke St FUT AM School +CCC**
(Site Folder: General)]

Norfolk Road / Pembroke Street
 Future Conditions with school and CCC
 AM Peak Period
 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: Pembroke Street														
5	T1	91	0.0	96	0.0	0.165	1.1	LOS A	0.8	5.9	0.41	0.40	0.41	55.5
6	R2	144	0.0	152	0.0	0.165	6.7	LOS A	0.8	5.9	0.41	0.40	0.41	53.5
Approach		235	0.0	247	0.0	0.165	4.5	NA	0.8	5.9	0.41	0.40	0.41	54.3
North: Norfolk Road														
7	L2	345	0.0	363	0.0	0.568	7.2	LOS A	4.9	34.0	0.37	0.70	0.51	51.5
9	R2	254	0.0	267	0.0	0.568	10.0	LOS A	4.9	34.0	0.37	0.70	0.51	51.0
Approach		599	0.0	631	0.0	0.568	8.4	LOS A	4.9	34.0	0.37	0.70	0.51	51.3
West: Pembroke Street														
10	L2	187	0.0	197	0.0	0.170	5.6	LOS A	0.0	0.0	0.00	0.36	0.00	55.3
11	T1	119	0.0	125	0.0	0.170	0.0	LOS A	0.0	0.0	0.00	0.36	0.00	56.8
Approach		306	0.0	322	0.0	0.170	3.4	NA	0.0	0.0	0.00	0.36	0.00	55.9
All Vehicles		1140	0.0	1200	0.0	0.568	6.3	NA	4.9	34.0	0.28	0.54	0.35	53.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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.

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MOVEMENT SUMMARY

 **Site: 101 [UPDATED Norfolk Rd / Pembroke St FUT AM School +CCC (Site Folder: General)]**

Norfolk Road / Pembroke Street
Updated future conditions with school and CCC
AM Peak Period
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: Pembroke Street														
5	T1	91	0.0	96	0.0	0.168	1.1	LOS A	0.9	6.0	0.42	0.40	0.42	55.4
6	R2	148	0.0	156	0.0	0.168	6.7	LOS A	0.9	6.0	0.42	0.40	0.42	53.5
Approach		239	0.0	252	0.0	0.168	4.6	NA	0.9	6.0	0.42	0.40	0.42	54.2
North: Norfolk Road														
7	L2	349	0.0	367	0.0	0.573	7.2	LOS A	5.0	34.9	0.37	0.70	0.51	51.4
9	R2	255	0.0	268	0.0	0.573	10.1	LOS A	5.0	34.9	0.37	0.70	0.51	50.9
Approach		604	0.0	636	0.0	0.573	8.5	LOS A	5.0	34.9	0.37	0.70	0.51	51.2
West: Pembroke Street														
10	L2	188	0.0	198	0.0	0.171	5.6	LOS A	0.0	0.0	0.00	0.36	0.00	55.3
11	T1	119	0.0	125	0.0	0.171	0.0	LOS A	0.0	0.0	0.00	0.36	0.00	56.8
Approach		307	0.0	323	0.0	0.171	3.4	NA	0.0	0.0	0.00	0.36	0.00	55.9
All Vehicles		1150	0.0	1211	0.0	0.573	6.3	NA	5.0	34.9	0.28	0.55	0.36	53.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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.

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MOVEMENT SUMMARY

 Site: 101 [Norfolk Rd / Pembroke St EX PM (Site Folder: General)]

Norfolk Road / Pembroke Street
Existing Conditions
PM Peak Period
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: Pembroke Street														
5	T1	122	0.0	128	0.0	0.205	0.8	LOSA	1.1	7.6	0.36	0.38	0.36	55.7
6	R2	190	0.0	200	0.0	0.205	6.3	LOSA	1.1	7.6	0.36	0.38	0.36	53.7
Approach		312	0.0	328	0.0	0.205	4.2	NA	1.1	7.6	0.36	0.38	0.36	54.5
North: Norfolk Road														
7	L2	128	0.0	135	0.0	0.278	5.9	LOSA	1.1	7.9	0.26	0.63	0.26	52.4
9	R2	145	0.0	153	0.0	0.278	8.1	LOSA	1.1	7.9	0.26	0.63	0.26	51.9
Approach		273	0.0	287	0.0	0.278	7.1	LOSA	1.1	7.9	0.26	0.63	0.26	52.1
West: Pembroke Street														
10	L2	128	0.0	135	0.0	0.122	5.6	LOSA	0.0	0.0	0.00	0.34	0.00	55.5
11	T1	92	0.0	97	0.0	0.122	0.0	LOSA	0.0	0.0	0.00	0.34	0.00	56.9
Approach		220	0.0	232	0.0	0.122	3.3	NA	0.0	0.0	0.00	0.34	0.00	56.1
All Vehicles		805	0.0	847	0.0	0.278	4.9	NA	1.1	7.9	0.23	0.45	0.23	54.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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: 101 [Norfolk Rd / Pembroke St FUT PM School (Site Folder: General)]**

Norfolk Road / Pembroke Street
 Future Conditions with school
 PM Peak Period
 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: Pembroke Street														
5	T1	124	0.0	131	0.0	0.258	1.1	LOS A	1.4	10.0	0.42	0.43	0.42	55.2
6	R2	250	0.0	263	0.0	0.258	6.6	LOS A	1.4	10.0	0.42	0.43	0.42	53.3
Approach		374	0.0	394	0.0	0.258	4.8	NA	1.4	10.0	0.42	0.43	0.42	53.9
North: Norfolk Road														
7	L2	166	0.0	175	0.0	0.387	6.3	LOS A	2.0	14.0	0.29	0.66	0.33	51.7
9	R2	188	0.0	198	0.0	0.387	9.6	LOS A	2.0	14.0	0.29	0.66	0.33	51.2
Approach		354	0.0	373	0.0	0.387	8.0	LOS A	2.0	14.0	0.29	0.66	0.33	51.5
West: Pembroke Street														
10	L2	169	0.0	178	0.0	0.147	5.6	LOS A	0.0	0.0	0.00	0.38	0.00	55.2
11	T1	94	0.0	99	0.0	0.147	0.0	LOS A	0.0	0.0	0.00	0.38	0.00	56.6
Approach		263	0.0	277	0.0	0.147	3.6	NA	0.0	0.0	0.00	0.38	0.00	55.7
All Vehicles		991	0.0	1043	0.0	0.387	5.6	NA	2.0	14.0	0.26	0.50	0.28	53.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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: 101 [Norfolk Rd / Pembroke St FUT PM School + CCC**
(Site Folder: General)]

Norfolk Road / Pembroke Street
 Future Conditions with school and CCC
 PM Peak Period
 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: Pembroke Street														
5	T1	124	0.0	131	0.0	0.264	1.1	LOS A	1.5	10.3	0.42	0.44	0.42	55.2
6	R2	257	0.0	271	0.0	0.264	6.6	LOS A	1.5	10.3	0.42	0.44	0.42	53.3
Approach		381	0.0	401	0.0	0.264	4.8	NA	1.5	10.3	0.42	0.44	0.42	53.9
North: Norfolk Road														
7	L2	173	0.0	182	0.0	0.401	6.4	LOS A	2.1	15.0	0.29	0.66	0.34	51.6
9	R2	192	0.0	202	0.0	0.401	9.8	LOS A	2.1	15.0	0.29	0.66	0.34	51.1
Approach		365	0.0	384	0.0	0.401	8.1	LOS A	2.1	15.0	0.29	0.66	0.34	51.4
West: Pembroke Street														
10	L2	172	0.0	181	0.0	0.148	5.6	LOS A	0.0	0.0	0.00	0.38	0.00	55.2
11	T1	94	0.0	99	0.0	0.148	0.0	LOS A	0.0	0.0	0.00	0.38	0.00	56.6
Approach		266	0.0	280	0.0	0.148	3.6	NA	0.0	0.0	0.00	0.38	0.00	55.7
All Vehicles		1012	0.0	1065	0.0	0.401	5.7	NA	2.1	15.0	0.26	0.50	0.28	53.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 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: 101 [UPDATED Norfolk Rd / Pembroke St FUT PM School + CCC (Site Folder: General)]

Norfolk Road / Pembroke Street
Updated future conditions with school and CCC
PM Peak Period
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: Pembroke Street														
5	T1	124	0.0	131	0.0	0.268	1.1	LOS A	1.5	10.4	0.43	0.44	0.43	55.2
6	R2	261	0.0	275	0.0	0.268	6.6	LOS A	1.5	10.4	0.43	0.44	0.43	53.2
Approach		385	0.0	405	0.0	0.268	4.9	NA	1.5	10.4	0.43	0.44	0.43	53.8
North: Norfolk Road														
7	L2	177	0.0	186	0.0	0.407	6.4	LOS A	2.2	15.5	0.29	0.66	0.35	51.6
9	R2	193	0.0	203	0.0	0.407	9.9	LOS A	2.2	15.5	0.29	0.66	0.35	51.1
Approach		370	0.0	389	0.0	0.407	8.2	LOS A	2.2	15.5	0.29	0.66	0.35	51.3
West: Pembroke Street														
10	L2	174	0.0	183	0.0	0.149	5.6	LOS A	0.0	0.0	0.00	0.38	0.00	55.1
11	T1	94	0.0	99	0.0	0.149	0.0	LOS A	0.0	0.0	0.00	0.38	0.00	56.6
Approach		268	0.0	282	0.0	0.149	3.6	NA	0.0	0.0	0.00	0.38	0.00	55.6
All Vehicles		1023	0.0	1077	0.0	0.407	5.7	NA	2.2	15.5	0.26	0.50	0.29	53.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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.

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