TRAFFIC AND PARKING IMPACT ASSESSMENT OF THE PROPOSED CHILD CARE CENTRE AT 427 BURWOOD ROAD, BELMORE

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Site Address: 427 Burwood Road, Belmore

Prepared for: Montessori Academy

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1 INTRODUCTION

M^CLaren Traffic Engineering was commissioned by *Montessori Academy* to provide a revised traffic and parking impact assessment for the proposed Child Care Centre at 427 Burwood Road, Belmore as depicted in **Annexure A**.

1.1 Description and Scale of Development

The proposed development has the following characteristics relevant to traffic and parking:

- A child care centre accommodating 112 children and 20 staff members as per the following:
    - 32 children between 0-2 years old (8 staff assigned at 1 per 4 children);
    - 40 children between 2-3 years old (8 staff assigned at 1 per 5 children);
    - 40 children between 3-5 years old (4 staff assigned at 1 per 10 children).
- Hours of operation are 7:00am to 7:00pm, Monday to Friday;
- An at-grade parking area accommodating 23 car parking spaces with vehicular access via two separate existing driveways from Burwood Road and Acacia Lane:
    - Vehicle access will be restricted to entry only from Acacia Lane and exit onto Burwood Road.

1.2 State Environmental Planning Policy (Transport and Infrastructure) 2021

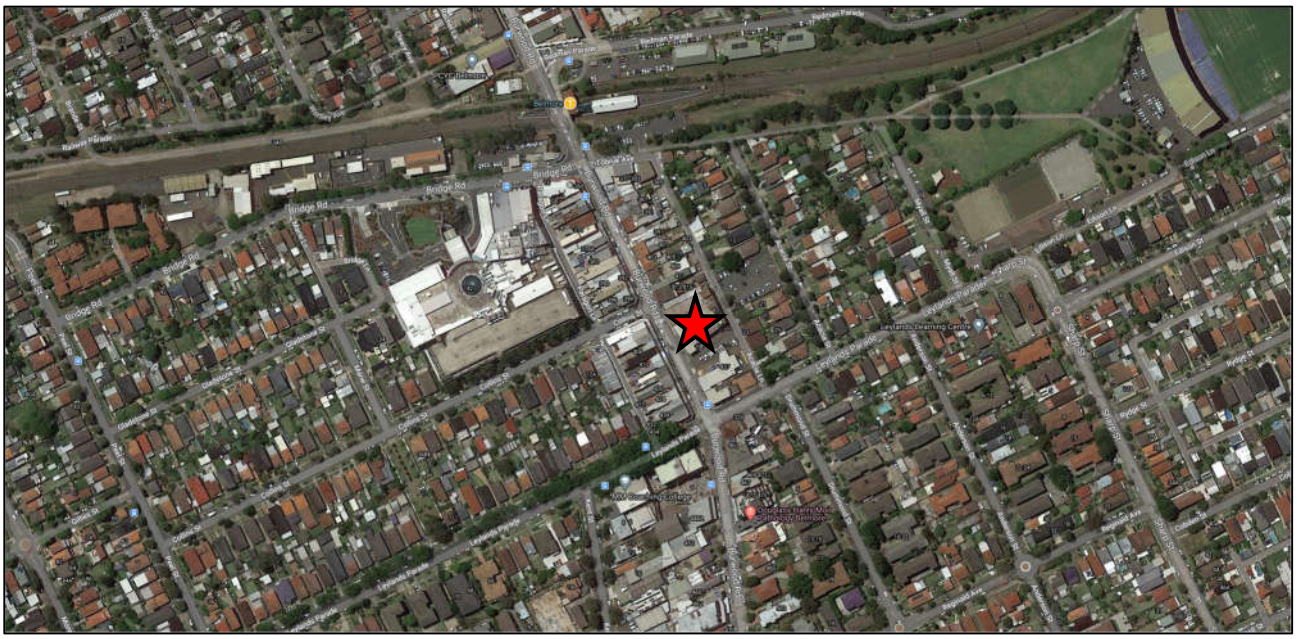
The proposed development does not qualify as a traffic generating development with relevant size and/or capacity under *Clause 2.122* of the *SEPP (Transport and Infrastructure) 2021*. Accordingly, formal referral to Transport for NSW (TfNSW) is unnecessary, and the application can be assessed by the City of Canterbury-Bankstown Council officers accordingly.

1.3 Site Description

The subject site is currently zoned *B2 – Local Centre* under the *Canterbury Local Environmental Plan 2012* and is currently occupied by a two-storey building and associated car parking area along the eastern side of the site. It is understood that the existing approval of the site allowed the site to rely upon the off-site, publicly-accessible parking spaces located to the north of the site. The site is located within the Belmore town centre, with a variety of retail and commercial tenancies located to the north and south along Burwood Road, and Belmore Train Station located approximately 220m to the north. The site has a road frontage to Burwood Road to the west and Acacia Lane to the east, with existing vehicular access provided from Burwood Road and egress provided from Acacia Lane.

1.4 Site Context

The location of the site is shown on an aerial photo and a street map in **Figure 1** and **Figure 2** respectively.



Site Location

FIGURE 1: SITE CONTEXT – AERIAL PHOTO

Site Location

FIGURE 2: SITE CONTEXT – STREET MAP

2 EXISTING TRAFFIC AND PARKING CONDITIONS

2.1 Road Hierarchy

The road network servicing the site has characteristics as described in the following sub-sections.

2.1.1 Burwood Road

- TfNSW Unclassified Regional Road (No. 7047);
- Approximately 13m wide two-way carriageway within close vicinity of the site facilitating one (1) traffic flow lane and one (1) line-marked kerbside parking lane in each direction;
- Signposted 40km/h speed limit with a signposted "*Local Traffic Area*";
- Time restricted kerbside parking is permitted on both sides of the road and signposted as "*1-P, 8:30am-6pm, Mon-Fri and 8:30am-12:30pm, Sat*";
- "*No Parking*" is signposted along the southern portion of the site frontage.

2.1.2 Acacia Lane

- Unclassified local laneway;
- Approximately 4m wide one-way carriageway facilitating one (1) southbound traffic lane;
- Signposted 50km/h speed limit;
- Signposted "*No Stopping*" or "*No Parking*" restrictions are present along the entire length of the laneway.

2.1.3 Leylands Parade

- Unclassified collector road;
- Approximately 12m wide two-way carriageway facilitating one (1) traffic lane in each direction and kerbside parking permitted on both sides of the road;
- Signposted 50km/h speed limit;
- Unrestricted kerbside parking permitted along both sides of the road to the east of Burwood Road;
- Time restricted 2-hour kerbside parking permitted along the southern side of the road and unrestricted parking permitted along the northern side of the road to the west of Burwood Road.

2.2 Existing Traffic Management

- Signal controlled intersection of Burwood Road / Leylands Parade;
- Signalised pedestrian crossing on Burwood Road north of Bridge Street;
- Priority controlled intersection of Burwood Road / Collins Street;
- Give way sign-controlled intersection of Burwood Road / Tobruk Avenue / Bridge Road;
- Give way sign-controlled intersection of Leylands Parade / Acacia Lane;
- Pedestrian crossing on the southern leg of Burwood Road / Bridge Road / Tobruk Avenue;
- Pedestrian crossing in Burwood Road, just north-west of the subject site.

2.3 Existing Traffic Environment

Turning movement traffic surveys were conducted at the intersections of Burwood Road / Bridge Road / Tobruk Avenue and Leylands Parade / Burwood Road from 7:00AM to 9:30AM and 2:30PM to 6:00PM on Tuesday 30 November 2021 representing a typical operating weekday. The full survey results are shown in **Annexure B** for reference.

For consideration to calibration of the model a detailed review of the right turn movement into Tobruk Avenue from Burwood Road has been undertaken which is reproduced in **Annexure C** for reference. In addition, the pedestrian signalised intersection in front of Belmore Train Station was observed to operate with a phase time of 60 seconds. Due to the proximity of these intersections, they have been modelled as a network. Further, it is relevant to note that the right turn into Tobruk Avenue allows for the storage of one (1) vehicle while allowing vehicles to pass a vehicle waiting to turn.

A review of the video footage of the intersection of Burwood Road / Leylands Parade was undertaken to determine the appropriate input cycle and phase times for the model.

2.3.1 Existing Road Performance

The performance of the surrounding intersections under the existing traffic conditions has been assessed using SIDRA INTERSECTION 9.0, **Table 1** summarises the resultant intersection performance data, with full SIDRA results reproduced in **Annexure D** for reference.

TABLE 1: 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
EXISTING PERFORMANCE						
Burwood Road / Leylands Parade	AM	0.83	24.2	**C**	Signals	N/A
	PM	0.80	26	**C**		N/A
Burwood Road / Bridge Road / Tobruk Avenue	AM	0.5	N/A (Worst: 54.7)	**NA** (Worst: D)	Give Way	RT from Bridge Road (W)
	PM	0.72	N/A (Worst: 73.9)	**NA** (Worst: F)		RT from Bridge Road (W)
Burwood Road Pedestrian Signals (Belmore Train Station)	AM	0.69	9.9	**A**	Signals	N/A
	PM	0.68	9.9	**A**		N/A

NOTES:
(1) The 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, the pedestrian signalised intersection in front of Belmore Train Station is operating at a satisfactory level of efficiency, with a Level of Service (LoS) “A” condition, indicating low delays and spare capacity.

The intersection of Burwood Road / Bridge Road / Tobruk Avenue is operating with a worst turning movement of LoS “D” and LoS “F” in the AM and PM peak hour respectively. This applies to the minor road movements of Bridge Road (through and right turn movements). This indicates that the through and right turn movements from Bridge Road are operating at capacity. Upon review of the video footage, drivers travelling northbound towards Belmore Train Station give driver courtesy to drivers travelling through and right from Bridge Road when the pedestrian signals are red, allowing any queue that formed to clear within that cycle. This suggests, the through and right turn movements from Bridge Road are operating with lower delays than what SIDRA is reporting, as SIDRA cannot model driver courtesy.

Burwood Road / Leylands Parade is currently performing at a satisfactory level of efficiency, with Level of Service “C” conditions in both the AM and PM peak hour periods. This level of service is characterised by acceptable approach delays and some spare capacity.

2.4 *Public Transport*

The subject site has access to the existing bus stop (ID: 219232) located approximately 50m walking distance to the south of the site on Burwood Road. The bus stop services existing bus route 415 (Campsie to Chiswick) provided by Transit Systems.

Belmore Train Station is located 250m walking distance to the north of the subject site, servicing the T2 – Inner West & Leppington Line and T3 – Bankstown Line. A train service is provided every 5 – 10 minutes in commuter peak periods and provides direct access between the Sydney CBD (Central Station), Liverpool, Leppington and Bankstown.

The location of the site subject to the surrounding public transport network is shown in **Figure 3**.

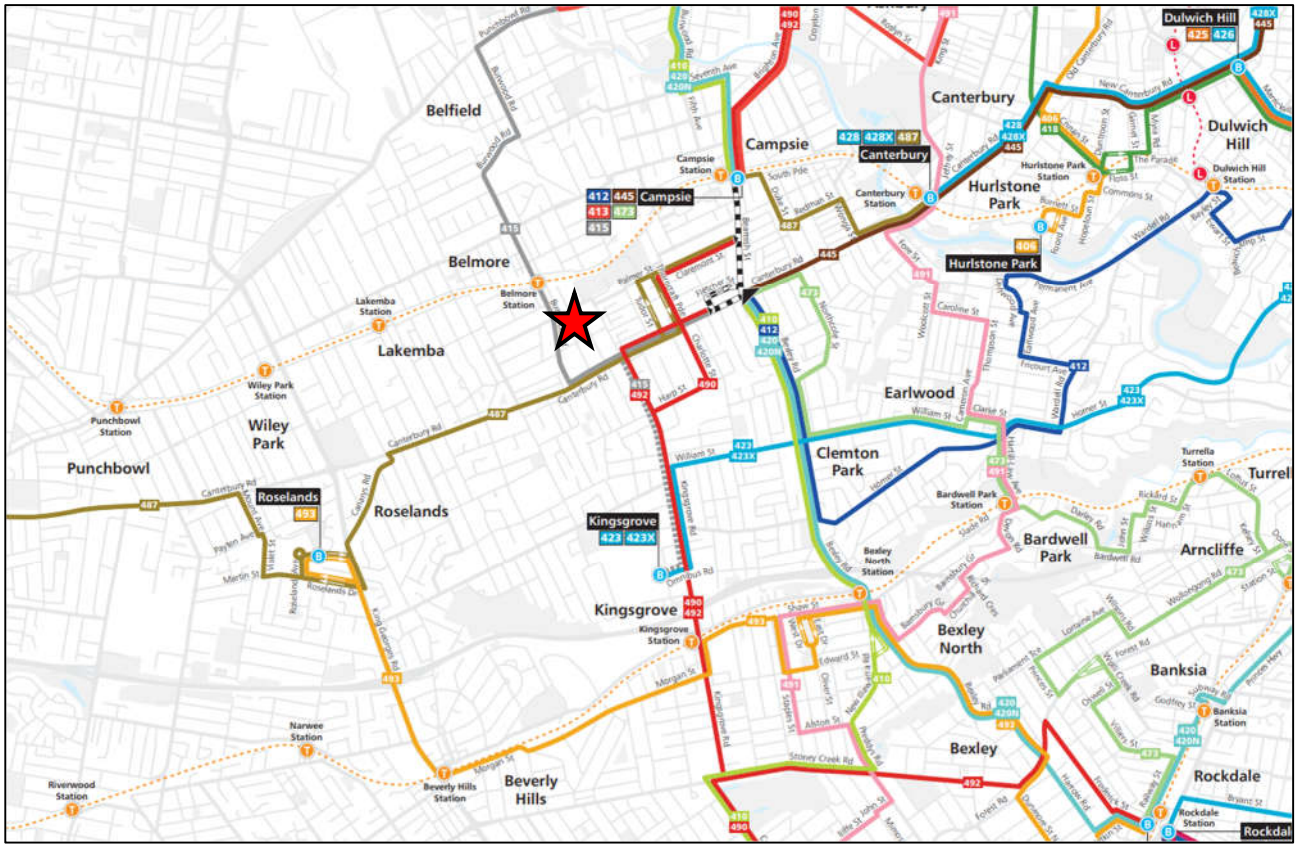


FIGURE 3: PUBLIC TRANSPORT NETWORK MAP

2.5 *Future Road and Infrastructure Upgrades*

From the Canterbury-Bankstown Council Development Application tracker and website, it appears that there are no future planned road or public transport changes that will affect traffic conditions within the immediate vicinity of the subject site.

3 PARKING ASSESSMENT

3.1 Council Parking Requirement

Reference is made to the *Canterbury Development Control Plan 2012 - Part B - General Controls* and *Part F – Specific Land Uses and Sites* as adopted by Canterbury Bankstown Council which designates the following car parking controls applicable to child care centre developments:

> ***B1.3.1 General Parking Rates***
>
> *Child Care Centres*
>
> *1 space per 2 staff*
>
> *Minimum 2 spaces per child care centre*
>
> ***F2.6 Car Parking***
>
> *C4 Suitably signposted parking is to be provided on the street immediately in front of the centre, and on the same side of the street as the centre, for the dropping off and picking up of children. This may require the identification and signposting of 10 minute time restricted parking for 2 hours during peak periods (7.00-9.00am and 4.00-6.00pm).*
>
> *C5 The number of drop off/pick up spaces is to be in accordance with the following table:*
>
> *Table F.1: Number of Drop Off/Pick Up Spaces*

Number of children	*Number of drop off/pick up spaces to be provided*
Up to 16	*1*
17-30	*2*
31-40	*3*

Further, reference is made to the *Draft Consolidated Canterbury Bankstown Development Control Plan 2021 - Section 3.2: Parking* (DCCBDCP) which has been adopted by Council and will come into effect when the *Draft Local Environmental Plan* is approved by the NSW Department of Planning, Industry and Environment. The Consolidated DCP designates the following parking rates applicable to the proposed development:

> ***Off-Street Parking Schedule***
>
> *Centre-based child care facilities*
>
> *1 car space per 4 children*

As shown above, there are a number of variable parking controls that apply to child care centre developments. Reference is also made to the *Child Care Planning Guidelines September 2021* which outlines the following parking rates:

Within 400 metres of a metropolitan train station:

- *1 space per 10 children*
- *1 space per 2 staff. Staff parking may be stack or tandem parking with no more than 2 spaces in each tandem space*

In other areas:

1 space per 4 children

The *Child Care Planning Guidelines September 2021* are consistent with the *Draft Consolidated Canterbury Bankstown Development Control Plan 2021*. Considering this, an assessment will be undertaken against all guidelines to determine the appropriate numerical parking requirements.

Table 2 presents the parking requirements of the proposal according to the the above guidelines.

TABLE 2: GUIDELINE PARKING RATES

Land Use	Guide	Scale	Rate	Spaces Required	Spaces Provided
Child Care Centre	Child Care Planning Guidelines / Draft CCBDCP	112 Children & 20 staff	1 per 4 children	28	23
	Canterbury DCP 2012		1 space per 2 staff; Minimum 2 spaces per child care centre	10 staff; 2 parent	
	Child Care Planning Guidelines(1)		1 space per 10 children; 1 space per 2 staff	11 parent spaces; 10 staff spaces	23

Note: 1 – Childcare Planning Guidelines rate (within 400m of a Train Station)

As shown, application of the various guidelines requires the provision of **12** to **28** car parking spaces. The proposed development provides **23** car parking spaces, resulting in compliance with the *Canterbury DCP 2012* and with the *Child Care Centre Planning Guidelines* and a shortfall of five (5) spaces from the DCCBDCP.

Without further information relating to staff parking, it would be appropriate for the development to provide staff parking at a rate of 1 space per 2 staff considering the proximity to Belmore Train Station. Hence, the recommended split of parking of the 23 spaces provided is 10 for staff (one space per 2 staff) and 13 for parents (including accessible space).

To validate the above car parking demand and split, reference is made to *Roads and Maritime Services Validation Trip Generation Surveys Child Care Centres Analysis Report* dated September 2015 which was prepared by *TEF Consulting (*TEF Report). The findings of this report indicated that as the size of child care centres increase, the number of required car parking spaces per child reduces. The findings of the TEF Report indicate the following:

- Centres with 20 to 34 children – 1 space per 4 children;
- Centres with 40 to 65 children – 1 space per 5 children;
- Centres with 70 to 100 children – 1 space per 6 children.

Adopting the above rates, indicates that the provision of 23 spaces would be sufficient for a 112 place child care centre. To determine if this is true, a parking analysis has been undertaken for parents arriving to the site and based upon servicing times (i.e. duration of stay). The *RTA Guide to Traffic Generating Developments 2002* found that the average length of stay of parents is 6.8 minutes.

Based upon multi-channel queuing theory, reproduced in **Annexure E**, the 112 children would demand 10 parent car parking spaces based upon the 98th percentile parking demand outcome and a 6.8 minute length of stay. Hence, it is deemed that the provision of 10 parent spaces and 10 staff spaces accommodates the anticipated parking demand of the 112 place child care centre. Proposed plans detail a split of **13** visitor spaces to **10** staff spaces, thereby exceeding the anticipated parking demand of the centre.

3.2 Parking for People with a Disability

The Canterbury DCP 2012 and the Draft Canterbury Bankstown DCP 2021 do not outline parking rates for people with a disability applicable to the proposed development, however requires that parking for people with a disability be provided in accordance with the *Building Code of Australia* (BCA). As such, reference is made to *Table D3.5* of the BCA as part of the *National Construction Code 2019* (NCC) which categorises a child care centre as a Class 9b building and therefore requires the provision of car parking for people with disabilities at a rate of:

Class 9b	*1 space for every 50 carparking spaces or part thereof.*

In accordance with the BCA requirements, one (**1**) car parking space for people with a disability is to be provided. The proposed car parking layout details the provision of one (**1**) car parking space designed in accordance with *AS2890.6:2009*, complying with BCA requirements.

3.3 Bicycle & Motorcycle Parking Requirements

The Canterbury DCP 2012 and the Draft Consolidated DCP 2021 require the provision of bicycle parking at a rate of one (1) space per four (4) staff members, resulting in the requirement of five (**5**) bicycle parking spaces.

The Canterbury DCP 2012 and the Draft Consolidated DCP 2021 do not require the provision of motorcycle parking. No motorcycle has been provided, satisfying Council requirements.

3.4 Servicing & Loading

The Canterbury DCP 2012 and the Draft Consolidated DCP 2021 do not specify requirements for servicing and loading applicable to child care centre developments, however, require that servicing and loading should be conducted on-site.

It is expected that all deliveries will be undertaken within the proposed car parking area outside peak drop off/ pick up times, under a plan of management if necessary. A van (standard B99 design vehicle) or similar can be accommodated within the car parking area, utilising vacant visitor spaces. This is common practice for child care centres and will not noticeably affect operation of the site. It is reiterated that deliveries and other arrivals of similar nature are low in frequency and can be easily managed.

It is expected that the site will be serviced by a private waste contractor within the site outside of centre operating hours.

3.5 Car Park Design & Compliance

The car parking layout as depicted in **Annexure A,** has been assessed to achieve the relevant clauses and objectives of *AS2890.1:2004* and *AS2890.6:2022*. Swept path testing has been undertaken and the results are presented in **Annexure F** for reference.

The proposed car parking and vehicular access design achieves the following:

- Retains the existing driveway widths of approximately 5.0m in width, facilitating access from Acacia Lane and exit via Burwood Road via a one-way system;
- Minimum 5.8m wide parking aisles for 90-degree angle parking spaces;
- Minimum 5.1m wide parking aisle for 60-degree angle parking spaces;
- Minimum 5.4m long, 2.6m wide spaces for parents and staff;
- Minimum 5.0m long, 2.4m wide small car space for staff;
- Minimum 5.4m long, 2.4m wide disabled spaces with adjacent associated 5.4m length, 2.4m wide shared space;
- Minimum headroom of 2.2m for general circulation and 2.5m headroom clearance provided over disabled and adaptable parking areas;
- Minimum 300mm clearance adjacent to parking spaces from high obstructions;
- All 60-degree angle parent parking has been designed as User Class 3A for improved safety;
- All 90-degree angle parent spaces have been provided with a footpath provided at the rear of the space for improved safety.

Whilst the plans have been assessed to comply with the relevant standards, it is usual and expected that a design certificate be required at the Construction Certificate stage to account for any changes following the development application.

The proposed plans detail the provision of one (1) small staff car space out of 10 staff parking spaces. This accounts to the provision of 10% of staff parking being provided as a small car space. The small car space is outlined within AS2890.1:2004 as being the 35th percentile vehicle. Therefore, the provision of one (1) small staff car space is within the range of percentile of small car spaces of the Australian Fleet size and hence the provision of one (1) small staff space is acceptable.

4 TRAFFIC ASSESSMENT

The impact of the expected traffic generation levels associated with the subject proposal is discussed in the following sub-sections.

4.1 Traffic Generation

Traffic generation rates for the relevant land uses are provided in the *RTA Guide to Traffic Generating Developments (2002)* as adopted by Transport for New South Wales (TfNSW) and recent supplements and are as follows:

> ***3.11.3 Child care centres***
>
> *Long-day care*
>
> *7.00-9.00am* *0.8 peak vehicle trips per child*
>
> *4.00-6.00pm* *0.7 peak vehicle trips per child*

The resulting traffic generation is summarised in **Table 3**.

TABLE 3: ESTIMATED TRAFFIC GENERATION

Use	Scale	Peak	Generation Rate	Trips[(1)]
Long-day care	112 Children	AM	0.8 per child	90 (45 in, 45 out)
		PM	0.7 per child	78 (34 in, 34 out)

Note: (1) Assumes 50/50 spilt of inbound and outbound traffic.

As shown, the expected traffic generation associated with the proposed development is in the order of **90** vehicle trips in the AM peak period (45 in, 45 out) and **78** vehicle trips in the PM peak period (34 in, 34 out).

4.2 Traffic Assignment

The road network, traffic surveys and 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% to / from the north via Burwood Road;
- 15% to / from the west via Leylands Parade;
- 15% to / from the south via Burwood Road;
- 20% to / from the east via Leylands Parade.

4.3 Traffic Impact

The traffic generation outlined in **Section 4.1** & **4.2** above has been added to the existing traffic volumes recorded. 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 under the increased traffic load. The results of this assessment are shown in **Table 4**, with detailed SIDRA outputs provided in **Annexure D**.

TABLE 4: INTERSECTION PERFORMANCE (SIDRA INTERSECTION 9.0)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/vehicle)	Level of Service[3][4]	Control Type	Worst Movement
EXISTING PERFORMANCE						
Burwood Road / Leylands Parade	AM	0.83	24.2	**C**	Signals	N/A
	PM	0.80	26	**C**		N/A
Burwood Road / Bridge Road / Tobruk Avenue	AM	0.5	N/A (Worst: 54.7)	**NA** (Worst: D)	Give Way	RT from Bridge Road (W)
	PM	0.72	N/A (Worst: 73.9)	**NA** (Worst: F)		RT from Bridge Road (W)
Burwood Road Pedestrian Signals (Belmore Train Station)	AM	0.69	9.9	**A**	Signals	N/A
	PM	0.68	9.9	**A**		N/A
FUTURE PERFORMANCE						
Burwood Road / Leylands Parade	AM	0.87	26.2	**C**	Signals	N/A
	PM	0.82	27.1	**C**		N/A
Burwood Road / Bridge Road / Tobruk Avenue	AM	0.56	N/A (Worst: 67.2)	**NA** (Worst: E)	Give Way	RT from Bridge Road (W)
	PM	0.81	N/A (Worst: 97.1)	**NA** (Worst: F)		RT from Bridge Road (W)
Burwood Road Pedestrian Signals (Belmore Train Station)	AM	0.71	10.1	**A**	Signals	N/A
	PM	0.70	10.1	**A**		N/A

Notes: Refer to **Table 1**

As shown, the intersection of Burwood Road / Leylands Parade and Burwood Road Pedestrian Signals retain the same overall level of service under future conditions with minimal increase to average delay and degree of saturation, indicating that there will be no adverse traffic impact upon the operation of these intersections as a result of the proposal.

The operation of Burwood Road / Bridge Road / Tobruk Avenue operates with worst turn movement of LoS “E” and “F” condition which applies to the minor road of Bridge Road (west). This indicates that the through and right turn movement is operating at capacity. As

mentioned in **Section 2.3**, drivers travelling northbound towards Belmore Train Station give driver courtesy to drivers travelling through and right from Bridge Road when the pedestrian signals at Belmore Station are red, allowing for any queue that formed to clear within the cycle. Hence, operationally there should be no change to the delay associated with the Bridge Road approach, SIDRA unfortunately cannot model this driver behaviour.

5 CONCLUSION

In view of the foregoing, the subject Child Care Centre at 427 Burwood Road, Belmore (as depicted in **Annexure A**) is fully supportable in terms of its traffic and parking impacts. The following outcomes of this traffic and parking impact assessment are relevant to note:

- The proposal includes the provision of **23** car parking spaces within a proposed carpark, which satisfies the *Canterbury DCP 2012*, the *Child Care Centre Planning Guide Lines* and is a shortfall of five (5) car parking spaces from the *Draft Consolidated Canterbury Bankstown Development Control Plan 2021*. Upon review of the anticipated parking demand of the 112 place child care centre, the provision of 10 staff spaces and 10 parent spaces would satisfy the anticipated parking demand of the site. The proposal provides 10 staff spaces and 13 parent spaces (including an accessible space) exceeding the anticipated parking demand.
- Council's DCP requires the provision of five (**5**) bicycle parking spaces. Council's DCP does not require the provision of motorcycle parking facilities. There is ample storage area on-site to store up to five (5) bicycles informally on an as-needed basis.
- The parking areas of the site have been assessed against the relevant sections of *AS2890.1:2004* and *AS2890.6:2022* and have been found to satisfy the objectives of each standard. Swept path testing has been undertaken and is reproduced within **Annexure F**.
- The traffic generation of the proposed development has been estimated to be some **90** trips in the AM peak period (45 in, 45 out) and **78** trips in the PM peak period (34 in, 34 out). The impacts of the traffic generation have been modelled using SIDRA INTERSECTION 9.0, indicating that there will be no detrimental impact to the performance of the intersections as a result of the generated traffic.

ANNEXURE A: PROPOSED PLANS
(1 SHEET)

1 PROPOSED GF
1:150

Drawing Notes

Do not scale off drawings, refer to marked dimensions only.

DWGs where issued are FOR INFORMATION only and are not to be relied upon. The architect is not liable for cost increases due to the use of DWGs by consultants or contractors.

All dimensions to be confirmed on site prior to proceeding.

Notify architect of any dimension discrepancies.

All drawings are colour coded, print all copies in colour.

Refer all specialist consultant information in conjunction with this drawing set.

Concept Design

SUPERCONTEXT

STUDIO@SUPERCONTEXT.STUDIO / (02) 8325 1772
3 BLACKFRIARS ST, CHIPPENDALE, 2008 , NSW
NOM ARCH: ANDREW DALY / NSW ARB #9300

REVISION HISTORY:

Rev	Date	Chk	Transmittal Set Name
01	19/08/2022		ISSUE FOR PRE DA
02	19/08/2022		ISSUE FOR INFORMATION
03	5/09/2022		ISSUE FOR COORDINATION
04	6/10/2022		ISSUE FOR COORDINATION
05	12/10/2022		ISSUE FOR COORDINATION
06	17/10/2022		ISSUE FOR COORDINATION
07	29/11/2022		ISSUE FOR D.A.

PROJECT DETAILS

NAME Club Belmore RSL Adaptive Reuse
ADDRESS 427 Burwood Rd Belmore NSW 2192 Australia
AUTHORITY Canterbury - Bankstown Council
CLIENT Mr Charles Assaf
Montessori Academy Developments Pty. Ltd.

CONTRACTOR

PROJECT STAGE

FEA SD DD APP CC TEN CA PC

SHEET
A102
TITLE
GROUND FLOOR PLAN

REV
07
ISSUED ON: 29/11/2022

SCALE
1:150
PAPER SIZE A1

ANNEXURE B: TRAFFIC SURVEY DATA
(1 SHEET)

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Leylands Parade and Burwood Rd, Belmore

GPS -33.919651, 151.089626

Date:	Tue 30/11/21
Weather:	Fair
Suburban:	Belmore
Customer:	McLaren

North:	Burwood Rd
East:	Leylands Parade
South:	Burwood Rd
West:	Leylands Parade

Survey Period	AM:	7:00 AM-9:30 AM
	PM:	2:30 PM-6:00 PM
Traffic Peak	AM:	8:00 AM-9:00 AM
	PM:	5:00 PM-6:00 PM

All Vehicles

Time		North Approach Burwood Rd				East Approach Leylands Parade				South Approach Burwood Rd				West Approach Leylands Parade				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:00	7:15	0	2	31	61	0	68	15	0	0	4	45	1	0	0	33	7	1213	
7:15	7:30	0	2	27	56	0	70	19	0	0	1	59	5	0	0	33	10	1331	
7:30	7:45	0	1	38	69	0	73	12	2	0	0	65	3	0	0	38	8	1493	
7:45	8:00	0	6	42	63	0	87	31	0	0	2	65	9	0	0	42	8	1588	
8:00	8:15	0	5	38	69	0	79	37	6	0	2	87	7	0	0	44	11	1637	Peak
8:15	8:30	0	7	61	84	0	85	44	3	0	1	78	8	0	0	65	8	1616	
8:30	8:45	0	5	64	69	0	70	28	5	0	5	64	4	0	1	72	17	1554	
8:45	9:00	0	7	61	68	0	74	45	7	0	6	58	6	0	0	63	9		
9:00	9:15	0	5	48	70	0	89	36	9	0	2	45	6	0	0	44	10		
9:15	9:30	0	6	57	64	0	76	40	5	0	2	70	9	0	0	42	11		
14:30	14:45	0	4	48	66	0	86	58	6	0	5	51	7	0	1	48	11	1625	
14:45	15:00	0	2	54	46	0	78	52	10	0	1	60	14	0	1	50	12	1673	
15:00	15:15	0	8	58	75	0	83	65	3	0	2	76	7	0	0	53	13	1681	
15:15	15:30	0	7	71	61	0	77	50	7	0	0	68	12	0	0	48	10	1671	
15:30	15:45	0	5	57	77	0	87	76	3	0	4	64	13	0	0	46	7	1669	
15:45	16:00	0	5	55	75	0	73	56	5	0	1	59	10	0	0	40	9	1685	
16:00	16:15	0	10	60	70	0	82	70	8	0	4	63	11	0	0	46	9	1691	
16:15	16:30	0	8	51	73	0	90	61	10	0	2	50	13	0	0	48	3	1715	
16:30	16:45	0	10	69	78	0	79	65	7	0	3	59	14	0	1	58	12	1718	
16:45	17:00	0	3	47	73	0	89	56	13	0	3	49	9	0	1	43	8	1701	
17:00	17:15	0	7	54	83	0	82	68	9	0	2	78	8	0	0	57	9	1753	Peak
17:15	17:30	0	3	55	78	0	82	50	6	0	1	68	7	0	0	55	7		
17:30	17:45	0	7	62	81	0	79	58	7	0	6	72	2	0	0	51	13		
17:45	18:00	0	4	52	72	0	96	88	6	0	3	68	6	0	1	40	10		

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Tobruk Ave and Burwood Rd, Belmore

GPS -33.917634, 151.088459

Date:	Tue 30/11/21
Weather:	Fair
Suburban:	Belmore
Customer:	McLaren

North:	Burwood Rd
East:	Tobruk Ave
South:	Burwood Rd
West:	Bridge Rd

Survey Period	AM:	7:00 AM-9:30 AM
	PM:	2:30 PM-6:00 PM
Traffic Peak	AM:	8:00 AM-9:00 AM
	PM:	5:00 PM-6:00 PM

All Vehicles

Time		North Approach Burwood Rd				East Approach Tobruk Ave				South Approach Burwood Rd				West Approach Bridge Rd				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:00	7:15	0	12	83	1	0	4	0	1	0	7	113	7	0	8	1	23	1194	
7:15	7:30	0	11	75	5	0	0	0	0	0	4	122	9	0	9	0	34	1308	
7:30	7:45	0	11	101	11	0	0	1	1	0	9	124	14	0	5	1	37	1444	
7:45	8:00	0	14	112	12	0	1	0	0	0	6	142	13	0	0	13	37	1490	
8:00	8:15	0	22	114	15	0	2	1	1	0	9	160	9	0	1	2	38	1491	Peak
8:15	8:30	0	26	151	11	0	1	0	5	0	7	159	4	0	2	0	39	1467	
8:30	8:45	0	15	131	16	0	1	0	0	0	7	137	10	0	9	3	32	1411	
8:45	9:00	0	26	130	13	0	0	0	1	0	10	118	13	0	10	3	27		
9:00	9:15	0	20	118	28	0	0	0	0	0	4	119	20	0	7	3	31		
9:15	9:30	0	16	118	11	0	0	1	0	0	6	121	30	0	9	2	35		
14:30	14:45	0	18	106	15	0	1	1	3	0	6	132	16	0	10	1	33	1474	
14:45	15:00	0	23	95	12	0	1	0	1	0	6	120	20	0	9	3	40	1512	
15:00	15:15	0	16	138	17	0	2	0	0	0	4	158	11	0	5	3	43	1542	
15:15	15:30	0	42	133	24	0	3	2	1	0	10	128	11	0	5	4	42	1532	
15:30	15:45	0	22	131	31	0	0	0	3	0	12	132	11	0	5	1	32	1498	
15:45	16:00	0	25	128	27	0	1	0	1	0	6	118	16	0	10	4	24	1502	
16:00	16:15	0	29	134	26	0	0	1	2	0	9	123	29	0	4	1	29	1502	
16:15	16:30	0	34	128	20	0	2	0	0	0	5	118	20	0	8	6	30	1514	
16:30	16:45	0	20	145	21	0	0	1	2	0	11	119	18	1	12	2	32	1518	
16:45	17:00	0	27	118	15	0	2	1	0	0	10	125	13	0	6	1	42	1543	
17:00	17:15	0	22	133	17	0	2	0	0	0	6	147	23	0	14	0	35	1573	Peak
17:15	17:30	0	27	124	18	0	2	1	4	0	5	135	21	1	9	2	26		
17:30	17:45	1	20	148	19	0	1	0	0	0	3	143	22	0	6	7	39		
17:45	18:00	0	36	123	20	0	2	0	1	1	7	144	21	0	5	3	27		

ANNEXURE C: VIDEO REVIEW OF RIGHT TURN MOVEMENT
(1 SHEET)

Start Time 8am, finish time 9am

Stop Time	Turn Time	Delay
8:02:58	8:03:11	0:00:13
8:03:31	8:03:44	0:00:13
8:04:51	8:04:51	0:00:00
8:04:53	8:05:11	0:00:18
8:05:09	8:05:18	0:00:09
8:07:30	8:07:31	0:00:01
8:09:55	8:10:06	0:00:11
8:12:58	8:12:58	0:00:00
8:21:27	8:21:37	0:00:10
8:26:39	8:26:39	0:00:00
8:26:47	8:26:47	0:00:00
8:26:56	8:27:46	0:00:50
8:27:49	8:27:49	0:00:00
8:28:48	8:29:03	0:00:15
8:30:11	8:30:11	0:00:00
8:30:32	8:30:32	0:00:00
8:33:33	8:33:33	0:00:00
8:34:39	8:35:04	0:00:25
8:34:56	8:35:20	0:00:24
8:39:40	8:39:51	0:00:11
8:46:34	8:46:43	0:00:09
8:46:52	8:46:52	0:00:00
8:47:56	8:48:03	0:00:07
8:51:18	8:51:18	0:00:00
8:51:26	8:51:28	0:00:02
8:54:52	8:54:54	0:00:02
8:55:17	8:55:31	0:00:14
8:55:42	8:55:54	0:00:12
8:57:15	8:57:15	0:00:00
8:57:33	8:57:38	0:00:05
Average		0:00:08
Average with 0 seconds removed		0:00:13

Pedestrians crossing burwood at pedestrain crossing **55**

Start Time 5pm to 6pm

Time	Stop Time	Turn Time	Delay
	17:03:58	17:04:12	0:00:14
	17:07:52	17:07:56	0:00:04
	17:08:22	17:08:22	0:00:00
	17:08:38	17:08:48	0:00:10
	17:14:05	17:14:14	0:00:09
	17:16:22	17:16:22	0:00:00
	17:18:50	17:18:59	0:00:09
	17:19:27	17:19:27	0:00:00
	17:19:50	17:19:59	0:00:09
	17:22:57	17:22:57	0:00:00
	17:32:04	17:32:09	0:00:05
	17:38:26	17:38:26	0:00:00
	17:40:31	17:40:40	0:00:09
	17:46:56	17:47:05	0:00:09
	17:48:28	17:48:35	0:00:07
	17:50:43	17:50:48	0:00:05
	17:59:45	18:00:00	0:00:15
Average			0:00:06
Average with 0 seconds removed			0:00:09

Pedestrians crossing burwood at pedestrain crossing **70**

ANNEXURE D: SIDRA RESULTS
(12 SHEETS)

MOVEMENT SUMMARY

Site: 101 [EX AM - Burwood Road / Leylands Parade (Site Folder: 2021 Counts)]

Signal controlled intersection of Burwood Road and Leylands Parade
Existing Conditions
AM Peak Hour Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)															
1	L2	25	0	26	0.0		0.101	23.7	LOS C	1.8	12.8	0.69	0.61	0.69	44.0
2	T1	287	19	302	6.6		0.505	21.5	LOS C	8.4	61.7	0.80	0.69	0.80	44.1
3	R2	14	0	15	0.0		0.505	27.4	LOS C	8.4	61.7	0.82	0.70	0.82	43.1
Approach		326	19	343	5.8		0.505	21.9	LOS C	8.4	61.7	0.79	0.68	0.79	44.1
East: Leylands Parade (E)															
4	L2	21	0	22	0.0		0.196	18.4	LOS B	4.0	28.6	0.60	0.53	0.60	48.3
5	T1	154	2	162	1.3		0.196	12.4	LOS B	4.0	28.6	0.60	0.53	0.60	49.4
6	R2	308	19	324	6.2	*	0.668	23.1	LOS C	8.3	61.4	0.94	0.83	0.96	42.3
Approach		483	21	508	4.3		0.668	19.5	LOS B	8.3	61.4	0.82	0.72	0.83	44.6
North: Burwood Road (N)															
7	L2	290	14	305	4.8		0.404	11.9	LOS B	5.0	36.3	0.45	0.70	0.45	48.9
8	T1	224	18	236	8.0		0.834	33.1	LOS C	10.0	75.9	0.83	0.88	1.16	38.6
9	R2	24	5	25	20.8	*	0.834	38.9	LOS D	10.0	75.9	0.83	0.88	1.16	37.4
Approach		538	37	566	6.9		0.834	21.9	LOS C	10.0	75.9	0.63	0.78	0.78	43.5
West: Leylands Parade (W)															
10	L2	45	4	47	8.9		0.798	44.6	LOS D	12.6	89.6	1.00	0.95	1.19	36.0
11	T1	244	2	257	0.8	*	0.798	37.6	LOS D	12.6	89.6	1.00	0.95	1.19	36.8
Approach		289	6	304	2.1		0.798	38.7	LOS D	12.6	89.6	1.00	0.95	1.19	36.7
All Vehicles		1636	83	1722	5.1		0.834	24.2	LOS C	12.6	89.6	0.78	0.77	0.87	42.5

MOVEMENT SUMMARY

Site: 101 [EX PM - Burwood Road / Leylands Parade (Site Folder: 2021 Counts)]

Signal controlled intersection of Burwood Road and Leylands Parade
Existing Conditions
PM Peak Hour Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)															
1	L2	23	0	24	0.0		0.092	24.1	LOS C	1.9	13.2	0.66	0.59	0.66	43.9
2	T1	286	10	301	3.5		0.458	21.9	LOS C	8.8	63.6	0.76	0.66	0.76	44.0
3	R2	12	3	13	25.0		0.458	28.0	LOS C	8.8	63.6	0.78	0.67	0.78	42.3
Approach		321	13	338	4.0		0.458	22.3	LOS C	8.8	63.6	0.76	0.65	0.76	43.9
East: Leylands Parade (E)															
4	L2	28	0	29	0.0		0.331	21.5	LOS C	8.3	58.2	0.66	0.59	0.66	46.4
5	T1	264	0	278	0.0		0.331	15.6	LOS B	8.3	58.2	0.66	0.59	0.66	47.5
6	R2	339	11	357	3.2	*	0.665	37.0	LOS D	12.2	88.0	0.93	0.97	0.93	36.5
Approach		631	11	664	1.7		0.665	27.3	LOS C	12.2	88.0	0.81	0.79	0.81	40.8
North: Burwood Road (N)															
7	L2	314	6	331	1.9		0.384	10.8	LOS B	5.2	37.2	0.39	0.69	0.39	49.7
8	T1	223	7	235	3.1		0.765	28.0	LOS C	9.5	68.5	0.79	0.76	0.95	40.9
9	R2	21	3	22	14.3	*	0.765	33.7	LOS C	9.5	68.5	0.79	0.76	0.95	39.6
Approach		558	16	587	2.9		0.765	18.5	LOS B	9.5	68.5	0.56	0.72	0.63	45.4
West: Leylands Parade (W)															
10	L2	39	2	41	5.1		0.797	50.8	LOS D	11.9	83.8	1.00	0.94	1.19	34.0
11	T1	203	1	214	0.5	*	0.797	43.8	LOS D	11.9	83.8	1.00	0.94	1.19	34.6
Approach		242	3	255	1.2		0.797	44.9	LOS D	11.9	83.8	1.00	0.94	1.19	34.5
All Vehicles		1752	43	1844	2.5		0.797	26.0	LOS C	12.2	88.0	0.75	0.76	0.80	41.6

MOVEMENT SUMMARY

Site: 101 [FU AM - Burwood Road / Leylands Parade (Site Folder: 2021 Counts - Post Development)]

Signal controlled intersection of Burwood Road and Leylands Parade
Future Conditions
AM Peak Hour Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)															
1	L2	25	0	26	0.0		0.100	23.0	LOS C	1.8	12.8	0.68	0.60	0.68	44.4
2	T1	294	19	309	6.5		0.500	20.7	LOS C	8.4	61.9	0.79	0.68	0.79	44.5
3	R2	14	0	15	0.0		0.500	26.6	LOS C	8.4	61.9	0.81	0.69	0.81	43.5
Approach		333	19	351	5.7		0.500	21.2	LOS C	8.4	61.9	0.78	0.67	0.78	44.5
East: Leylands Parade (E)															
4	L2	21	0	22	0.0		0.202	19.0	LOS B	4.2	29.3	0.61	0.54	0.61	47.9
5	T1	154	2	162	1.3		0.202	13.0	LOS B	4.2	29.3	0.61	0.54	0.61	49.0
6	R2	318	19	335	6.0	*	0.717	24.9	LOS C	9.1	67.2	0.96	0.85	1.03	41.5
Approach		493	21	519	4.3		0.717	20.9	LOS C	9.1	67.2	0.84	0.74	0.88	43.8
North: Burwood Road (N)															
7	L2	300	14	316	4.7		0.421	11.5	LOS B	5.0	36.4	0.44	0.70	0.44	49.2
8	T1	234	18	246	7.7		0.869	37.4	LOS D	11.5	86.5	0.83	0.94	1.25	36.9
9	R2	31	5	33	16.1	*	0.869	43.1	LOS D	11.5	86.5	0.83	0.94	1.25	35.9
Approach		565	37	595	6.5		0.869	23.9	LOS C	11.5	86.5	0.62	0.81	0.82	42.5
West: Leylands Parade (W)															
10	L2	52	4	55	7.7		0.872	50.7	LOS D	14.1	100.2	1.00	1.04	1.36	34.0
11	T1	244	2	257	0.8	*	0.872	43.6	LOS D	14.1	100.2	1.00	1.04	1.36	34.7
Approach		296	6	312	2.0		0.872	44.9	LOS D	14.1	100.2	1.00	1.04	1.36	34.5
All Vehicles		1687	83	1776	4.9		0.872	26.2	LOS C	14.1	100.2	0.78	0.80	0.92	41.6

MOVEMENT SUMMARY

Site: 101 [FU PM - Burwood Road / Leylands Parade (Site Folder: 2021 Counts - Post Development)]

Signal controlled intersection of Burwood Road and Leylands Parade
Future Conditions
PM Peak Hour Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)															
1	L2	23	0	24	0.0		0.094	24.2	LOS C	1.9	13.5	0.66	0.59	0.66	43.9
2	T1	292	10	307	3.4		0.468	22.0	LOS C	8.9	65.0	0.77	0.66	0.77	43.9
3	R2	12	3	13	25.0		0.468	28.1	LOS C	8.9	65.0	0.78	0.67	0.78	42.2
Approach		327	13	344	4.0		0.468	22.3	LOS C	8.9	65.0	0.76	0.65	0.76	43.9
East: Leylands Parade (E)															
4	L2	28	0	29	0.0		0.331	21.5	LOS C	8.3	58.2	0.66	0.59	0.66	46.4
5	T1	264	0	278	0.0		0.331	15.6	LOS B	8.3	58.2	0.66	0.59	0.66	47.5
6	R2	347	11	365	3.2	*	0.685	37.8	LOS D	12.7	91.1	0.94	0.98	0.95	36.2
Approach		639	11	673	1.7		0.685	27.9	LOS C	12.7	91.1	0.81	0.80	0.82	40.6
North: Burwood Road (N)															
7	L2	322	6	339	1.9		0.406	10.8	LOS B	5.4	38.4	0.39	0.69	0.39	49.7
8	T1	229	7	241	3.1		0.818	32.7	LOS C	10.8	78.5	0.80	0.83	1.05	38.8
9	R2	27	3	28	11.1	*	0.818	38.3	LOS D	10.8	78.5	0.80	0.83	1.05	37.7
Approach		578	16	608	2.8		0.818	20.8	LOS C	10.8	78.5	0.57	0.75	0.69	44.2
West: Leylands Parade (W)															
10	L2	45	2	47	4.4		0.817	51.9	LOS D	12.4	87.4	1.00	0.96	1.23	33.6
11	T1	203	1	214	0.5	*	0.817	44.9	LOS D	12.4	87.4	1.00	0.96	1.23	34.2
Approach		248	3	261	1.2		0.817	46.2	LOS D	12.4	87.4	1.00	0.96	1.23	34.1
All Vehicles		1792	43	1886	2.4		0.818	27.1	LOS C	12.7	91.1	0.75	0.78	0.82	41.1

MOVEMENT SUMMARY

Site: 101 [EX AM - Burwood Road / Bridge Road / Tobruk Avenue (Site Folder: 2021 Counts)]

Network: N101 [Belmore Station / Burwood Road / Bridge Road - EX AM (Network Folder: General)]

Give way Controlled Intersection of Burwood Road, Tobruk Avenue and Bridge Road
Existing Conditions
AM Peak Hour Period
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)														
1	L2	38	8.3	38	8.3	0.346	1.8	LOS A	1.4	10.0	0.00	0.03	0.00	40.0
2	T1	604	6.6	604	6.6	0.346	0.0	LOS A	1.4	10.0	0.00	0.03	0.00	38.0
3	R2	35	6.1	35	6.1	0.037	4.5	LOS A	0.1	0.5	0.57	0.60	0.57	36.1
Approach		677	6.7	677	6.7	0.346	0.3	NA	1.4	10.0	0.03	0.06	0.03	38.0
East: Tobruk Avenue														
4	L2	7	0.0	7	0.0	0.132	6.2	LOS A	0.1	0.6	0.77	0.82	0.77	27.2
5	T1	1	0.0	1	0.0	0.132	28.8	LOS C	0.1	0.6	0.77	0.82	0.77	32.5
6	R2	4	0.0	4	0.0	0.132	47.3	LOS D	0.1	0.6	0.77	0.82	0.77	27.2
Approach		13	0.0	13	0.0	0.132	21.8	LOS B	0.1	0.6	0.77	0.82	0.77	27.9
North: Burwood Road (N)														
7	L2	58	0.0	58	0.0	0.331	2.3	LOS A	0.5	3.4	0.00	0.04	0.00	40.0
8	T1	554	7.0	554	7.0	0.331	0.0	LOS A	0.5	3.4	0.00	0.04	0.00	37.1
9	R2	94	4.5	94	4.5	0.113	5.6	LOS A	0.2	1.1	0.56	0.71	0.56	35.8
Approach		705	6.1	705	6.1	0.331	0.9	NA	0.5	3.4	0.07	0.13	0.07	37.2
West: Bridge Road (W)														
10	L2	143	2.2	143	2.2	0.453	9.3	LOS A	1.3	9.4	0.58	0.86	0.79	33.4
11	T1	8	0.0	8	0.0	0.491	45.0	LOS D	0.4	2.9	0.92	1.03	1.15	25.6
12	R2	23	4.5	23	4.5	0.491	54.7	LOS D	0.4	2.9	0.92	1.03	1.15	18.8
Approach		175	2.4	175	2.4	0.491	17.0	LOS B	1.3	9.4	0.64	0.90	0.86	29.6
All Vehicles		1569	5.9	1569	5.9	0.491	2.6	NA	1.4	10.0	0.12	0.19	0.15	33.8

MOVEMENT SUMMARY

Site: 101 [Burwood Road Pedestrain Crossing - AM EX (Site Folder: 2021 Counts)]

Network: N101 [Belmore Station / Burwood Road / Bridge Road - EX AM (Network Folder: General)]

Burwood Road Pedestrain Crossing
Existing
AM Peak
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)														
2	T1	722	6.3	722	6.3	0.669	1.1	LOS A	4.2	31.1	0.43	0.20	0.43	56.4
Approach		722	6.3	722	6.3	0.669	1.1	NA	4.2	31.1	0.43	0.20	0.43	56.4
North: Burwood Road (N)														
8	T1	584	6.8	584	6.8	0.543	0.8	LOS A	1.3	10.0	0.34	0.16	0.34	58.5
Approach		584	6.8	584	6.8	0.543	0.8	NA	1.3	10.0	0.34	0.16	0.34	58.5
All Vehicles		1306	6.5	1306	6.5	0.669	1.0	NA	4.2	31.1	0.39	0.18	0.39	57.3

MOVEMENT SUMMARY

Site: 101 [Burwood Road / Belmore Station Pedestrian Lights EX AM (Site Folder: 2021 Counts)]

Network: N101 [Belmore Station / Burwood Road / Bridge Road - EX AM (Network Folder: General)]

Burwood Road / Belmore Station Pedestrian Lights
Existing
AM Peak Hour
Site Category: (None)
Pedestrian Crossing (Signalised) - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 60 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)														
2	T1	752	5.7	752	5.7	* 0.688	10.0	LOS A	2.7	20.0	0.77	0.69	0.77	45.6
Approach		752	5.7	752	5.7	0.688	10.0	LOS A	2.7	20.0	0.77	0.69	0.77	45.6
North: Burwood Road (N)														
8	T1	705	6.1	705	6.1	0.664	9.8	LOS A	8.9	65.3	0.75	0.67	0.75	45.4
Approach		705	6.1	705	6.1	0.664	9.8	LOS A	8.9	65.3	0.75	0.67	0.75	45.4
All Vehicles		1457	5.9	1457	5.9	0.688	9.9	LOS A	8.9	65.3	0.76	0.68	0.76	45.5

MOVEMENT SUMMARY

Site: 101 [EX PM - Burwood Road / Bridge Road / Tobruk Avenue (Site Folder: 2021 Counts)]

Network: N101 [Belmore Station / Burwood Road / Bridge Road - EX PM (Network Folder: General)]

Give way Controlled Intersection of Burwood Road, Tobruk Avenue and Bridge Road
Existing Conditions
PM Peak Hour Period
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)														
1	L2	92	0.0	92	0.0	0.366	2.3	LOS A	1.4	10.0	0.00	0.07	0.00	56.2
2	T1	599	4.2	599	4.2	0.366	0.0	LOS A	1.4	10.0	0.00	0.07	0.00	49.0
3	R2	22	0.0	22	0.0	0.023	4.6	LOS A	0.0	0.3	0.56	0.60	0.56	49.0
Approach		713	3.5	713	3.5	0.366	0.4	NA	1.4	10.0	0.02	0.09	0.02	53.5
East: Tobruk Avenue														
4	L2	5	0.0	5	0.0	0.240	12.4	LOS A	0.2	1.2	0.86	0.93	0.91	25.5
5	T1	1	0.0	1	0.0	0.240	37.7	LOS C	0.2	1.2	0.86	0.93	0.91	35.2
6	R2	7	14.3	7	14.3	0.240	63.3	LOS E	0.2	1.2	0.86	0.93	0.91	25.5
Approach		14	7.7	14	7.7	0.240	41.7	LOS C	0.2	1.2	0.86	0.93	0.91	26.6
North: Burwood Road (N)														
7	L2	78	1.4	78	1.4	0.336	2.7	LOS A	0.4	3.1	0.00	0.07	0.00	56.1
8	T1	556	2.8	556	2.8	0.336	0.0	LOS A	0.4	3.1	0.00	0.07	0.00	51.3
9	R2	111	1.0	111	1.0	0.137	6.2	LOS A	0.2	1.3	0.58	0.78	0.58	47.7
Approach		744	2.4	744	2.4	0.336	1.2	NA	0.4	3.1	0.09	0.17	0.09	51.0
West: Bridge Road (W)														
10	L2	134	0.0	134	0.0	0.407	10.7	LOS A	1.2	8.2	0.57	0.87	0.73	44.6
11	T1	13	0.0	13	0.0	0.719	67.8	LOS E	0.7	4.9	0.93	1.11	1.50	27.1
12	R2	36	0.0	36	0.0	0.719	73.9	LOS F	0.7	4.9	0.93	1.11	1.50	17.9
Approach		182	0.0	182	0.0	0.719	27.1	LOS B	1.2	8.2	0.66	0.93	0.93	32.9
All Vehicles		1653	2.7	1653	2.7	0.719	4.1	NA	1.4	10.0	0.13	0.23	0.16	42.7

MOVEMENT SUMMARY

Site: 101 [Burwood Road Pedestrain Crossing - PM EX (Site Folder: 2021 Counts)]

Network: N101 [Belmore Station / Burwood Road / Bridge Road - EX PM (Network Folder: General)]

Burwood Road Pedestrain Crossing
Existing
PM Peak
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)														
2	T1	713	3.5	713	3.5	0.664	1.4	LOS A	3.8	27.6	0.47	0.25	0.48	56.1
Approach		713	3.5	713	3.5	0.664	1.4	NA	3.8	27.6	0.47	0.25	0.48	56.1
North: Burwood Road (N)														
8	T1	597	2.6	597	2.6	0.554	1.0	LOS A	1.4	10.0	0.38	0.19	0.38	58.1
Approach		597	2.6	597	2.6	0.554	1.0	NA	1.4	10.0	0.38	0.19	0.38	58.1
All Vehicles		1309	3.1	1309	3.1	0.664	1.2	NA	3.8	27.6	0.43	0.22	0.43	57.0

MOVEMENT SUMMARY

Site: 101 [Burwood Road / Belmore Station Pedestrian Lights EX PM (Site Folder: 2021 Counts)]

Network: N101 [Belmore Station / Burwood Road / Bridge Road - EX PM (Network Folder: General)]

Burwood Road / Belmore Station Pedestrian Lights
Existing
PM Peak Hour
Site Category: (None)
Pedestrian Crossing (Signalised) - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 60 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)														
2	T1	735	3.6	735	3.6	0.663	9.8	LOS A	2.8	20.0	0.75	0.67	0.75	45.9
Approach		735	3.6	735	3.6	0.663	9.8	LOS A	2.8	20.0	0.75	0.67	0.75	45.9
North: Burwood Road (N)														
8	T1	744	2.4	744	2.4	* 0.684	10.0	LOS A	9.5	68.1	0.76	0.69	0.76	45.2
Approach		744	2.4	744	2.4	0.684	10.0	LOS A	9.5	68.1	0.76	0.69	0.76	45.2
All Vehicles		1479	3.0	1479	3.0	0.684	9.9	LOS A	9.5	68.1	0.76	0.68	0.76	45.6

MOVEMENT SUMMARY

Site: 101 [FU AM - Burwood Road / Bridge Road / Tobruk Avenue (Site Folder: 2021 Counts - Post Development)]

Network: N101 [Belmore Station / Burwood Road / Bridge Road - FU AM (Network Folder: General)]

Give way Controlled Intersection of Burwood Road, Tobruk Avenue and Bridge Road
Future Conditions
AM Peak Hour Period
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)														
1	L2	38	8.3	38	8.3	0.359	1.8	LOS A	1.4	10.0	0.00	0.02	0.00	40.0
2	T1	629	6.4	629	6.4	0.359	0.0	LOS A	1.4	10.0	0.00	0.02	0.00	38.0
3	R2	60	3.5	60	3.5	0.064	4.7	LOS A	0.1	0.9	0.58	0.64	0.58	36.0
Approach		727	6.2	727	6.2	0.359	0.5	NA	1.4	10.0	0.05	0.08	0.05	37.6
East: Tobruk Avenue														
4	L2	7	0.0	7	0.0	0.150	6.2	LOS A	0.1	0.7	0.79	0.83	0.79	26.2
5	T1	1	0.0	1	0.0	0.150	32.7	LOS C	0.1	0.7	0.79	0.83	0.79	31.7
6	R2	4	0.0	4	0.0	0.150	54.3	LOS D	0.1	0.7	0.79	0.83	0.79	26.2
Approach		13	0.0	13	0.0	0.150	24.5	LOS B	0.1	0.7	0.79	0.83	0.79	26.9
North: Burwood Road (N)														
7	L2	83	0.0	83	0.0	0.344	2.3	LOS A	0.5	3.4	0.00	0.06	0.00	39.9
8	T1	554	7.0	554	7.0	0.344	0.0	LOS A	0.5	3.4	0.00	0.06	0.00	36.1
9	R2	94	4.5	94	4.5	0.117	5.8	LOS A	0.2	1.2	0.58	0.73	0.58	35.6
Approach		731	5.9	731	5.9	0.344	1.0	NA	0.5	3.4	0.07	0.15	0.07	37.3
West: Bridge Road (W)														
10	L2	143	2.2	143	2.2	0.472	9.8	LOS A	1.4	9.8	0.61	0.89	0.84	33.0
11	T1	8	0.0	8	0.0	0.560	57.2	LOS E	0.5	3.4	0.93	1.06	1.22	23.5
12	R2	23	4.5	23	4.5	0.560	67.2	LOS E	0.5	3.4	0.93	1.06	1.22	16.7
Approach		175	2.4	175	2.4	0.560	19.7	LOS B	1.4	9.8	0.66	0.92	0.91	28.5
All Vehicles		1645	5.6	1645	5.6	0.560	2.9	NA	1.4	10.0	0.13	0.20	0.16	33.5

MOVEMENT SUMMARY

Site: 101 [Burwood Road Pedestrain Crossing - AM Future (Site Folder: 2021 Counts - Post Development)]

Network: N101 [Belmore Station / Burwood Road / Bridge Road - FU AM (Network Folder: General)]

Burwood Road Pedestrain Crossing
Future
AM Peak
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)														
2	T1	773	5.9	773	5.9	0.714	1.2	LOS A	4.7	34.5	0.48	0.23	0.48	56.1
Approach		773	5.9	773	5.9	0.714	1.2	NA	4.7	34.5	0.48	0.23	0.48	56.1
North: Burwood Road (N)														
8	T1	584	6.8	584	6.8	0.543	0.8	LOS A	1.3	10.0	0.34	0.16	0.34	58.5
Approach		584	6.8	584	6.8	0.543	0.8	NA	1.3	10.0	0.34	0.16	0.34	58.5
All Vehicles		1357	6.3	1357	6.3	0.714	1.0	NA	4.7	34.5	0.42	0.20	0.42	57.1

MOVEMENT SUMMARY

Site: 101 [Burwood Road / Belmore Station Pedestrian Lights Future AM (Site Folder: 2021 Counts - Post Development)]

Network: N101 [Belmore Station / Burwood Road / Bridge Road - FU AM (Network Folder: General)]

Burwood Road / Belmore Station Pedestrian Lights
Future
AM Peak Hour
Site Category: (None)
Pedestrian Crossing (Signalised) - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)														
2	T1	777	5.6	777	5.6	* 0.710	10.2	LOS A	2.7	20.0	0.78	0.71	0.78	45.4
Approach		777	5.6	777	5.6	0.710	10.2	LOS A	2.7	20.0	0.78	0.71	0.78	45.4
North: Burwood Road (N)														
8	T1	731	5.9	731	5.9	0.686	10.0	LOS A	9.4	69.0	0.76	0.69	0.76	45.2
Approach		731	5.9	731	5.9	0.686	10.0	LOS A	9.4	69.0	0.76	0.69	0.76	45.2
All Vehicles		1507	5.7	1507	5.7	0.710	10.1	LOS A	9.4	69.0	0.77	0.70	0.77	45.3

MOVEMENT SUMMARY

Site: 101 [FU PM - Burwood Road / Bridge Road / Tobruk Avenue Future (Site Folder: 2021 Counts - Post Development)]

Network: N101 [Belmore Station / Burwood Road / Bridge Road - FU PM (Network Folder: General)]

Give way Controlled Intersection of Burwood Road, Tobruk Avenue and Bridge Road
Future Conditions
PM Peak Hour Period
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)														
1	L2	92	0.0	92	0.0	0.377	2.3	LOS A	1.4	10.0	0.00	0.07	0.00	56.2
2	T1	621	4.1	621	4.1	0.377	0.0	LOS A	1.4	10.0	0.00	0.07	0.00	49.2
3	R2	44	0.0	44	0.0	0.046	4.9	LOS A	0.1	0.6	0.58	0.64	0.58	48.7
Approach		757	3.3	757	3.3	0.377	0.6	NA	1.4	10.0	0.03	0.10	0.03	52.8
East: Tobruk Avenue														
4	L2	5	0.0	5	0.0	0.274	15.4	LOS B	0.2	1.3	0.88	0.94	0.95	23.1
5	T1	1	0.0	1	0.0	0.274	44.4	LOS D	0.2	1.3	0.88	0.94	0.95	32.8
6	R2	7	14.3	7	14.3	0.274	74.1	LOS F	0.2	1.3	0.88	0.94	0.95	23.1
Approach		14	7.7	14	7.7	0.274	49.2	LOS D	0.2	1.3	0.88	0.94	0.95	24.2
North: Burwood Road (N)														
7	L2	100	1.1	100	1.1	0.348	2.7	LOS A	0.4	3.1	0.00	0.08	0.00	56.0
8	T1	556	2.8	556	2.8	0.348	0.0	LOS A	0.4	3.1	0.00	0.08	0.00	49.6
9	R2	111	1.0	111	1.0	0.141	6.4	LOS A	0.2	1.4	0.60	0.80	0.60	47.5
Approach		766	2.3	766	2.3	0.348	1.3	NA	0.4	3.1	0.09	0.19	0.09	51.0
West: Bridge Road (W)														
10	L2	134	0.0	134	0.0	0.421	11.1	LOS A	1.2	8.5	0.58	0.88	0.76	44.2
11	T1	13	0.0	13	0.0	0.805	91.3	LOS F	0.8	5.9	0.94	1.16	1.72	23.1
12	R2	36	0.0	36	0.0	0.805	97.1	LOS F	0.8	5.9	0.94	1.16	1.72	14.6
Approach		182	0.0	182	0.0	0.805	33.5	LOS C	1.2	8.5	0.68	0.95	1.02	29.7
All Vehicles		1719	2.6	1719	2.6	0.805	4.8	NA	1.4	10.0	0.13	0.24	0.17	41.2

MOVEMENT SUMMARY

Site: 101 [Burwood Road Pedestrain Crossing - PM Future (Site Folder: 2021 Counts - Post Development)]

Network: N101 [Belmore Station / Burwood Road / Bridge Road - FU PM (Network Folder: General)]

Burwood Road Pedestrain Crossing
Future
PM Peak
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)														
2	T1	757	3.3	757	3.3	0.705	2.0	LOS A	4.2	30.5	0.51	0.29	0.54	55.8
Approach		757	3.3	757	3.3	0.705	2.0	NA	4.2	30.5	0.51	0.29	0.54	55.8
North: Burwood Road (N)														
8	T1	597	2.6	597	2.6	0.554	1.0	LOS A	1.4	10.0	0.38	0.19	0.38	58.1
Approach		597	2.6	597	2.6	0.554	1.0	NA	1.4	10.0	0.38	0.19	0.38	58.1
All Vehicles		1354	3.0	1354	3.0	0.705	1.6	NA	4.2	30.5	0.46	0.25	0.47	56.8

MOVEMENT SUMMARY

Site: 101 [Burwood Road / Belmore Station Pedestrian Lights Future PM (Site Folder: 2021 Counts - Post Development)]

Network: N101 [Belmore Station / Burwood Road / Bridge Road - FU PM (Network Folder: General)]

Burwood Road / Belmore Station Pedestrian Lights
Future
PM Peak Hour
Site Category: (None)
Pedestrian Crossing (Signalised) - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Burwood Road (S)														
2	T1	757	3.5	757	3.5	0.683	10.0	LOS A	2.8	20.0	0.76	0.69	0.76	45.7
Approach		757	3.5	757	3.5	0.683	10.0	LOS A	2.8	20.0	0.76	0.69	0.76	45.7
North: Burwood Road (N)														
8	T1	766	2.3	766	2.3	* 0.704	10.2	LOS A	10.0	71.4	0.78	0.70	0.78	45.0
Approach		766	2.3	766	2.3	0.704	10.2	LOS A	10.0	71.4	0.78	0.70	0.78	45.0
All Vehicles		1523	2.9	1523	2.9	0.704	10.1	LOS A	10.0	71.4	0.77	0.69	0.77	45.4

ANNEXURE E: MULTI-CHANNEL QUEUING
(1 SHEET)

In the single-line, multiserver, single-phase model, customers form a single line and are served by the first server available. The model assumes that there are s identical servers, the service time distribution for *each server* is exponential, and the mean service time is $1/\mu$. Using these assumptions, we can describe the operating characteristics with the following formulas:

s = the number of servers in the system

$$p = \frac{\lambda}{s\mu} = \text{the average utilization of the system}$$

$$P_0 = \left[\sum_{n=0}^{s-1} \frac{(\lambda/\mu)^n}{n!} + \frac{(\lambda/\mu)^s}{s!}\left(\frac{1}{1-p}\right)\right]^{-1} = \text{the probability that no customers are in the system}$$

$$L_Q = \frac{P_o(\lambda/\mu)^s p}{s!(1-p)^2} = \text{the average number of customers waiting in line}$$

$$W_Q = \frac{L_Q}{\lambda} = \text{the average time spent waiting in line}$$

$$W = W_Q + \frac{1}{\mu} = \text{the average time spent in the system, including service}$$

$$L = \lambda W = \text{the average number of customers in the service system}$$

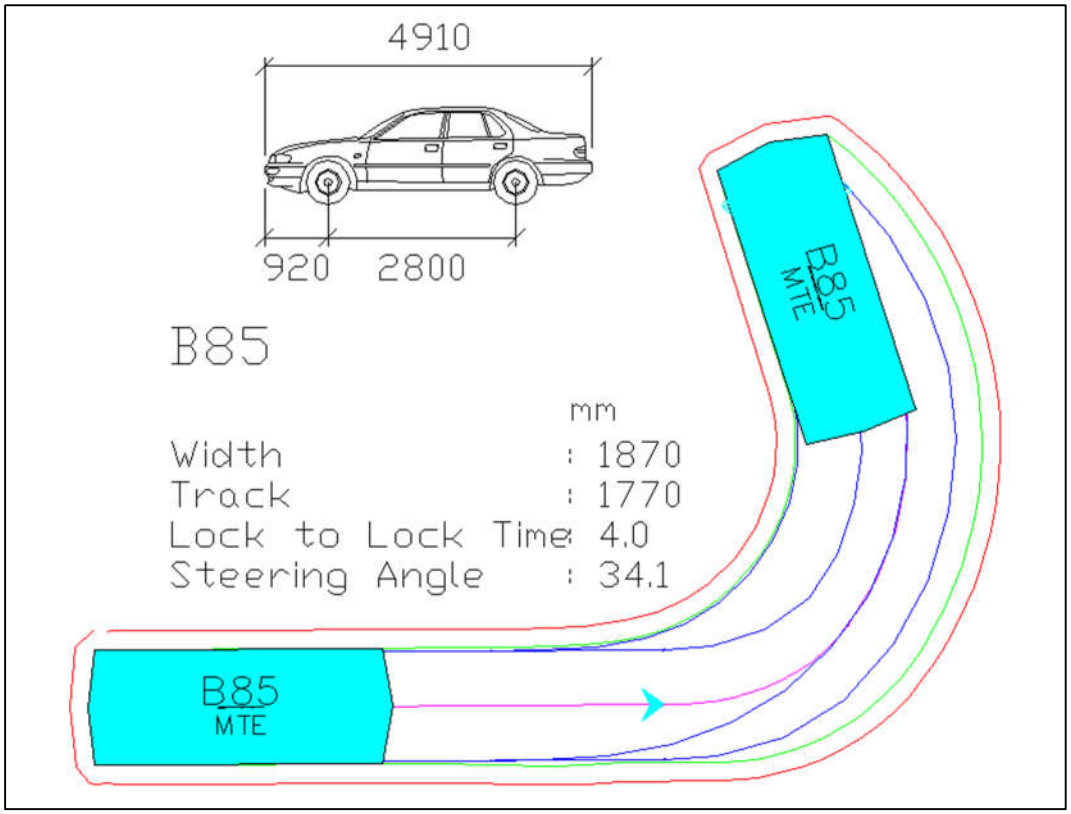
$$P_n = \begin{cases} \dfrac{(\lambda/\mu)^n}{n!} P_0 & \text{for } n \le s \\ \dfrac{(\lambda/\mu)^n}{s!s^{n-s}} P_0 & \text{for } n > s \end{cases} = \text{the probability that } n \text{ customers are in the system at a given time}$$

		Service Bays	13	Arrival Rate (vehicles/hour)	45	Wait Time in Each Bay (seconds)	408
		Vehicles/Second IN	0.0125	Vehicles/Second OUT (per bay)	0.00245098		
		P0	0.0060958	rho	5.1	rho (single bay system assumed)	0.392308

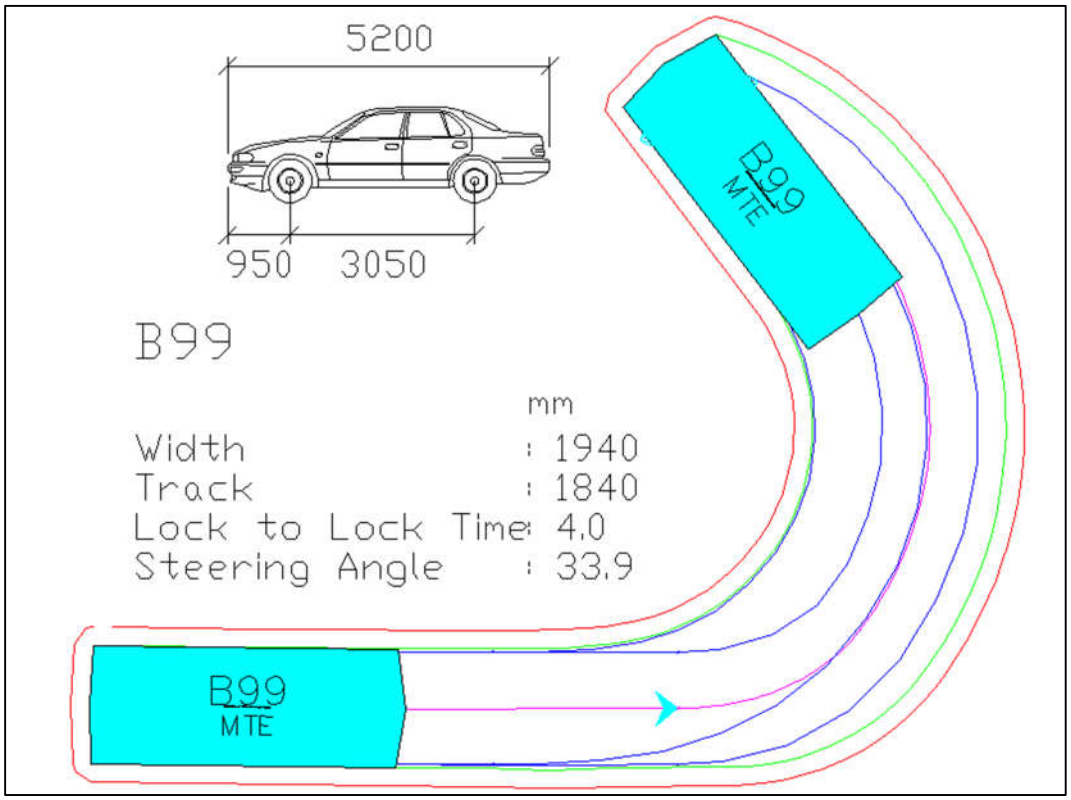
n	1st Term	Pn	P(>=n)
0	1	0.61%	99.39%
1	5.1	3.11%	96.28%
2	13.005	7.93%	88.35%
3	22.1085	13.48%	74.88%
4	28.18834	17.18%	57.69%
5	28.7521	17.53%	40.17%
6	24.43929	14.90%	25.27%
7	17.80577	10.85%	14.42%
8	11.35118	6.92%	7.50%
9	6.432333	3.92%	3.58%
10	3.28049	2.00%	1.58%
11	1.520954	0.93%	0.65%
12	0.646406	0.39%	0.25%

Percentile	Number of Vehicles in System	Number of Vehicles Queued
50%	5	0
60%	6	0
70%	6	0
80%	7	0
85%	7	0
90%	8	0
95%	9	0
98%	10	0

ANNEXURE F: SWEPT PATH TESTING
(4 SHEETS)



AUSTRALIAN STANDARD 85TH PERCENTILE SIZE VEHICLE (B85)

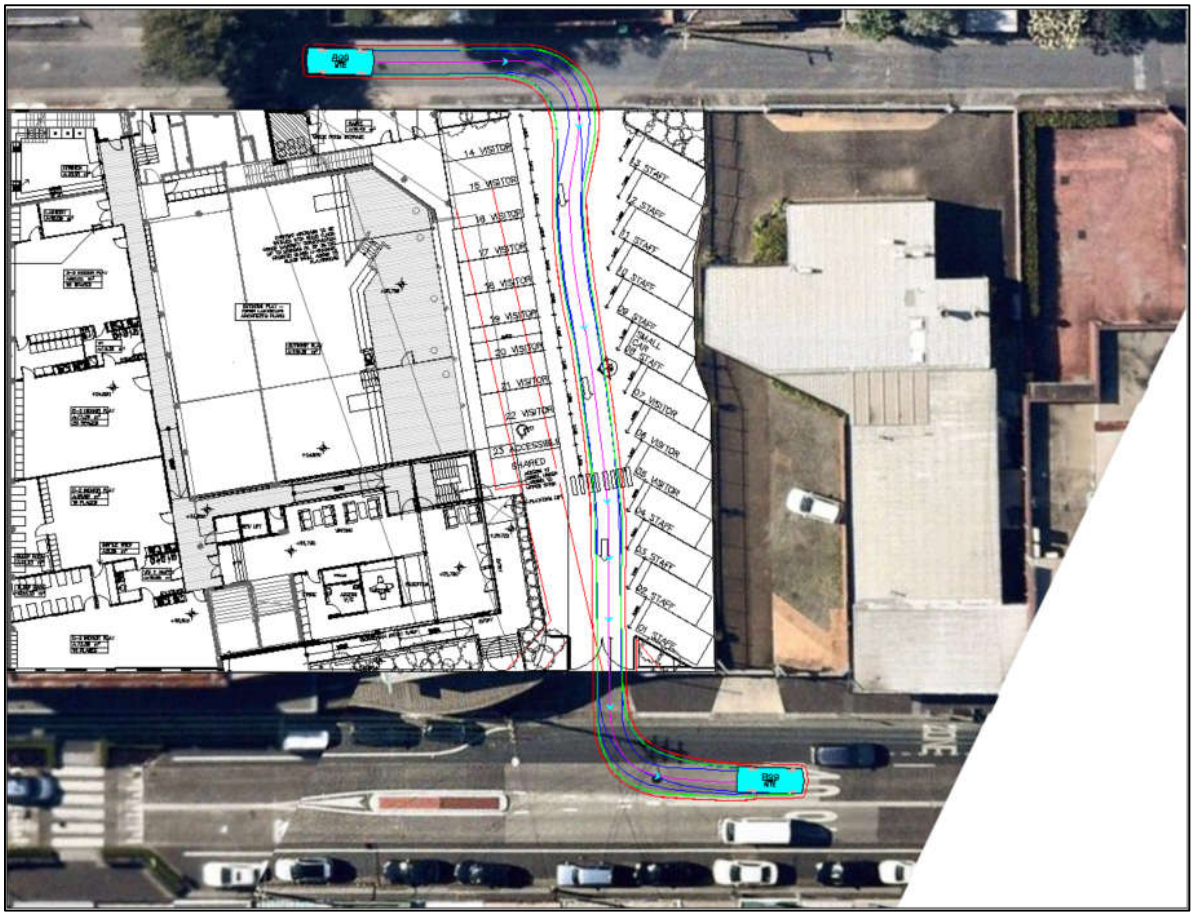


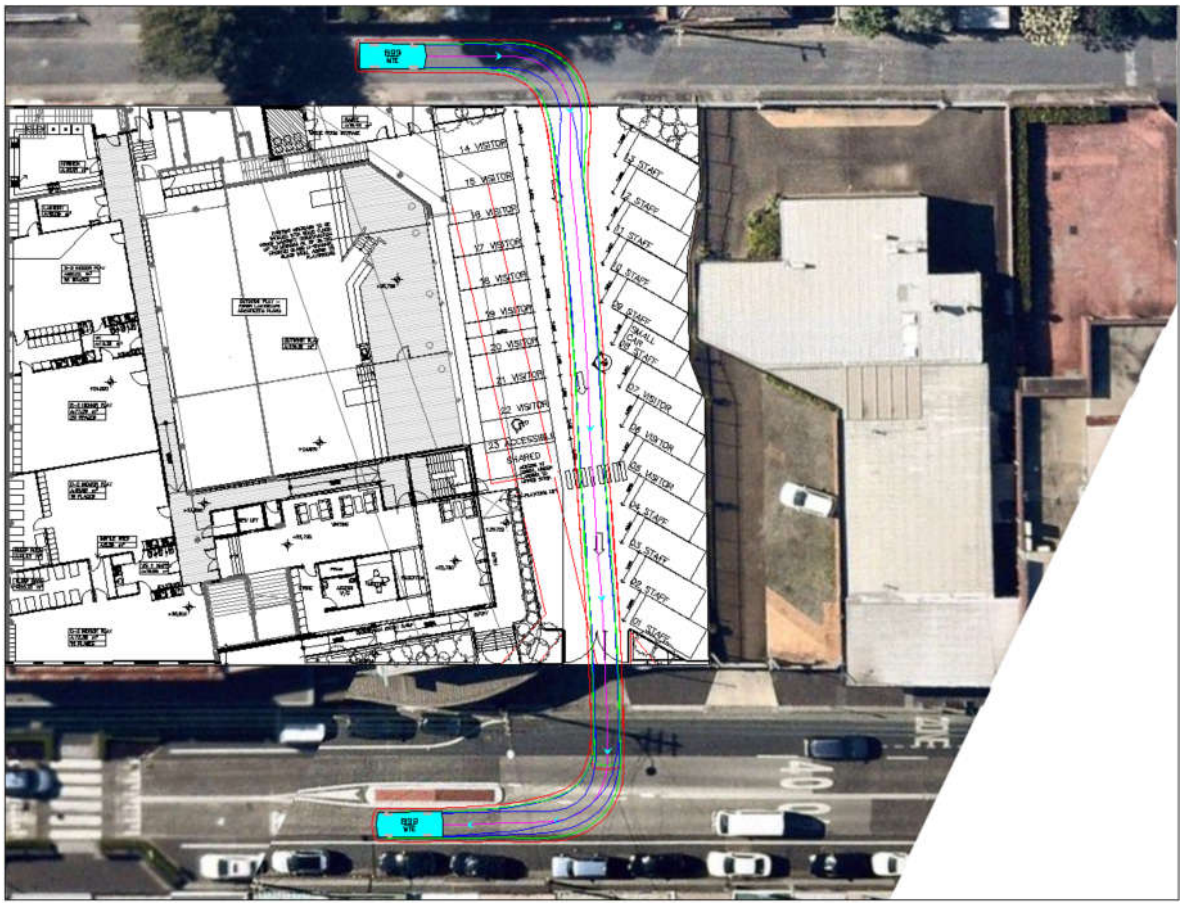
AUSTRALIAN STANDARD 99.8TH PERCENTILE SIZE VEHICLE (B99)

Blue – Tyre Path

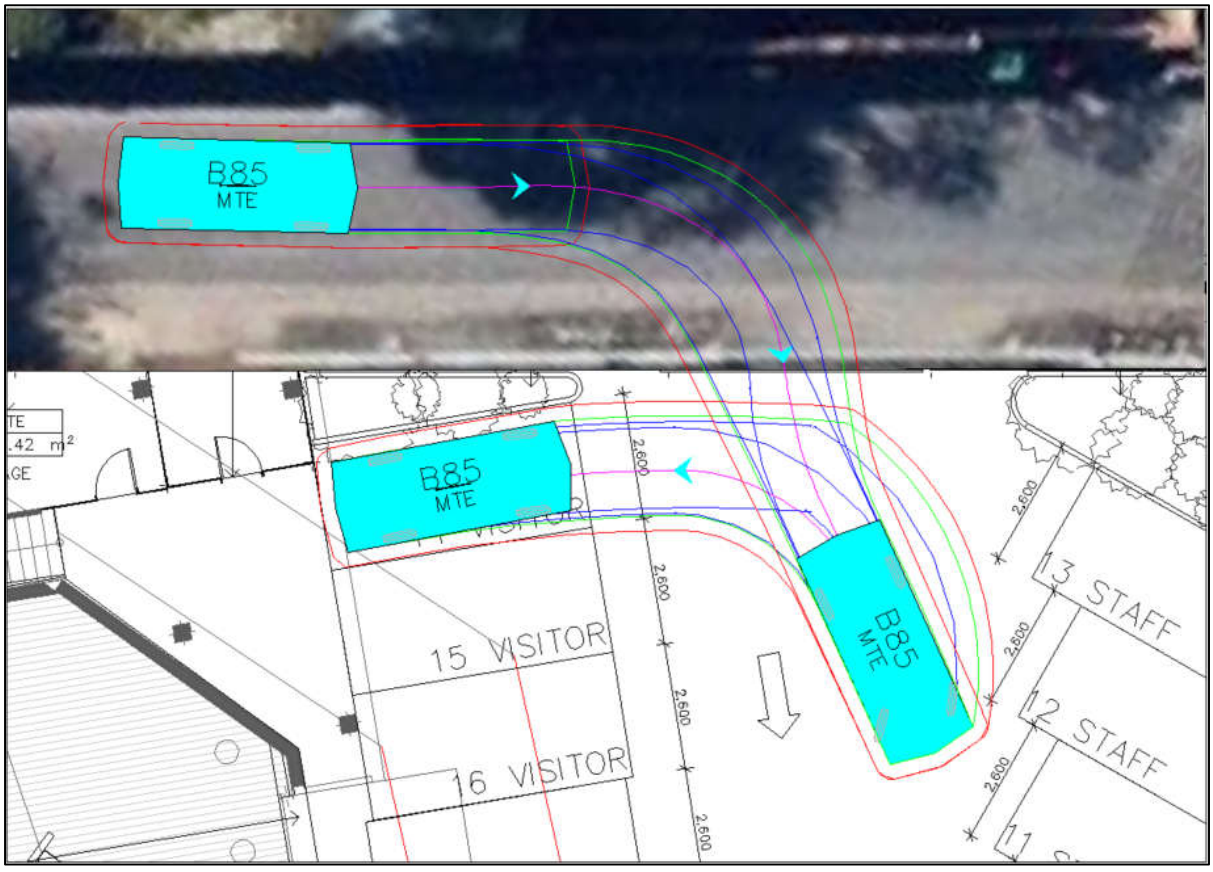
Green – Vehicle Body

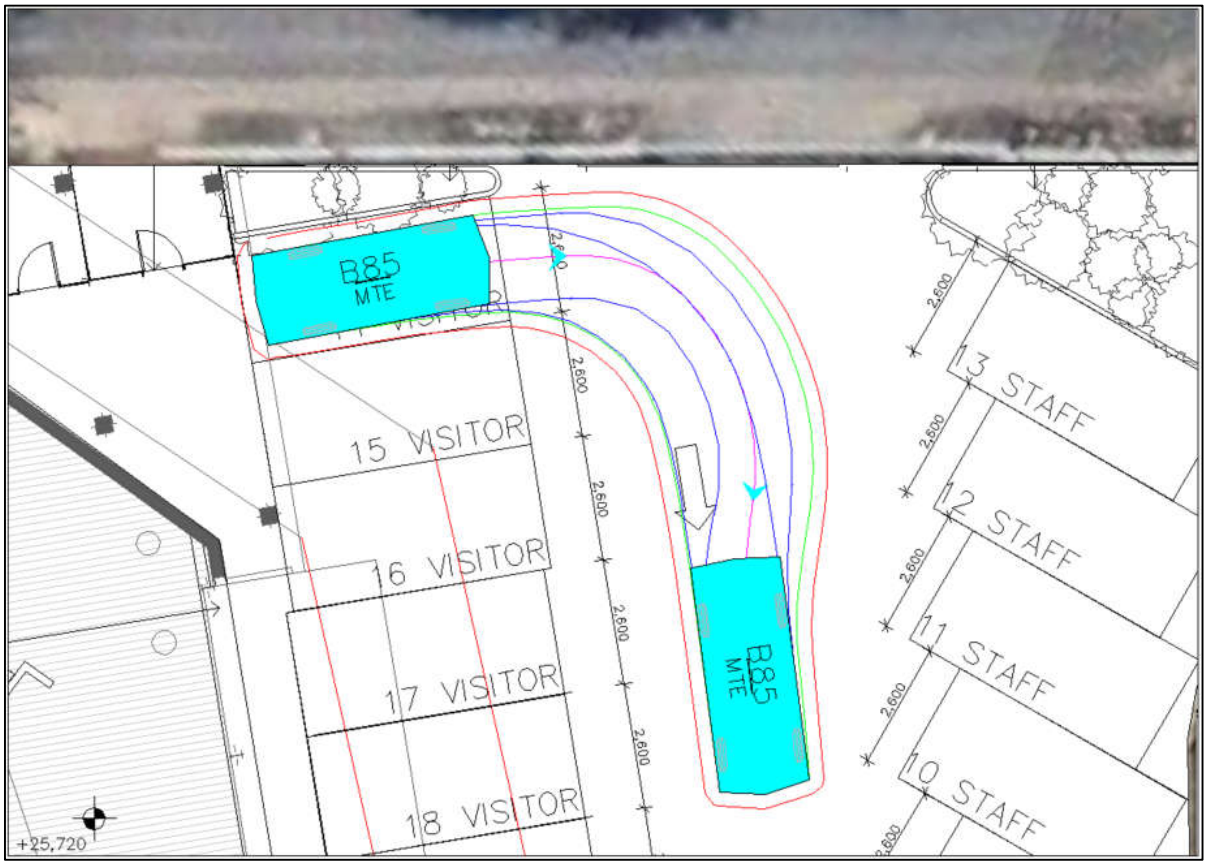
Red – 300mm Clearance





B99 INTO AND LEFT / RIGHT OUT OF THE SITE
Successful

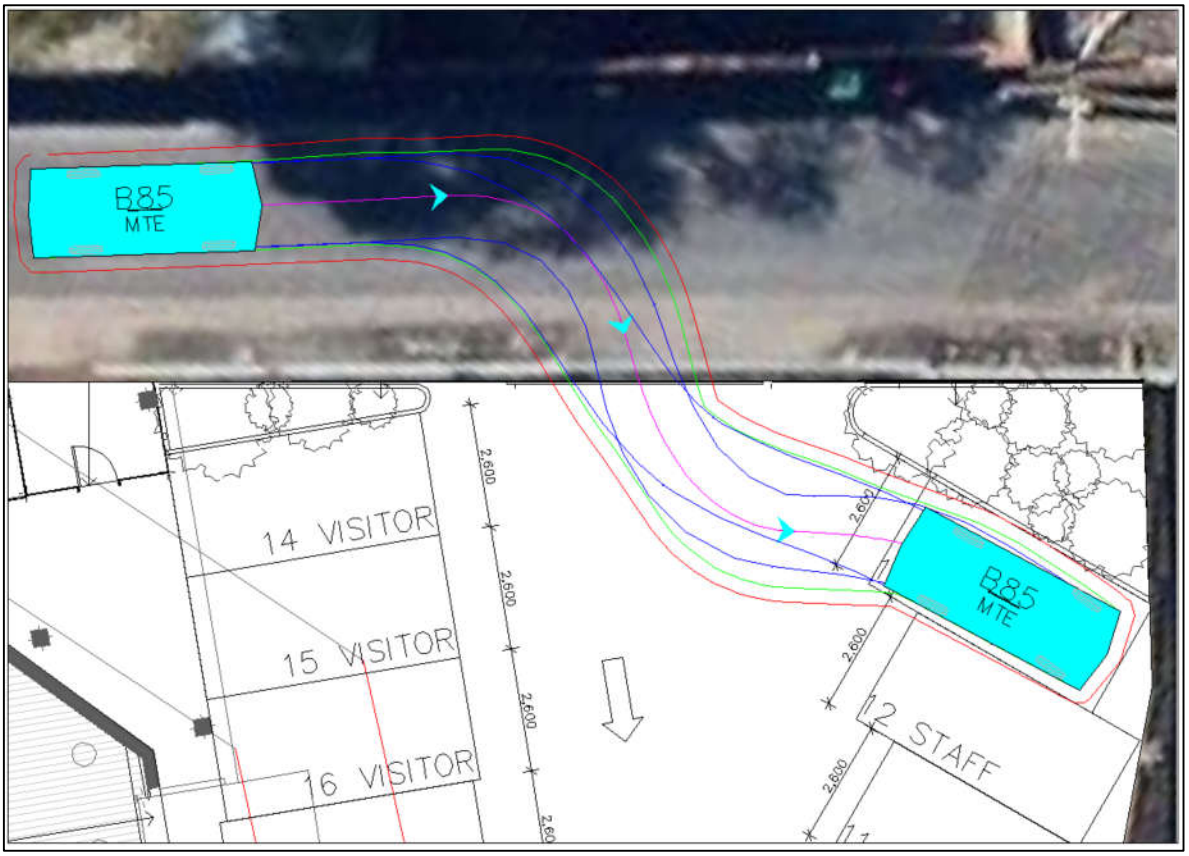


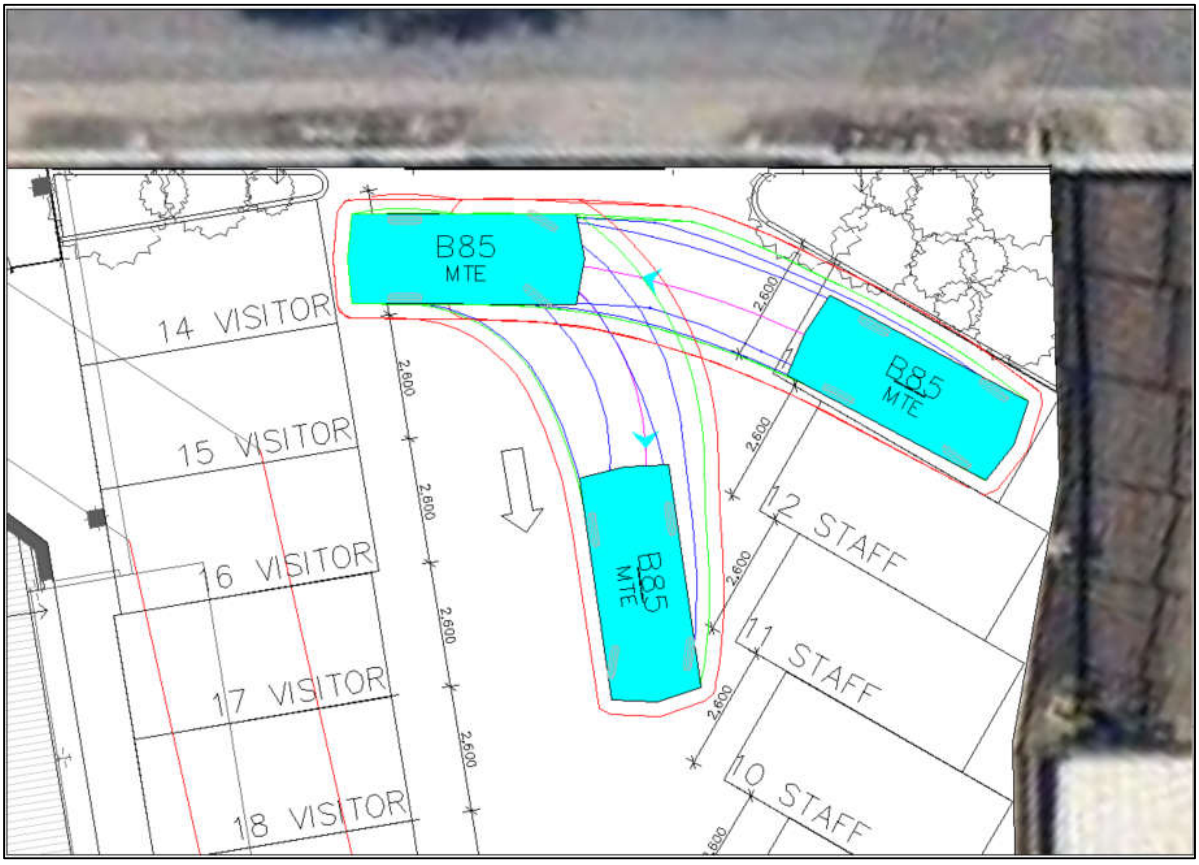


B85 SPACE 14 ACCESS

2 Manoeuvres Reverse IN / 1 Manoeuvre Forward OUT

Successful





B85 SPACE 13 ACCESS

1 Manoeuvre Forward IN / 2 Manoeuvres Reverse OUT

Successful