TTPS
TRANSPORT MATTERS

36-38 Maitland Street, Muswellbrook

Proposed Childcare Centre

Transport Impact Assessment

Client //	Rohit Mahajan c/- Perception Planning
Reference //	N241
Date //	15/01/2024

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Appendices

Document Control

Internal Reference	N241	
Issue	A	15/01/2024
Client Name	Rohit Mahajan	NSW

Revision Register

Issue	Date	Description	Prepared By	Reviewed By	Signed
A	15/01/2024	For DA	Sid Ali	Sid Ali	

1. Introduction

1.1 Background

It is understood that a development application will be submitted to Muswellbrook Shire Council (Council) for a proposed Childcare Centre at 36-38 Maitland St, Muswellbrook.

The proposal includes the demolition of the existing residential dwelling on the site and the construction of a purpose-built Childcare Centre to accommodate up to 100 children spaces and 17 staff members with appropriate access and parking provisions.

Traffic and Transport Planning Solutions (TTPS) has been commissioned by Mr Rohit Mahajan c/- Perception Planning to prepare a traffic impact assessment for the proposed development.

1.2 Purpose of this Report

This report sets out an assessment of the anticipated traffic and parking implications of the proposed development, including:

- the existing site conditions
- the proposal
- existing traffic and parking conditions
- the adequacy of the proposed parking provision
- the traffic and parking impacts
- the proposed vehicle access and car parking layout.

1.3 References

- Muswellbrook Shire Development Control Plan (DCP) 2009
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004, Part 3: Bicycle Parking AS/NZS 2890.3:2015 and Part 6: Off-street parking for people with disabilities AS/NZS 2890.6:2009.
- Trip Generation and Parking Surveys, Childcare Centres, TEF Consulting for RMS, Aug 2015
- Other documents and data as referenced in this report.

2. Existing Site and Operations

2.1 Existing Site

The site is a consolidation of Lot 7 in DP 1098460 and Lot 8 in DP 6758 and is currently zoned as R1 (General Residential). The site is of an irregular shape with an overall site area of some 2,906m^2. The site is currently occupied by a single dwelling house on each lot, with vehicle access via Wilder Street.

The site is located on the northeastern side of the priority-controlled intersection of Maitland Street and Wilder Street. The surrounding properties predominantly include low-density residential with some commercial and retail development along Maitland Street.

In addition, Muswellbrook South Public School and Hunter TAFE (Muswellbrook Campus) are two major educational developments located approx. 150m south of the site along Maitland Street.

The location of the subject site and its surrounding environs is shown in Figure 2.1.

Figure 2.1: Location map

2.2 Proposed Development

The proposed development scheme involves the demolition of the existing residential dwellings on the site and the construction of a purpose-built Childcare Centre accommodating:

- reception, indoor activity rooms, outdoor play area, cot rooms, kitchen, staff rooms, amenities and off-street carpark with 26 parking spaces
- core teaching/care facilities for up to 100 children and 17 staff members

Details of the proposal are provided in the architectural plans prepared by Sorensen Design and Planning and reproduced in Appendix A of this report.

3. Existing Transport Circumstances

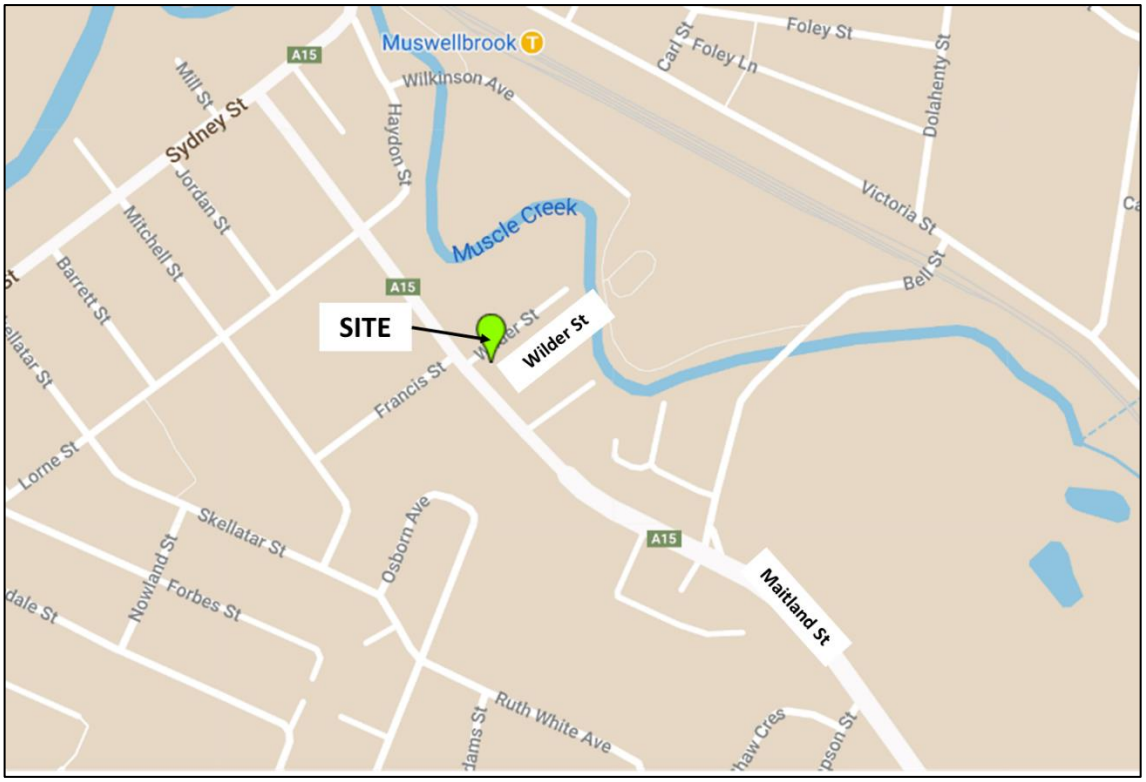
3.1 Surrounding Road Network

The surrounding road network includes:

- **Maitland Street** is a part of New England Highway and is aligned in a north-south direction in the vicinity of the site. It is the major arterial road in the region and connects the New England and Upper Hunter Valley areas to Newcastle and represents a major transport route for many commodities. In the vicinity of the site, it is a four-lane two-way sealed road with two traffic lanes in each direction. The street has a posted speed limit of 40 km/h in the vicinity of the site.
- **Wilder Street** is a local road and runs in an east-west direction. The street is a no-through road with a cul-de-sac on its eastern end. The street is set within a 12m wide carriageway with unrestricted on-street parking on both sides of the street. The street has a posted speed limit of 50km/h.

The surrounding road network is shown in Figure 3.1.

Figure 3.1: Road network in the vicinity of the site



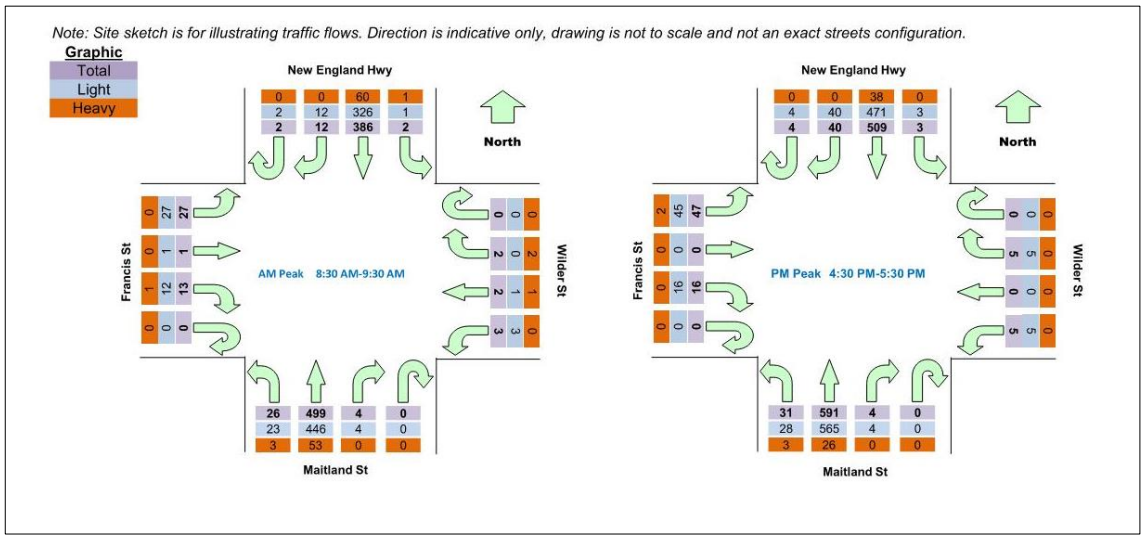
3.2 Existing Traffic Conditions

Local peak-hour traffic volumes at the intersection of Maitland Street and Wilder Street have been recorded as part of this assessment. The traffic counts were commissioned for the morning (6:30 am – 9:30 am) and evening (3:00 pm – 6:00 pm) peak periods on Tuesday, 14 February 2023. Detailed peak traffic volumes are reproduced in Appendix B and summarised in Figure 3.2 below.

The survey results indicate the following AM and PM peak hours:

- 8:30 am and 9:30 am
- 4:30 pm and 5:30 pm

Figure 3.2: Existing weekday AM/ PM peak hour traffic volumes at priority-controlled intersection of Maitland St/Wilder St



3.3 Intersection Operation

The operation of the key intersections within the study area has been assessed using SIDRA INTERSECTION (SIDRA), a computer-based modelling package which calculates intersection performance.

The commonly used measure of intersection performance, as defined by the TfNSW, is vehicle delay. SIDRA determines the average delay that vehicles encounter and provides a measure of the level of service.

Table 2.2 shows the criteria SIDRA adopts in assessing the level of service.

Table 3.1: SIDRA INTERSECTION level of service criteria

Level of Service (LOS)	Average Delay per vehicle (secs/ veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

Table 3.1 presents a summary of the existing operation of the intersection, with full results presented in Appendix C of this report.

Table 3.2: Existing operating conditions

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Maitland St / Wilder St	AM	South	0.188	6	6	A
		East	0.004	4	0	A
		North	0.184	4	6	A
		Overall	**0.188**	**6**	**6**	**A**
	PM	South	0.216	7	6	A
		East	0.005	4	0	A
		North	0.240	4	7	A
		Overall	**0.240**	**7**	**7**	**A**

Based on the results outlined in Table 3.2, the intersection of Maitland St/Wilder St currently operates satisfactorily and maintains an appropriate overall intersection operation at LOS A.

3.4 Public Transport Services

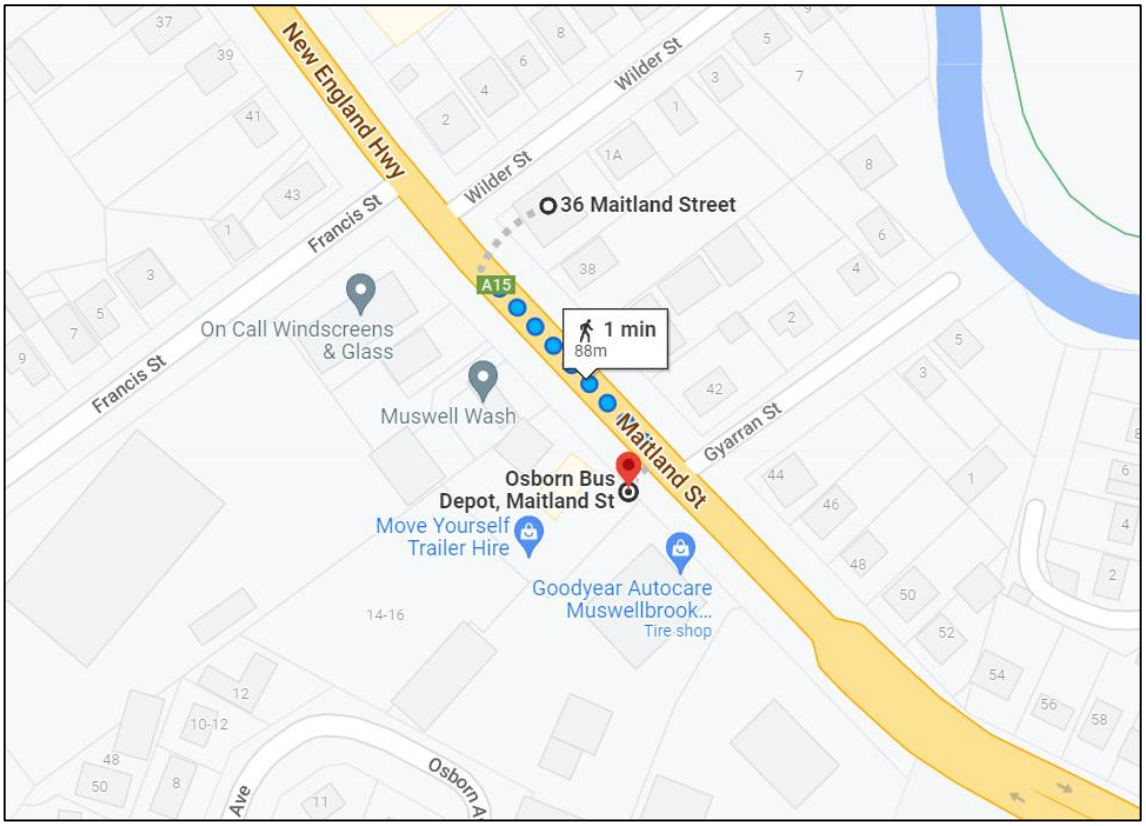
Public transport services in the vicinity of the site are provided via two local bus stops with one located adjacent to the western frontage of the site and another located across the road adjacent to the Muswellbrook South Public School's frontage with Maitland Street(see Figure 3.3 for the location of the nearest bus stops).

These bus stops are serviced by various bus routes, as outlined in Table 3.3 below. Details of the available public transport services are provided in Appendix D.

Table 3.3: Bus route and frequencies

Bus Stop	Bus Routes	Frequency
Maitland Road	411 (Muswellbrook to Sydney St (Loop Service))	30 min
	412 (Muswellbrook to Muswellbrook North (Loop Service))	1 hr 25 min
	414 (Muswellbrook to Scone via Aberdeen (Loop Service))	1 hr 10 min
	415 (Muswellbrook to Denman (Loop Service))	2 hr 30 min
	418 (Muswellbrook to Eastlinks (Loop Service))	22 mins

Figure 3.3: Walking distance between the site and the nearest bus stop



4. Parking

4.1 Council DCP Car Parking Rates

Section 16.6 of Muswellbrook Shire DCP 2009 specifies the following parking requirements relevant to the proposed childcare centre:

Proposed Use	Employees	Visitor
Childcare Facility	1 space per employee	1 space per 15 children enrolled (if provision of 3 set down/pick up areas) or 1 per 10 children

It is noted that the proposed development will provide 3 dedicated set-down/pick-up areas. As such, based on the above criteria, the proposed childcare centre would require a total of 24 car parking spaces with the following breakdown:

100 childcare places	7 spaces
17 staff members	17 spaces
Total:	**24 spaces**

In addition to the above, based on clause 18.2.1 of Council's DCP for Childcare Centres, the development needs to provide 2 on-site designated vehicle spaces – one for disabled access, and one for emergency use.

4.2 Adequacy of Car Parking Provision

The proposed development provides a total of 26 parking spaces in satisfaction with the DCP parking requirements. The proposed development plans include parking spaces with the following breakdown:

Employees	18 spaces
Visitor (set down/pick-up)	7 spaces (including 3 dedicated set down/pick-up areas and 1 disabled parking space)
Emergency parking	1 space
Total:	**26 spaces**

4.3 Motorbike and Bicycle Parking

Muswellbrook Shire DCP 2009 does not provide motorbike and bicycle parking requirements for childcare centres.

5. Traffic Assessment

5.1 Trip Generation and Distribution

TfNSW's (formerly Roads and Maritimes Services) Guide for Traffic Generating Developments indicate the potential traffic generation of the childcare centres. However, the traffic generation rates under the TfNSW guide are derived from a study undertaken in 1992 (i.e. nearly 30 years old) and is an average of 3 types of centres, namely:

- Pre School
- Long Day Care
- Before/After School Care

TfNSW has undertaken a more recent study[1] of the Childcare Centre as part of the process of updating the Guidelines. That study involved surveys at 4 types of Centres, namely:

- Long Day Care
- Occasional Care (OC)
- Before/After School Care (BASC)
- Pre School Care

Occasional Care and Before/After School Care centres have different traffic characteristics to Long Day Care and Pre School Care centres. The TfNSW study includes details of all the surveyed centres and the averaged results. Extracts from this study are provided in Appendix E, whilst an average peak traffic generation rate for AM and PM peak relevant to Long Day Care centres are provided below:

- AM Peak = 0.64 vtph per child
- PM Peak = 0.41 vtph per child

Accordingly, the assessed traffic generation of the proposed centre is as follows:

- 100 children x 0.64 = 64 trips in AM Peak
- 100 children x 0.41 = 41 trips in PM Peak

The anticipated traffic generation relevant to the site is likely to be split into 50% inbound and 50% outbound trips during any peak hour.

Based on that, the trip distribution between north and south along Maitland Street would be equivalent to a range between 11 (PM) and 16 (AM) vtph in each direction.

Being within a residential precinct, these movements are expected to be evenly distributed on Maitland Street.

5.2 Traffic Impact

In order to assess the traffic impact of the proposed development at the priority-controlled intersection of Maitland Street/Wilder Street, SIDRA modelling assessment has

[1] Trip Generation and Parking Surveys (Child Care Centres) Prepared by TEF Consulting for RMS (now TfNSW), August 2015

been carried out for the following scenarios, with modelling results outlined in the table below:

- **Post Development**

The post-development scenario is modelled with the existing traffic combined with the proposed traffic generation of the site.

- **10 Years Growth Without Development**

This scenario has been modelled with the existing traffic combined with the estimated traffic growth within the next 10 years.

In order to determine the 10-year traffic growth, reference has been made to the traffic growth rate adopted in a traffic impact assessment for a State Significant Development Application in relation to Pacific Brook Christian School, Muswellbrook[2]. Based on the study, a growth rate of 0.56% per annum is adapted to determine the future 10-year background traffic.

- **10 Years Growth With Development**

This scenario has been modelled with the 10-year background traffic combined with the proposed traffic generation of the site.

Table 5.1: Future operating conditions

Intersection	Scenario	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Maitland St / Wilder St	Post Development	AM	South	0.202	6	6	A
			East	0.021	4	0	A
			North	0.194	4	6	A
			Overall	**0.202**	**6**	**6**	**A**
		PM	South	0.216	7	6	A
			East	0.005	4	0	A
			North	0.240	4	7	A
			Overall	**0.240**	**7**	**7**	**A**
	10 Years Growth Without Development	AM	South	0.199	6	6	A
			East	0.004	4	0	A
			North	0.197	4	6	A
			Overall	**0.197**	**6**	**6**	**A**
		PM	South	0.228	7	6	A
			East	0.005	4	0	A
			North	0.257	4	7	A
			Overall	**0.240**	**7**	**7**	**A**
	10 Years Growth With Development	AM	South	0.213	6	6	A
			East	0.021	4	0	A
			North	0.207	4	6	A
			Overall	**0.213**	**6**	**6**	**A**
		PM	South	0.239	7	7	A
			East	0.016	4	0	A

[2] Traffic Impact Assessment, Pacific Brook Christian School, Muswellbrook, SSD-16885710 Prepared by PTC dated 30/09/2021

			North	0.265	4	8	A
			Overall	**0.265**	**7**	**8**	**A**

Based on the above SIDRA modelling results, the proposed development is unlikely to significantly impact the operational performance of the nominated study intersection. The above results demonstrate that the priority-controlled intersection of Maitland St/ Wilder St would generally operate at a satisfactory level of performance with the addition of the forecasted development traffic.

Detailed results of the intersection assessment are presented in Appendix C.

6. Vehicle Access, Carpark Layout and Servicing

The carpark layout has been reviewed against the requirements of the Australian Standards and Council's DCP. This assessment included a review of the following:

- vehicle access width
- bay and aisle width
- adjacent structures
- turnaround facilities
- circulation aisles and ramps
- ramp grades
- height clearances
- parking for persons with disabilities

This review indicated that the proposed carpark has been designed in accordance with Australian Standards AS2890.1, 6 and Council's DCP Section 16 Car parking and Access. The following design details are adopted for the design of the proposed carpark:

- Access for the proposed at-grade carpark will involve a 3.6m wide ingress and 3.8m wide egress driveways via Wilder Street frontage of the site
- Parking bays are designed based on the following dimensions and configurations:
    - 2.4m wide x 5.4m long 16 parking spaces for staff
    - 2.0m wide x 5.8m long 2 parallel parking spaces for staff
    - 2.7m wide x 5.4m long 7 visitor parking spaces (3 dedicated for drop-off/pick-up and 1 for emergency)
    - 2.4m wide x 5.4m long disabled visitor parking bay with a shared area in accordance with the current standard AS2890.6-2009.
- Visitor parking spaces (User Class 3a) are provided with a minimum 6.2m of aisle width in compliance with AS2890.1
- Staff car parking spaces (User Class 1a) are provided with a minimum 5.8m of aisle width in compliance with AS2890.1.

A detailed swept path assessment in Appendix F demonstrates ample manoeuvring space within the proposed carpark. All vehicles will enter and exit the site in a forward direction.

6.1 Servicing

Refuse will be removed by the privately contracted refuse collection companies outside of peak set down and pick up periods in the carpark. The refuse collection will occur on a weekly basis via a mini rear loader or a single-unit rigid refuse vehicle Junior Truck. A swept path assessment demonstrating refuse truck movement in and out of the site is shown in Appendix F.

Other minor deliveries will be made by vans which, along with any occasional service personnel, will also be able to park in the visitors' parking space outside of peak set-down

and pick-up periods. Infrequent servicing requirements involving larger vehicles (i.e., trucks) will rely on the available kerb space along the site's frontage with Wilder Street.

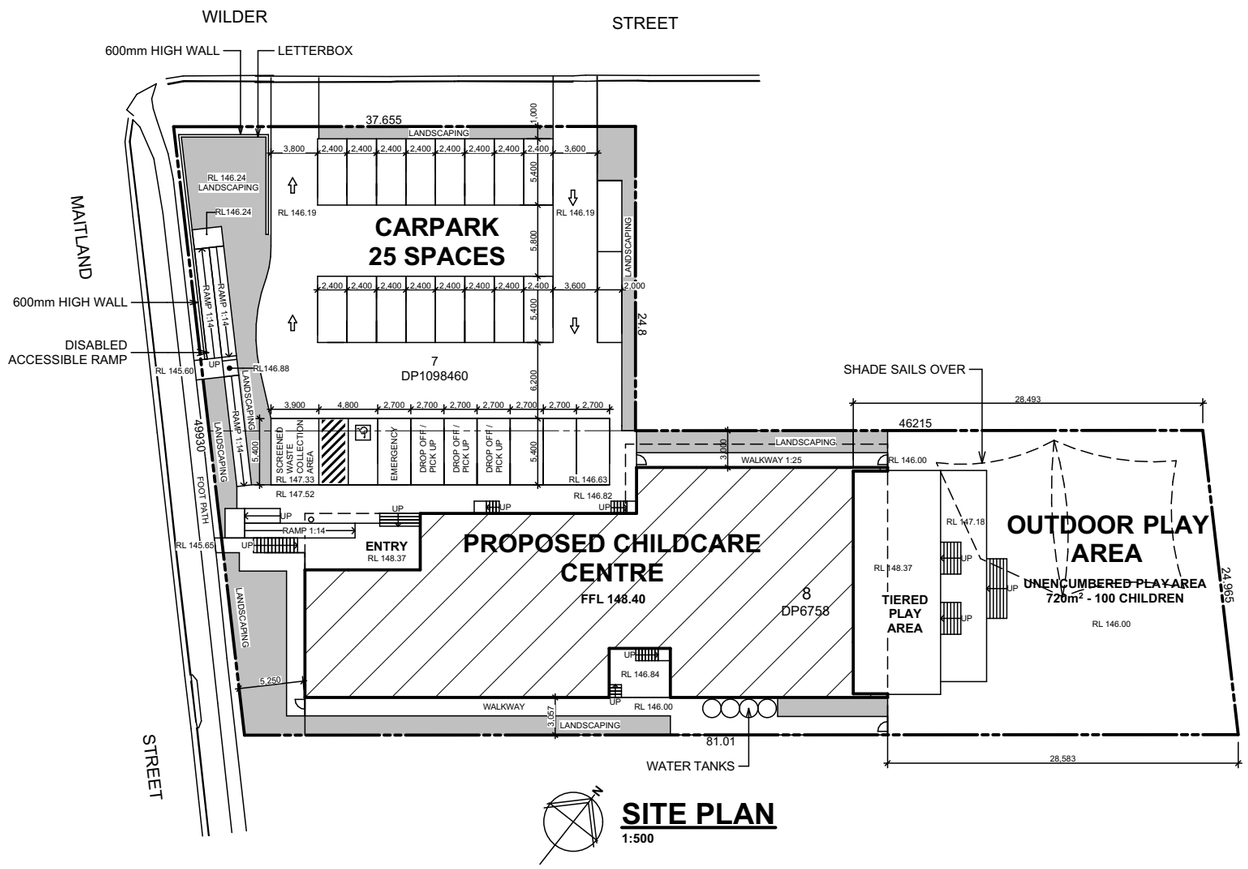
7. Conclusion

The assessment of the traffic and parking impacts of the proposed development has concluded that:

- The traffic generation of the proposed development will be relatively minor and not present any adverse traffic implications
- The proposed parking provision will be quite adequate for the needs of the development and generally consistent with the DCP criteria
- The proposed vehicle access, internal circulation and parking arrangements will be appropriate to the AS2890 design standards.

Appendix A

Architectural Plans



SITE PLAN
1:500

CHILDCARE CENTRE REQUIREMENTS

UP TO 100 CHILD CARE PLACES

STAFF REQUIREMENTS
AGE 0-2YRS 1 EDUCATOR PER 4 CHILDREN
AGE 2-3YRS 1 EDUCATOR PER 5 CHILDREN
AGE 3-5YRS 1 EDUCATOR PER 11 CHILDREN
MORE THAN 80 PLACES - 2 EARLY CHILDHOOD TEACHERS

NOMINAL STAFFING REQUIRED
(Based on formal care attendance statistics (ABS 2018)

AGE 0-2YRS - 20 CHILDREN (4@0-1YRS, 16@1-2YRS) - 5 EDUCATORS
AGE 2-3YRS - 25 CHILDREN - 5 EDUCATORS
AGE 3+YRS - 55 CHILDREN (25@3-4YRS, 18@4-5YRS, 12@5-6YRS) - 5 EDUCATORS
EARLY CHILDHOOD TEACHERS - 2 TEACHERS

TOTAL STAFF REQ'D - 17

PARKING REQUIREMENTS
1 SPACE PER STAFF MEMBER
1 SPACE PER 15 CHILDREN
1 DISABLED ACCESIBLE SPACE
1 EMERGENCY SPACE
3 SETDOWN SPACES

STAFF PARKING SPACES - 17
CHILDREN & SETDOWN SPACES - 7
DISABLED ACCESIBLE SPACES - 1
EMERGENCY SPACES - 1

TOTAL REQUIRED - 26
TOTAL PROVIDED - 25

INDOOR PLAY AREA REQUIREMENTS
3.25m² PER CHILD

TOTAL REQUIRED - 325.0m²
TOTAL PROVIDED - 337.0m²

OUTDOOR PLAY AREA REQUIREMENTS
7.00m² PER CHILD

TOTAL REQUIRED - 700.0m²
TOTAL PROVIDED - 720.0m²

INDOOR STORAGE VOLUME RECOMMENDED
0.2m³ PER CHILD

TOTAL RECOMMENDED - 20.0m³
TOTAL PROVIDED - 29.6m³

OUTDOOR STORAGE VOLUME RECOMMENDED
0.3m³ PER CHILD

TOTAL RECOMMENDED - 30.0m³
TOTAL PROVIDED - 31.5m³

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PROJECT: **PROPOSED CHILDCARE CENTRE AT 36-38 MAITLAND ROAD MUSWELLBROOK**
CLIENT: **MAHAJAN**
TITLE: **SITE PLAN**
FILE: **2103338** DATE: **12/10/2022** SHEET: **1** OF **4**

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CLIENT: **MAHAJAN**

TITLE: **EXISTING SITE SURVEY**

FILE: **2103338** DATE: **12/10/2022** SHEET: **2 OF 4**

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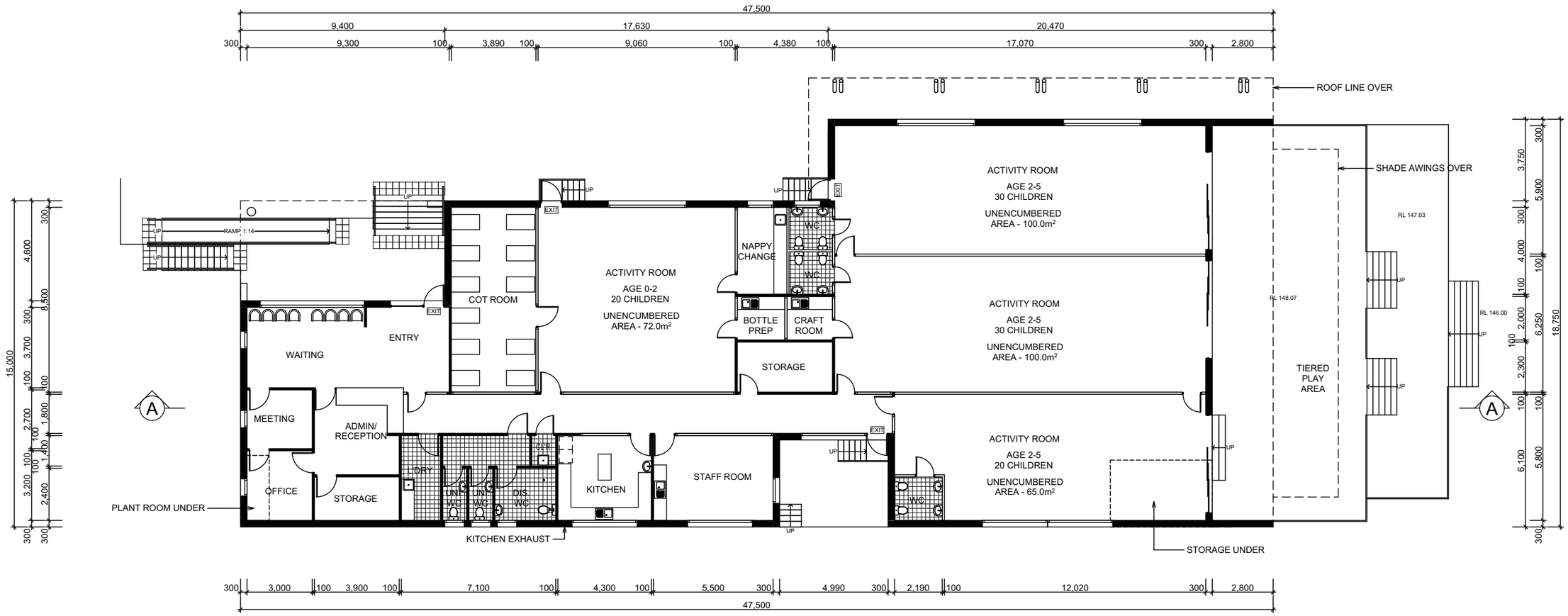
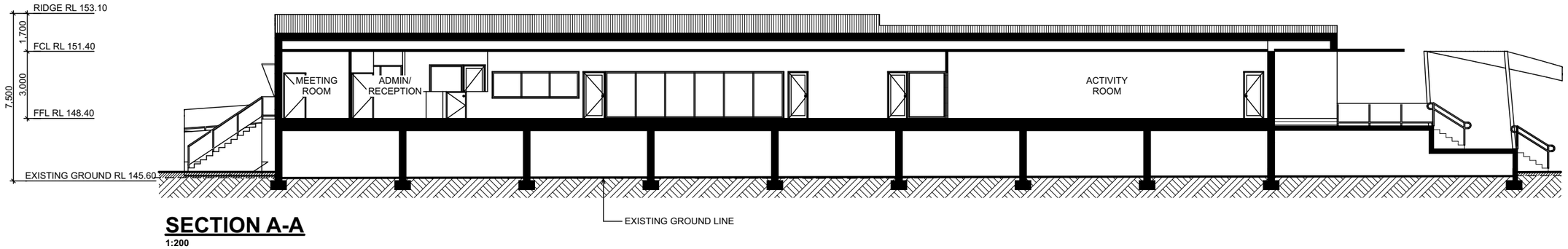


PROPOSED FLOOR PLAN

1:200



SECTION A-A

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PROJECT: **PROPOSED CHILDCARE CENTRE AT 36-38 MAITLAND ROAD MUSWELLBROOK**

CLIENT: **MAHAJAN**

TITLE: **FLOOR PLAN & SECTION**

FILE: **2103338** DATE: **12/10/2022** SHEET: **3** OF **4**

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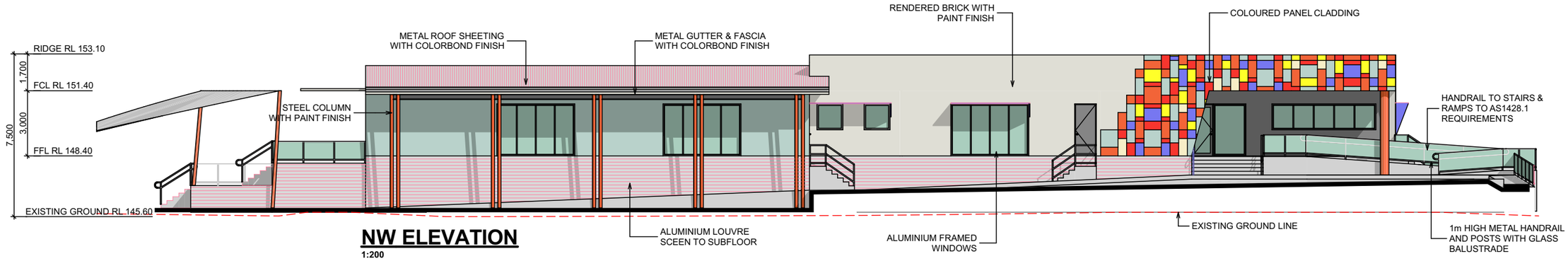
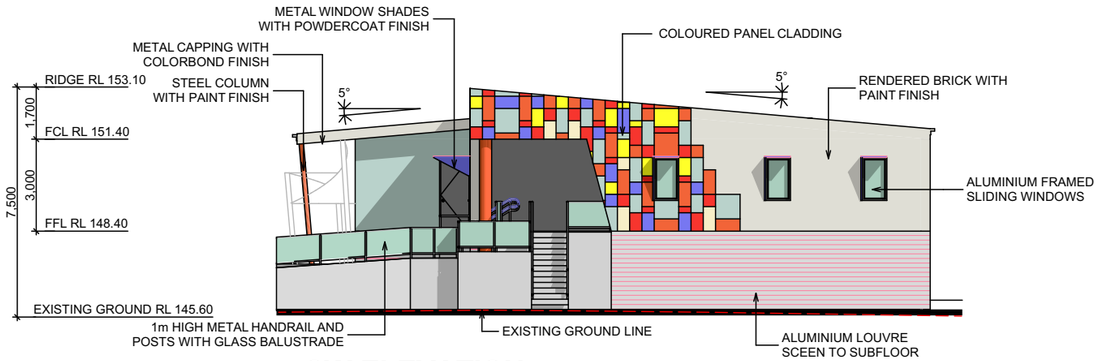
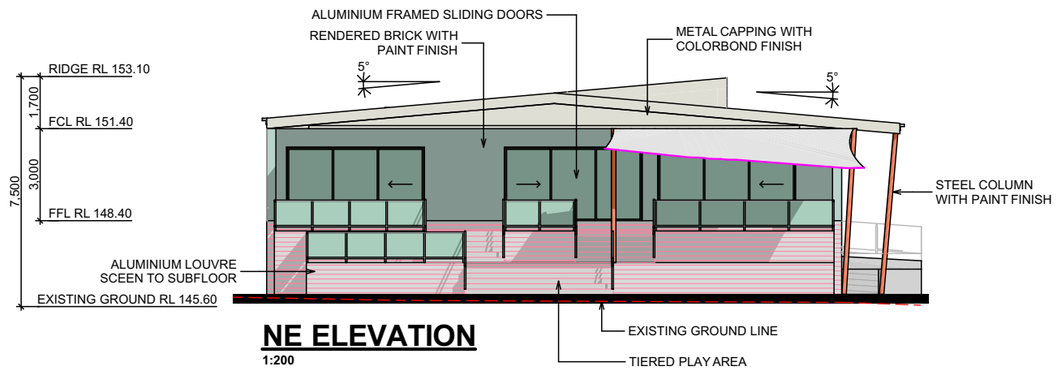


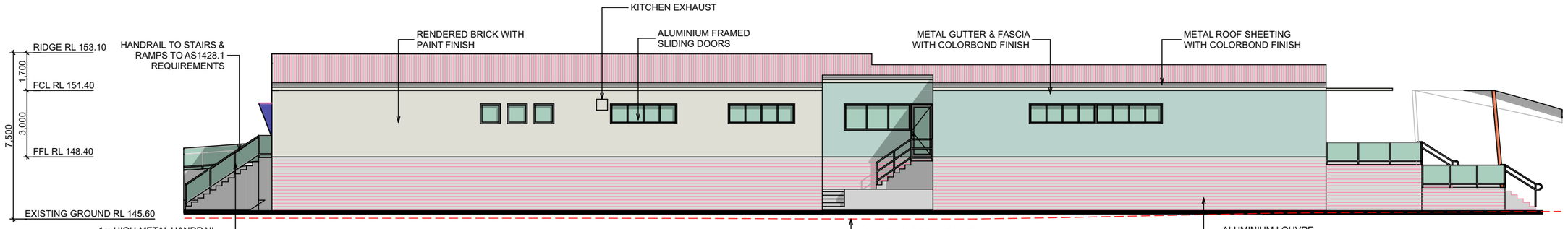
NW ELEVATION
1:200



SW ELEVATION
1:200



NE ELEVATION
1:200



SE ELEVATION
1:200

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PROJECT: **PROPOSED CHILDCARE CENTRE AT 36-38 MAITLAND ROAD MUSWELLBROOK**

CLIENT: **MAHAJAN**

TITLE: **ELEVATIONS**

FILE: **2103338** DATE: **12/10/2022** SHEET: **4** OF **4**

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Appendix B

Traffic Counts

TURNING MOVEMENT SURVEY

Intersection of Wilder St and New England Hwy, Muswellbrook

GPS -32.271298, 150.889598

Date:	Tue 17/01/23
Weather:	Fine
Suburban:	Muswellbrook
Customer:	TTPS

North:	New England Hwy
East:	Wilder St
South:	Maitland St
West:	Francis St

Survey Period	AM:	6:30 AM-9:30 AM
	PM:	3:00 PM-6:00 PM
Traffic Peak	AM:	8:30 AM-9:30 AM
	PM:	4:30 PM-5:30 PM

All Vehicles

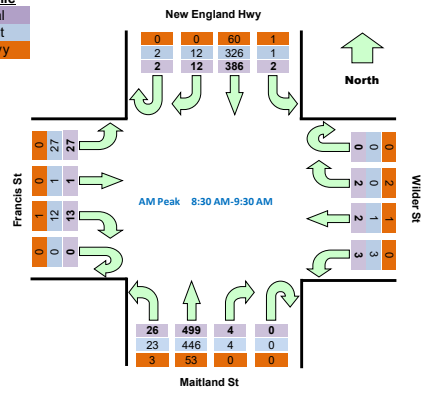
Time		North Approach New England Hwy				East Approach Wilder St				South Approach Maitland St				West Approach Francis St				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
6:30	6:45	0	3	50	1	0	2	0	2	0	0	99	0	0	1	0	7	673	
6:45	7:00	1	2	65	2	1	0	0	0	0	0	85	1	0	2	0	4	689	
7:00	7:15	0	2	65	0	0	1	0	1	0	0	80	7	0	2	0	7	723	
7:15	7:30	0	0	93	0	0	3	0	3	0	0	74	1	0	0	0	6	768	
7:30	7:45	2	3	51	0	0	0	0	0	0	0	114	5	0	1	0	5	836	
7:45	8:00	1	2	73	0	0	1	0	0	0	0	104	3	0	3	0	10	890	
8:00	8:15	0	7	67	0	0	1	0	1	0	1	118	3	0	3	0	9	949	
8:15	8:30	0	3	97	0	0	1	0	1	0	0	125	5	0	6	0	10	978	
8:30	8:45	1	5	87	1	0	1	0	0	0	2	118	9	0	4	0	7	979	Peak
8:45	9:00	1	3	88	0	0	0	1	1	0	2	143	8	0	2	0	7		
9:00	9:15	0	2	103	1	0	0	1	1	0	0	118	3	0	5	0	5		
9:15	9:30	0	2	108	0	0	1	0	1	0	0	120	6	0	2	1	8		
15:00	15:15	0	10	123	2	0	0	0	1	0	1	129	1	0	3	0	7	1169	
15:15	15:30	3	8	125	0	0	0	0	0	0	0	144	9	0	6	0	7	1178	
15:30	15:45	2	11	118	3	0	0	0	1	0	1	143	4	0	4	0	4	1160	
15:45	16:00	1	6	126	2	0	0	0	0	0	0	149	6	0	3	0	6	1201	
16:00	16:15	2	12	126	0	0	1	1	1	0	1	120	8	0	3	0	11	1223	
16:15	16:30	0	8	119	0	0	1	0	2	0	1	135	6	0	2	0	10	1247	
16:30	16:45	0	9	133	2	0	0	0	4	0	1	164	6	0	4	0	9	1255	Peak
16:45	17:00	1	9	129	0	0	0	0	0	0	2	149	5	0	7	0	19	1208	
17:00	17:15	1	11	123	1	0	4	0	1	0	1	146	9	0	2	0	11	1140	
17:15	17:30	2	11	124	0	0	1	0	0	0	0	132	11	0	3	0	8		
17:30	17:45	0	9	119	0	0	0	0	4	0	2	128	4	0	4	1	14		
17:45	18:00	0	17	80	0	0	2	0	0	0	0	140	3	0	2	0	9		

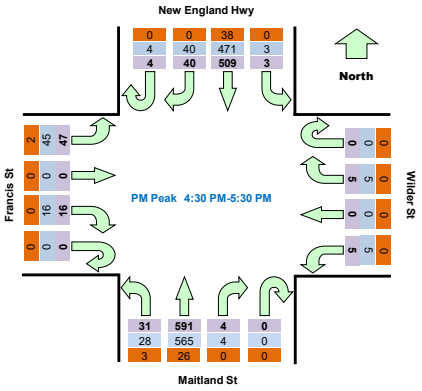
Peak Time		North Approach New England Hwy				East Approach Wilder St				South Approach Maitland St				West Approach Francis St				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
8:30	9:30	2	12	386	2	0	2	2	3	0	4	499	26	0	13	1	27	979
16:30	17:30	4	40	509	3	0	5	0	5	0	4	591	31	0	16	0	47	1255

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy





Light Vehicles

Time		North Approach New England Hwy				East Approach Wilder St				South Approach Maitland St				West Approach Francis St			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
6:30	6:45	0	3	46	1	0	2	0	2	0	0	86	0	0	1	0	7
6:45	7:00	1	2	60	0	0	0	0	0	0	0	67	1	0	2	0	3
7:00	7:15	0	2	59	0	0	1	0	1	0	0	71	7	0	2	0	7
7:15	7:30	0	0	77	0	0	3	0	1	0	0	68	1	0	0	0	6
7:30	7:45	2	3	44	0	0	0	0	0	0	0	102	5	0	1	0	5
7:45	8:00	1	2	62	0	0	1	0	0	0	0	89	3	0	3	0	10
8:00	8:15	0	7	52	0	0	1	0	1	0	0	102	3	0	3	0	9
8:15	8:30	0	3	87	0	0	1	0	1	0	0	118	5	0	6	0	10
8:30	8:45	1	5	75	0	0	0	0	0	0	2	108	7	0	3	0	7
8:45	9:00	1	3	75	0	0	0	0	1	0	2	132	7	0	2	0	7
9:00	9:15	0	2	92	1	0	0	1	1	0	0	100	3	0	5	0	5
9:15	9:30	0	2	84	0	0	0	0	1	0	0	106	6	0	2	1	8
15:00	15:15	0	10	118	2	0	0	0	1	0	1	121	1	0	3	0	7
15:15	15:30	3	8	112	0	0	0	0	0	0	0	132	9	0	6	0	7
15:30	15:45	2	11	109	3	0	0	0	1	0	1	130	4	0	4	0	4
15:45	16:00	1	6	112	2	0	0	0	0	0	0	129	6	0	3	0	6
16:00	16:15	2	11	110	0	0	1	1	1	0	1	114	8	0	3	0	11
16:15	16:30	0	8	108	0	0	1	0	2	0	1	121	6	0	2	0	10
16:30	16:45	0	9	124	2	0	0	0	4	0	1	153	6	0	4	0	9
16:45	17:00	1	9	119	0	0	0	0	0	0	2	143	4	0	7	0	19
17:00	17:15	1	11	113	1	0	4	0	1	0	1	139	8	0	2	0	9
17:15	17:30	2	11	115	0	0	1	0	0	0	0	130	10	0	3	0	8
17:30	17:45	0	9	105	0	0	0	0	4	0	2	121	4	0	4	1	14
17:45	18:00	0	17	74	0	0	2	0	0	0	0	132	3	0	2	0	9

Peak Time		North Approach New England Hwy				East Approach Wilder St				South Approach Maitland St				West Approach Francis St				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
8:30	9:30	2	12	326	1	0	0	1	3	0	4	446	23	0	12	1	27	858
16:30	17:30	4	40	471	3	0	5	0	5	0	4	565	28	0	16	0	45	1186

Heavy Vehicles

Time		North Approach New England Hwy				East Approach Wilder St				South Approach Maitland St				West Approach Francis St			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
6:30	6:45	0	0	4	0	0	0	0	0	0	0	13	0	0	0	0	0
6:45	7:00	0	0	5	2	1	0	0	0	0	0	18	0	0	0	0	1
7:00	7:15	0	0	6	0	0	0	0	0	0	0	9	0	0	0	0	0
7:15	7:30	0	0	16	0	0	0	0	2	0	0	6	0	0	0	0	0
7:30	7:45	0	0	7	0	0	0	0	0	0	0	12	0	0	0	0	0
7:45	8:00	0	0	11	0	0	0	0	0	0	0	15	0	0	0	0	0
8:00	8:15	0	0	15	0	0	0	0	0	0	1	16	0	0	0	0	0
8:15	8:30	0	0	10	0	0	0	0	0	0	0	7	0	0	0	0	0
8:30	8:45	0	0	12	1	0	1	0	0	0	0	10	2	0	1	0	0
8:45	9:00	0	0	13	0	0	0	1	0	0	0	11	1	0	0	0	0
9:00	9:15	0	0	11	0	0	0	0	0	0	0	18	0	0	0	0	0
9:15	9:30	0	0	24	0	0	1	0	0	0	0	14	0	0	0	0	0
15:00	15:15	0	0	5	0	0	0	0	0	0	0	8	0	0	0	0	0
15:15	15:30	0	0	13	0	0	0	0	0	0	0	12	0	0	0	0	0
15:30	15:45	0	0	9	0	0	0	0	0	0	0	13	0	0	0	0	0
15:45	16:00	0	0	14	0	0	0	0	0	0	0	20	0	0	0	0	0
16:00	16:15	0	1	16	0	0	0	0	0	0	0	6	0	0	0	0	0
16:15	16:30	0	0	11	0	0	0	0	0	0	0	14	0	0	0	0	0
16:30	16:45	0	0	9	0	0	0	0	0	0	0	11	0	0	0	0	0
16:45	17:00	0	0	10	0	0	0	0	0	0	0	6	1	0	0	0	0
17:00	17:15	0	0	10	0	0	0	0	0	0	0	7	1	0	0	0	2
17:15	17:30	0	0	9	0	0	0	0	0	0	0	2	1	0	0	0	0
17:30	17:45	0	0	14	0	0	0	0	0	0	0	7	0	0	0	0	0
17:45	18:00	0	0	6	0	0	0	0	0	0	0	8	0	0	0	0	0

Peak Time		North Approach New England Hwy				East Approach Wilder St				South Approach Maitland St				West Approach Francis St				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
8:30	9:30	0	0	60	1	0	2	1	0	0	0	53	3	0	1	0	0	121
16:30	17:30	0	0	38	0	0	0	0	0	0	0	26	3	0	0	0	2	69

Appendix C

SIDRA Modelling Results

MOVEMENT SUMMARY

Site: 101 [EXISTING - AM PEAK (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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: Mailtand Street														
2	T1	499	53	525	10.6	0.188	2.4	LOS A	0.7	5.2	0.03	0.35	0.03	38.0
3	R2	4	0	4	0.0	0.188	5.6	LOS A	0.7	5.2	0.02	0.35	0.02	38.6
Approach		503	53	529	10.5	0.188	2.4	LOS A	0.7	5.2	0.03	0.35	0.03	38.0
East: Wilder Street														
4	L2	3	0	3	0.0	0.004	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	37.9
6	R2	3	2	3	66.7	0.004	3.8	LOS A	0.0	0.0	0.00	0.45	0.00	37.5
Approach		6	2	6	33.3	0.004	3.6	NA	0.0	0.0	0.00	0.45	0.00	37.7
North: Maitland Street														
7	L2	2	1	2	50.0	0.184	3.7	LOS A	0.7	5.3	0.30	0.45	0.30	37.4
8	T1	386	60	406	15.5	0.184	3.5	LOS A	0.7	5.3	0.30	0.45	0.30	36.9
Approach		388	61	408	15.7	0.184	3.5	LOS A	0.7	5.3	0.30	0.45	0.30	36.9
All Vehicles		897	116	944	12.9	0.188	2.9	NA	0.7	5.3	0.15	0.39	0.15	37.5

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 [EXISTING - PM PEAK (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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: Mailtand Street														
2	T1	591	26	622	4.4	0.216	2.3	LOS A	0.8	5.9	0.03	0.35	0.03	38.1
3	R2	4	0	4	0.0	0.216	6.5	LOS A	0.8	5.9	0.03	0.35	0.03	38.6
Approach		595	26	626	4.4	0.216	2.4	LOS A	0.8	5.9	0.03	0.35	0.03	38.1
East: Wilder Street														
4	L2	3	2	3	66.7	0.005	3.8	LOS A	0.0	0.0	0.00	0.45	0.00	37.6
6	R2	5	0	5	0.0	0.005	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	37.9
Approach		8	2	8	25.0	0.005	3.5	NA	0.0	0.0	0.00	0.45	0.00	37.8
North: Maitland Street														
7	L2	3	0	3	0.0	0.240	3.4	LOS A	0.9	6.8	0.33	0.47	0.33	37.6
8	T1	509	38	536	7.5	0.240	3.6	LOS A	0.9	6.8	0.33	0.48	0.33	36.8
Approach		512	38	539	7.4	0.240	3.6	LOS A	0.9	6.8	0.33	0.48	0.33	36.8
All Vehicles		1115	66	1174	5.9	0.240	3.0	NA	0.9	6.8	0.17	0.41	0.17	37.5

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 [POST DEVELOPMENT - AM PEAK (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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: Mailtand Street														
2	T1	499	53	525	10.6	0.202	2.5	LOS A	0.7	5.7	0.08	0.35	0.08	37.8
3	R2	20	0	21	0.0	0.202	5.9	LOS A	0.7	5.6	0.08	0.36	0.08	38.4
Approach		519	53	546	10.2	0.202	2.6	LOS A	0.7	5.7	0.08	0.35	0.08	37.8
East: Wilder Street														
4	L2	19	0	20	0.0	0.021	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	37.9
6	R2	19	2	20	10.5	0.021	3.5	LOS A	0.0	0.0	0.00	0.45	0.00	37.8
Approach		38	2	40	5.3	0.021	3.4	NA	0.0	0.0	0.00	0.45	0.00	37.9
North: Maitland Street														
7	L2	18	1	19	5.6	0.194	3.4	LOS A	0.7	5.7	0.32	0.45	0.32	37.5
8	T1	386	60	406	15.5	0.194	3.7	LOS A	0.7	5.7	0.32	0.46	0.32	36.8
Approach		404	61	425	15.1	0.194	3.7	LOS A	0.7	5.7	0.32	0.46	0.32	36.8
All Vehicles		961	116	1012	12.1	0.202	3.1	NA	0.7	5.7	0.18	0.40	0.18	37.4

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 [POST DEVELOPMENT - PM PEAK (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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: Mailtand Street														
2	T1	591	26	622	4.4	0.216	2.3	LOS A	0.8	5.9	0.03	0.35	0.03	38.1
3	R2	4	0	4	0.0	0.216	6.5	LOS A	0.8	5.9	0.03	0.35	0.03	38.6
Approach		595	26	626	4.4	0.216	2.4	LOS A	0.8	5.9	0.03	0.35	0.03	38.1
East: Wilder Street														
4	L2	3	2	3	66.7	0.005	3.8	LOS A	0.0	0.0	0.00	0.45	0.00	37.6
6	R2	5	0	5	0.0	0.005	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	37.9
Approach		8	2	8	25.0	0.005	3.5	NA	0.0	0.0	0.00	0.45	0.00	37.8
North: Maitland Street														
7	L2	3	0	3	0.0	0.240	3.4	LOS A	0.9	6.8	0.33	0.47	0.33	37.6
8	T1	509	38	536	7.5	0.240	3.6	LOS A	0.9	6.8	0.33	0.48	0.33	36.8
Approach		512	38	539	7.4	0.240	3.6	LOS A	0.9	6.8	0.33	0.48	0.33	36.8
All Vehicles		1115	66	1174	5.9	0.240	3.0	NA	0.9	6.8	0.17	0.41	0.17	37.5

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 [2033 - AM PEAK - BACKGROUND GROWTH (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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: Mailtand Street														
2	T1	528	56	556	10.6	0.199	2.4	LOS A	0.7	5.6	0.03	0.35	0.03	38.0
3	R2	4	0	4	0.0	0.199	5.8	LOS A	0.7	5.6	0.02	0.35	0.02	38.6
Approach		532	56	560	10.5	0.199	2.4	LOS A	0.7	5.6	0.03	0.35	0.03	38.0
East: Wilder Street														
4	L2	3	0	3	0.0	0.004	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	37.9
6	R2	3	2	3	66.7	0.004	3.8	LOS A	0.0	0.0	0.00	0.45	0.00	37.5
Approach		6	2	6	33.3	0.004	3.6	NA	0.0	0.0	0.00	0.45	0.00	37.7
North: Maitland Street														
7	L2	2	1	2	50.0	0.197	3.7	LOS A	0.7	5.8	0.31	0.46	0.31	37.4
8	T1	408	63	429	15.4	0.197	3.6	LOS A	0.7	5.8	0.31	0.46	0.31	36.8
Approach		410	64	432	15.6	0.197	3.6	LOS A	0.7	5.8	0.31	0.46	0.31	36.8
All Vehicles		948	122	998	12.9	0.199	2.9	NA	0.7	5.8	0.15	0.40	0.15	37.5

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 [2033 - PM PEAK - BACKGROUND GROWTH (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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: Mailtand Street														
2	T1	624	27	657	4.3	0.228	2.3	LOS A	0.9	6.3	0.03	0.35	0.03	38.1
3	R2	4	0	4	0.0	0.228	6.8	LOS A	0.9	6.3	0.03	0.35	0.03	38.6
Approach		628	27	661	4.3	0.228	2.4	LOS A	0.9	6.3	0.03	0.35	0.03	38.1
East: Wilder Street														
4	L2	3	2	3	66.7	0.005	3.8	LOS A	0.0	0.0	0.00	0.45	0.00	37.6
6	R2	5	0	5	0.0	0.005	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	37.9
Approach		8	2	8	25.0	0.005	3.5	NA	0.0	0.0	0.00	0.45	0.00	37.8
North: Maitland Street														
7	L2	3	0	3	0.0	0.257	3.4	LOS A	1.0	7.4	0.35	0.49	0.35	37.5
8	T1	538	40	566	7.4	0.257	3.7	LOS A	1.0	7.4	0.35	0.49	0.35	36.7
Approach		541	40	569	7.4	0.257	3.7	LOS A	1.0	7.4	0.35	0.49	0.35	36.7
All Vehicles		1177	69	1239	5.9	0.257	3.0	NA	1.0	7.4	0.18	0.41	0.18	37.4

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 [2033 - AM PEAK - BACKGROUND GROWTH + DEVELOPMENT (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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: Mailtand Street														
2	T1	528	56	556	10.6	0.213	2.5	LOS A	0.8	6.1	0.08	0.35	0.08	37.8
3	R2	20	0	21	0.0	0.213	6.1	LOS A	0.8	5.9	0.08	0.36	0.08	38.4
Approach		548	56	577	10.2	0.213	2.6	LOS A	0.8	6.1	0.08	0.35	0.08	37.8
East: Wilder Street														
4	L2	19	0	20	0.0	0.021	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	37.9
6	R2	19	2	20	10.5	0.021	3.5	LOS A	0.0	0.0	0.00	0.45	0.00	37.8
Approach		38	2	40	5.3	0.021	3.4	NA	0.0	0.0	0.00	0.45	0.00	37.9
North: Maitland Street														
7	L2	18	1	19	5.6	0.207	3.4	LOS A	0.8	6.2	0.33	0.46	0.33	37.5
8	T1	408	63	429	15.4	0.207	3.8	LOS A	0.8	6.2	0.33	0.47	0.33	36.7
Approach		426	64	448	15.0	0.207	3.8	LOS A	0.8	6.2	0.33	0.47	0.33	36.8
All Vehicles		1012	122	1065	12.1	0.213	3.1	NA	0.8	6.2	0.19	0.41	0.19	37.4

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 [2033 - PM PEAK - BACKGROUND GROWTH + DEVELOPMENT (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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: Mailtand Street														
2	T1	624	27	657	4.3	0.239	2.4	LOS A	0.9	6.7	0.07	0.35	0.07	37.9
3	R2	15	0	16	0.0	0.239	7.1	LOS A	0.9	6.6	0.06	0.35	0.06	38.5
Approach		639	27	673	4.2	0.239	2.5	LOS A	0.9	6.7	0.07	0.35	0.07	37.9
East: Wilder Street														
4	L2	14	2	15	14.3	0.016	3.5	LOS A	0.0	0.0	0.00	0.45	0.00	37.9
6	R2	16	0	17	0.0	0.016	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	37.9
Approach		30	2	32	6.7	0.016	3.4	NA	0.0	0.0	0.00	0.45	0.00	37.9
North: Maitland Street														
7	L2	14	0	15	0.0	0.265	3.4	LOS A	1.0	7.7	0.36	0.49	0.36	37.5
8	T1	538	40	566	7.4	0.265	3.9	LOS A	1.0	7.7	0.36	0.50	0.36	36.7
Approach		552	40	581	7.2	0.265	3.9	LOS A	1.0	7.7	0.36	0.50	0.36	36.7
All Vehicles		1221	69	1285	5.7	0.265	3.1	NA	1.0	7.7	0.20	0.42	0.20	37.3

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.
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.

Appendix D

Public Transport Services

411 Muswellbrook to Sydney St (Loop Service)

How to use this timetable

This timetable provides a snapshot of service information in 24-hour time (e.g. 5am = 05:00, 5pm = 17:00). Information contained in this timetable is subject to change without notice. Please note that timetables do not include minor stops, additional trips for special events, short term changes, holiday timetable changes, real-time information or any disruption alerts.

For the most up-to-date times, use the Trip Planner or Departures at **transportnsw.info**

Trip planning

You can plan your trip using the Trip Planner or Departures at **transportnsw.info** or by downloading travel apps on your smartphone or tablet.

The Trip Planner, Departures and travel apps offer various features:

- favourite your regular trips
- get estimated pick-up and arrival times
- receive service updates
- find nearby stations, stops, wharves and routes
- check accessibility information.

Find the latest apps at **transportnsw.info/apps**

Accessible services

All new buses are wheelchair-accessible with low-level floors and space for wheelchairs, prams or strollers. Look for the ♿ symbol in this timetable. Some older buses may not have all the features you need. There will be more accessible services as older buses are replaced.

Who is providing my bus services?

The bus services shown in this timetable are run by Osborn Bus Service.

Fares

Contact Osborn Bus Service for ticket options. You cannot use Opal on this service.

Explanation of definitions and symbols

♿ Wheelchair Accessible

NSW GOVERNMENT | Transport

411 Muswellbrook to Sydney St (Loop Service)

Valid from: 26 Aug 2022

Creation date: 25 Jan 2023
NOTE: Information is correct on date of download.

Monday to Friday	♿	♿	♿	♿	♿	♿
Osborn Bus Depot, Maitland St, Muswellbrook	09:10	-	-	-	13:05	-
Brentwood St opp Muswellbrook Hospital, Muswellbrook	–	10:32	11:59	12:36	–	13:36
Brook St before Bridge St, Muswellbrook	–	10:35	12:00	12:38	13:10	13:40
Muswellbrook Station	–	10:39	12:04	–	13:15	13:44
Sydney St after Maitland St, Muswellbrook	09:12	10:42	12:07	–	-	13:46
Hunter Park, Wollombi Rd, Muswellbrook	09:15	10:45	12:10	–	-	13:48
Tobruk Ave, Muswellbrook	09:20	10:49	12:15	–	-	13:52
Nowland St at Skellatar St , Muswellbrook	09:25	10:54	12:17	–	-	13:58
Lorne St at Maitland St , Muswellbrook	09:28	10:57	-	–	-	14:01
Muswellbrook Station	09:32	10:59	-	–	-	14:04
Brook Medical Centre, Brook St, Muswellbrook	09:35	11:02	-	12:41	-	14:06
Muswellbrook Hospital, Brentwood St, Muswellbrook	09:37	11:05	-	12:44	-	14:08

Saturday	♿	♿	♿	♿
Osborn Bus Depot, Maitland St, Muswellbrook	09:10	-	-	-
Brentwood St opp Muswellbrook Hospital, Muswellbrook	–	10:32	11:59	12:36
Brook St before Bridge St, Muswellbrook	–	10:35	12:00	12:38
Muswellbrook Station	–	10:39	12:04	–
Sydney St after Maitland St, Muswellbrook	09:12	10:42	12:07	–
Hunter Park, Wollombi Rd, Muswellbrook	09:15	10:45	12:10	–
Tobruk Ave, Muswellbrook	09:20	10:49	12:15	–
Nowland St at Skellatar St , Muswellbrook	09:25	10:54	12:17	–
Lorne St at Maitland St , Muswellbrook	09:28	10:57	-	–
Muswellbrook Station	09:32	10:59	-	–
Brook Medical Centre, Brook St, Muswellbrook	09:35	11:02	-	12:41
Muswellbrook Hospital, Brentwood St, Muswellbrook	09:37	11:05	-	12:44

412 Muswellbrook to Muswellbrook North (Loop Service)

How to use this timetable

This timetable provides a snapshot of service information in 24-hour time (e.g. 5am = 05:00, 5pm = 17:00). Information contained in this timetable is subject to change without notice. Please note that timetables do not include minor stops, additional trips for special events, short term changes, holiday timetable changes, real-time information or any disruption alerts.

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- check accessibility information.

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Accessible services

All new buses are wheelchair-accessible with low-level floors and space for wheelchairs, prams or strollers. Look for the ♿ symbol in this timetable. Some older buses may not have all the features you need. There will be more accessible services as older buses are replaced.

Who is providing my bus services?

The bus services shown in this timetable are run by Osborn Bus Service.

Fares

Contact Osborn Bus Service for ticket options. You cannot use Opal on this service.

Explanation of definitions and symbols

♿ Wheelchair Accessible

NSW GOVERNMENT | Transport

412 Muswellbrook to Muswellbrook North (Loop Service)

Valid from: 26 Aug 2022

Creation date: 25 Jan 2023
NOTE: Information is correct on date of download.

Monday to Friday	♿	♿	♿	♿
Brook Medical Centre, Brook St, Muswellbrook	09:35	11:02	12:41	14:06
Muswellbrook Hospital, Brentwood St, Muswellbrook	09:37	11:05	12:44	14:08
Queen St at Lexia St, Muswellbrook	09:44	11:11	12:46	14:14
Bligh St at Hastings St, Muswellbrook	09:50	11:16	12:53	14:20
Barrington St at Cousins St, Muswellbrook	09:53	11:20	12:55	14:22
Wilkins St at Ford St, Muswellbrook	09:57	11:24	13:04	14:26
Brook St before Bridge St, Muswellbrook	10:05	11:31	–	14:30
Muswellbrook Station	10:08	11:36	–	14:35
Osborn Bus Depot, Maitland St, Muswellbrook	–	–	13:10	–
Tobruk Ave, Muswellbrook	–	–	–	14:37
Nowland St at Skellatar St , Muswellbrook	10:13	11:39	13:18	14:38

Saturday	♿	♿	♿
Brook Medical Centre, Brook St, Muswellbrook	09:35	11:02	12:41
Muswellbrook Hospital, Brentwood St, Muswellbrook	09:37	11:05	12:44
Queen St at Lexia St, Muswellbrook	09:44	11:11	12:46
Bligh St at Hastings St, Muswellbrook	09:50	11:16	12:53
Barrington St at Cousins St, Muswellbrook	09:53	11:20	12:55
Wilkins St at Ford St, Muswellbrook	09:57	11:24	13:04
Brook St before Bridge St, Muswellbrook	10:05	11:31	–
Muswellbrook Station	10:08	11:36	–
Osborn Bus Depot, Maitland St, Muswellbrook	–	–	13:10
Nowland St at Skellatar St , Muswellbrook	10:13	11:39	-

414 Muswellbrook to Scone via Aberdeen (Loop Service)

How to use this timetable

This timetable provides a snapshot of service information in 24-hour time (e.g. 5am = 05:00, 5pm = 17:00). Information contained in this timetable is subject to change without notice. Please note that timetables do not include minor stops, additional trips for special events, short term changes, holiday timetable changes, real-time information or any disruption alerts.

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Accessible services

All new buses are wheelchair-accessible with low-level floors and space for wheelchairs, prams or strollers. Look for the ♿ symbol in this timetable. Some older buses may not have all the features you need. There will be more accessible services as older buses are replaced.

Who is providing my bus services?

The bus services shown in this timetable are run by Osborn Bus Service.

Fares

Contact Osborn Bus Service for ticket options. You cannot use Opal on this service.

Explanation of definitions and symbols

♿	Wheelchair Accessible
S	School Days only
H	School Holidays only

NSW GOVERNMENT | Transport

414 Muswellbrook to Scone via Aberdeen (Loop Service)

Valid from: 26 Aug 2022

Creation date: 25 Jan 2023
NOTE: Information is correct on date of download.

Monday to Friday	♿	♿	♿	♿	♿	♿
Day Restrictions		**S**		**S**	**H**	
Osborn Bus Depot, Maitland St, Muswellbrook	06:50	-	10:45	-	-	16:35
Muswellbrook Station	–	08:20	10:50	14:30	15:25	16:38
Muswellbrook Hospital, Brentwood St, Muswellbrook	–	–	10:54	–	–	–
Royal Hotel, Bridge St, Muswellbrook	06:52	–	–	–	–	–
Brook St before Bridge St, Muswellbrook	–	–	10:57	–	15:30	16:45
Aberdeen Valley Fair, Macqueen St, Aberdeen	–	–	11:07	–	–	–
Aberdeen Station	07:02	–	11:08	14:41	15:40	16:57
Satur Rd opp Sheedy Park, Scone	07:17	–	–	–	–	17:14
Stafford St opp Scott Memorial Hospital, Scone	–	–	11:20	–	15:55	–
Scone High School, Gundy Rd, Scone	–	08:57	–	–	–	–
Airlie House Motor Inn, Kelly St, Scone	–	–	–	14:53	–	–
Liverpool St at Kelly St, Scone	07:25	–	11:25	–	15:58	17:24
Aberdeen Station	07:36	09:08	11:36	–	16:13	17:36
Aberdeen Valley Fair, Macqueen St, Aberdeen	–	–	11:40	–	–	–
Brook Medical Centre, Brook St, Muswellbrook	07:50	–	11:50	–	16:25	–
Muswellbrook Hospital, Brentwood St, Muswellbrook	–	–	11:52	–	–	–
Muswellbrook Station	–	09:18	11:56	15:42	–	17:49
Muswellbrook TAFE, Maitland St, Muswellbrook	08:00	-	–	-	–	–
Osborn Bus Depot, Maitland St, Muswellbrook	08:01	-	12:58	-	16:30	17:55

415 Muswellbrook to Denman (Loop Service)

How to use this timetable

This timetable provides a snapshot of service information in 24-hour time (e.g. 5am = 05:00, 5pm = 17:00). Information contained in this timetable is subject to change without notice. Please note that timetables do not include minor stops, additional trips for special events, short term changes, holiday timetable changes, real-time information or any disruption alerts.

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- receive service updates
- find nearby stations, stops, wharves and routes
- check accessibility information.

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Accessible services

All new buses are wheelchair-accessible with low-level floors and space for wheelchairs, prams or strollers. Look for the ♿ symbol in this timetable. Some older buses may not have all the features you need. There will be more accessible services as older buses are replaced.

Who is providing my bus services?

The bus services shown in this timetable are run by Osborn Bus Service.

Fares

Contact Osborn Bus Service for ticket options. You cannot use Opal on this service.

Explanation of definitions and symbols

♿ Wheelchair Accessible

NSW GOVERNMENT | Transport

415 Muswellbrook to Denman (Loop Service)

Valid from: 26 Aug 2022

Creation date: 25 Jan 2023
NOTE: Information is correct on date of download.

Monday to Friday	♿	♿	♿
Osborn Bus Depot, Maitland St, Muswellbrook	08:03	-	14:13
Muswellbrook Station	08:05	-	–
Muswellbrook Fair, Rutherford Rd, Muswellbrook	–	-	14:15
Brook Medical Centre, Brook St, Muswellbrook	–	11:50	–
Muswellbrook Hospital, Brentwood St, Muswellbrook	–	11:52	14:21
Brook St before Bridge St, Muswellbrook	–	–	14:27
Muswellbrook Station	–	11:56	14:31
Denman Public School, Paxton St, Denman	08:30	12:20	–
St Joseph's Primary School, Paxton St, Denman	08:35	–	–
Denman Caravan Park, Macauley St, Denman	08:38	12:24	–
Denman Information Centre, Palace St, Denman	08:40	12:30	14:50
Denman Caravan Park, Macauley St, Denman	–	–	14:55
Denman Public School, Paxton St, Denman	–	–	15:00
Muswellbrook Station	–	12:50	15:30
Brook Medical Centre, Brook St, Muswellbrook	09:01	–	-
Muswellbrook Hospital, Brentwood St, Muswellbrook	09:03	12:55	-
Brook St before Bridge St, Muswellbrook	–	12:56	-
Muswellbrook Fair, Rutherford Rd, Muswellbrook	09:10	–	-
Osborn Bus Depot, Maitland St, Muswellbrook	09:13	12:58	-

418 Muswellbrook to Eastlinks (Loop Service)

How to use this timetable

This timetable provides a snapshot of service information in 24-hour time (e.g. 5am = 05:00, 5pm = 17:00). Information contained in this timetable is subject to change without notice. Please note that timetables do not include minor stops, additional trips for special events, short term changes, holiday timetable changes, real-time information or any disruption alerts.

For the most up-to-date times, use the Trip Planner or Departures at **transportnsw.info**

Trip planning

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The Trip Planner, Departures and travel apps offer various features:

- favourite your regular trips
- get estimated pick-up and arrival times
- receive service updates
- find nearby stations, stops, wharves and routes
- check accessibility information.

Find the latest apps at **transportnsw.info/apps**

Accessible services

All new buses are wheelchair-accessible with low-level floors and space for wheelchairs, prams or strollers. Look for the ♿ symbol in this timetable. Some older buses may not have all the features you need. There will be more accessible services as older buses are replaced.

Who is providing my bus services?

The bus services shown in this timetable are run by Osborn Bus Service.

Fares

Contact Osborn Bus Service for ticket options. You cannot use Opal on this service.

Explanation of definitions and symbols

♿ Wheelchair Accessible

NSW GOVERNMENT | Transport

418 Muswellbrook to Eastlinks (Loop Service)

Valid from: 26 Aug 2022

Creation date: 25 Jan 2023
NOTE: Information is correct on date of download.

Monday to Friday	♿	♿	♿	♿	♿	♿
Osborn Bus Depot, Maitland St, Muswellbrook	09:20	-	-	-	13:58	-
Muswellbrook Hospital, Brentwood St, Muswellbrook	–	10:11	11:11	12:11	–	14:20
Brook St before Bridge St, Muswellbrook	–	10:13	11:13	12:13	–	14:22
Muswellbrook Station	–	10:17	11:17	12:17	–	14:24
Bimbadeen Dr after New England Hwy, Muswellbrook	09:23	10:23	11:23	–	–	14:28
Henry Dangar Dr after Day St, Muswellbrook	09:25	10:25	11:25	–	–	14:30
Jeans St at Lynch St, Muswellbrook	09:27	10:27	11:27	–	–	14:32
John Howe Cct opp Jenkins St, Muswellbrook	09:31	10:31	11:31	–	–	14:35
Bloodwood Rd at Acacia Dr, Muswellbrook	09:33	10:33	11:33	–	–	14:37
Ironbark Rd at Edinglassie Dr, Muswellbrook	09:37	10:37	11:37	–	–	14:41
Ironbark Rd opp Jillaroo Way, Muswellbrook	09:41	10:41	11:41	–	–	14:45
Calgaroo Av at Woollybutt Way, Muswellbrook	09:44	10:44	11:44	–	–	14:48
Woollybutt Way before Rutherford Rd, Muswellbrook	09:45	10:45	11:45	–	–	14:49
Muswellbrook Station	09:50	10:50	11:50	–	–	–
Brook Medical Centre, Brook St, Muswellbrook	09:54	10:54	11:54	–	14:03	–
Muswellbrook Hospital, Brentwood St, Muswellbrook	09:56	10:56	11:56	–	14:07	–
Osborn Bus Depot, Maitland St, Muswellbrook	-	-	-	12:21	-	14:56

Saturday	♿	♿	♿	♿
Osborn Bus Depot, Maitland St, Muswellbrook	09:20	-	-	-
Muswellbrook Hospital, Brentwood St, Muswellbrook	–	10:11	11:11	12:11
Brook St before Bridge St, Muswellbrook	–	10:13	11:13	12:13
Muswellbrook Station	–	10:17	11:17	12:17
Bimbadeen Dr after New England Hwy, Muswellbrook	09:23	10:23	11:23	–
Henry Dangar Dr after Day St, Muswellbrook	09:25	10:25	11:25	–
Jeans St at Lynch St, Muswellbrook	09:27	10:27	11:27	–
John Howe Cct opp Jenkins St, Muswellbrook	09:31	10:31	11:31	–
Bloodwood Rd at Acacia Dr, Muswellbrook	09:33	10:33	11:33	–
Ironbark Rd at Edinglassie Dr, Muswellbrook	09:37	10:37	11:37	–
Ironbark Rd opp Jillaroo Way, Muswellbrook	09:41	10:41	11:41	–
Calgaroo Av at Woollybutt Way, Muswellbrook	09:44	10:44	11:44	–
Woollybutt Way before Rutherford Rd, Muswellbrook	09:45	10:45	11:45	–
Muswellbrook Station	09:50	10:50	11:50	–
Brook Medical Centre, Brook St, Muswellbrook	09:54	10:54	11:54	–
Muswellbrook Hospital, Brentwood St, Muswellbrook	09:58	10:58	11:58	–
Osborn Bus Depot, Maitland St, Muswellbrook	-	-	-	12:21

Appendix E

TfNSW Child Care Study Results

Table 2.1 Details of the selected survey sites and summary of the survey results.

	Sydney Sites												Regional Sites	
Site ID	**Site S1**	**Site S2**	**Site S3**	**Site S4**	**Site S5**	**Site S6**	**Site S7**	**Site S8**	**Site S9**	**Site S10**	**Site S11**	**Site S12**	**Site R1**	**Site R2**
Name of the development	Wattle Grove Long Day Care Centre	Acre Woods Childcare	Billy Kids Bilgola Early Learning Centre	Acre Woods Childcare	Hilda Booler Kindergarten	KU Maybanke Preschool	Wattle Grove Public School Out of School Hours Care	Kegworth Out of School Hours Care	YMCA Malabar Out of School Hours Care	Duffy's Corner Occasional Child Care Centre	Redfern Occasional Care	Balmain/Rozelle Occasional Care	Nords Wharf Community Pre School	WOOSH Care
Centre type	LDCC	LDCC	LDCC	LDCC	PS	PS	OSHC	OSHC	OSHC	OC	OC	OC	PS	OSHC
Site address	8-10 Burdekin Court, Wattle Grove NSW 2173	22-24 College Street, Gladesville NSW 2111	100 Plateau Road, Bilgola Plateau NSW 2107	81 Clanville Rd, Roseville NSW 2069	Jubilee Park, Eglinton Road, Glebe NSW 2037	99 Harris Street, Pyrmont NSW 2009	Cressbrook Drive, Wattle Grove NSW 2173	Cnr Tebutt St & Lords Road, Leichhardt NSW 2040	231-239 Franklin St, Chifley NSW 2036	419a Beauchamp Road, Maroubra NSW 2035	55 Pitt Street, Redfern NSW 2016	370 Darling Street, Balmain NSW 2041	44 Government Road, Nords Wharf NSW 2281	Woodport Public School Corner Entrance Road and Ernest Street, Erina NSW 2250
Day and date of survey(s)	Mon, 01/06/15	Wed, 03/06/15	Wed, 03/06/15	Wed-Fri, 3-5/06/15 Tue, 09/06/15 Mon, 15/06/15	Thu, 18/06/15	Thu, 25/06/15	Mon, 01/06/15	Mon, 22/06/15	Wed-Thu, 24-25/06/15	Thu, 18/06/15	Thu, 18/06/15	Mon-Tue, 22-23/06/15	Wed, 24/06/15	Thu, 18/06/15
Duration of survey - frontage road	6:30-9:30 14:30-18:00	6:30-9:30 14:30-18:00	6:30-9:30 14:30-18:00	6:30-9:30 14:30-18:00	7:00-10:00 14:00-17:30	7:00-10:00 14:00-17:30	6:30-9:30 14:30-18:00	6:30-9:30 14:30-18:00	6:30-9:30 14:30-18:00	7:00-10:00 14:30-18:00	7:00-10:00 14:30-18:00	7:00-10:00 14:30-18:00	7:00-10:00 14:00-17:30	6:30-9:30 14:30-18:00
Duration of survey - site trip generation	6:30-9:30 14:30-18:00	6:30-9:30 14:30-18:00	6:30-9:30 14:30-18:00	6:30-9:30 14:30-18:00	7:00-10:00 14:00-17:30	7:00-10:00 14:00-17:30	6:30-9:30 14:30-18:00	6:30-9:30 14:30-18:00	6:30-9:30 14:30-18:00	7:00-10:00 14:30-18:00	7:00-10:00 14:30-18:00	7:00-10:00 14:30-18:00	7:00-10:00 14:00-17:30	6:30-9:30 14:30-18:00
Surrounding land uses	Commercial / retail.	Commercial / retail.	Commercial / retail.	Low density residential dwellings.	Low desnisty residential and parklands.	Commercial / retail and residential dwellings.	Low density residential housing and public school.	Low density residential, Kegworth Public School and Leichardt Marketplace.	Low density residential, retail, Malabar Medical Centre and Cromwell Park.	Low density residential housing.	Commercial / retail.	Commercial/retail, industrial site and medical centre.	Low density residential.	Commercial / retail and low density residential.
Frontage road - AM peak period (weekday)	8:00-9:00	8:00-9:00	8:30-9:30	multi-day[1]	8:30-9:30	8:45-9:45	8:30-9:30	8:00-9:00	6:30-7:30	8:00-9:00	8:30-9:30	8:30-9:30	8:30-9:30	8:00-9:00 8:15-9:15
Frontage road - PM peak period (weekday)	15:15-16:15	15:15-16:15	15:00-16:00	multi-day	14:45-15:45	15:30-16:30	15:15-16:15	16:45-17:45	16:30-17:30	16:45-17:45	16:15-17:15	16:15-17:15	15:00-16:00	14:45-15:45
Development details:														
Year opened	1992	2003	2007	2004	not provided	not provided	2004	2003	2003	1990	not provided	not provided	1989	1995
Total site area (m^2)	1304	1309	2318	3014	1312	1014	882	202	303	1368	1049	317	475	112
Total GFA (m^2)	514	1041	302	743	387	197	882	202	303	295	768	317	165	112
No. of licensed places for children	45	90	56	90	40	30	75	105	70	29	36	25	20	70
No. of employees	12	10	10	15	6	5	4	11	6	6	10	4	3	5
Vehicle trips:														
Centre peak hour vehicle trips (in+out) AM	**27**	**80**	**40**	**93**	**39**	**11**	**42**	**39**	**38**	**30**	**8**	**16**	**25**	**4**
Time of Centre peak hour vehicle trips (AM)	7:30-8:30 7:45-8:45	7:30-8:30	8:00-9:00	multi-day[1]	8:30-9:30	8:30-9:30	6:45-7:45	7:15-8:15	8:00-9:00	8:00-9:00 8:15-9:15	8:30-9:30 8:45-9:45 9:00-10:00	8:30-9:30 8:45-9:45 9:00-10:00	8:45-9:45	6:30-7:30 6:45-7:45 7:00-8:00
Centre peak hour vehicle trips per licensed place (AM)	0.60	0.89	0.71	1.03	0.98	0.37	0.56	0.37	0.54	1.03	0.22	0.64	1.25	0.06
Centre peak hour vehicle trips per 100m2 of total GFA (AM)	5.25	7.68	13.25	12.52	10.08	5.58	4.76	19.31	12.54	10.17	1.04	5.05	15.15	3.57
Centre peak hour vehicle trips (in+out) PM	**31**	**73**	**46**	**77**	**32**	**11**	**36**	**53**	**18**	**40**	**26**	**6**	**22**	**34**
Time of Centre peak hour vehicle trips (PM)	16:30-17:30	17:00-18:00	16:00-17:00	multi-day	14:15-15:15	14:00-15:00 14:15-15:15	16:45-17:45	16:15-17:15	16:45-17:45 17:00-8:00	15:45-16:45	15:00-16:00	14:30-15:30 14:45-15:45	14:30-15:30	17:00-18:00
Centre peak hour vehicle trips per licensed place (PM)	0.69	0.81	0.82	0.86	0.80	0.37	0.48	0.50	0.26	1.38	0.72	0.24	1.10	0.49
Centre peak hour vehicle trips per 100m2 of total GFA (PM)	6.03	7.01	15.23	10.36	8.27	5.58	4.08	26.24	5.94	13.56	3.39	1.89	13.33	30.36
Vehicle trips during adjacent road's peak hour (AM)	**18**	**72**	**39**	**58**	**39**	**9**	**0**	**22**	**4**	**30**	**6**	**16**	**24**	**0**
Vehicle trips per licensed place during adjacent road's peak hour (AM)	0.40	0.80	0.70	0.64	0.98	0.30	0.00	0.21	0.06	1.03	0.17	0.64	1.20	0.00
Vehicle trips per 100m^2 of GFA during adjacent road's peak hour (AM)	3.50	6.92	12.91	7.81	10.08	4.57	0.00	10.89	1.32	10.17	0.78	5.05	14.55	0.00
Vehicle trips during adjacent road's peak hour (PM)	**23**	**27**	**14**	**50**	**28**	**4**	**13**	**50**	**16**	**2**	**0**	**0**	**14**	**2**
Vehicle trips per licensed place during adjacent road's peak hour (PM)	0.51	0.30	0.25	0.56	0.70	0.13	0.17	0.48	0.23	0.07	0.00	0.00	0.70	0.03
Vehicle trips per 100m2 of GFA during adjacent road's peak hour (PM)	4.47	2.59	4.64	6.73	7.24	2.03	1.47	24.75	5.28	0.68	0.00	0.00	8.48	1.79
Parking:														
No. of on site parking spaces	13	14	10	18	0	0	0	0	0	0	10	5	4	22
Peak parking accumulation	**13**	**16**	**9**	**14**	**7**	**6**	**5**	**12**	**12**	**10**	**3**	**7**	**6**	**6**
Peak parking accumulation per licensed place	0.29	0.18	0.16	0.16	0.18	0.20	0.07	0.11	0.17	0.34	0.08	0.28	0.30	0.09
Peak parking accumulation per 100m^2 of total GFA	2.53	1.54	2.98	1.88	1.81	3.05	0.57	5.94	3.96	3.39	0.39	2.21	3.64	5.36
Time of peak parking accumulation	8:30-9:30	7:45-8:45 16:15-17:15	8:30-9:30	multi-day	15:30-16:30	9:00-10:00	16:15-17:15	15:45-16:45	16:00-17:00	15:15-16:15	multiple hours	8:30-9:30	8:15-9:15	17:00-18:00

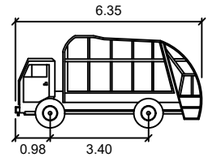
[1] For detailed information please refer to the Trip Generation Surveys Child Care Centres Data Report.

Appendix F

Swept Path Assessment

SWEPT PATH KEY:

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 300mm CLEARANCE FROM VEHICLE BODY



6.35m Garwood Miner

	meters
Width	: 1.84
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 45.4

WILDER STREET

6.35m Garwood Miner
CITY – REFUSE

600mm HIGH WALL

LETTERBOX

37.655

1,000

3,800 | 2,400 | 2,400 | 2,400 | 2,400 | 2,400 | 2,400 | 2,400 | 2,400 | 3,600

5,400

RL146.24

RL 146.19

RL 146.19

CARPARK
25 SPACES

5,800

2,400 | 2,400 | 2,400 | 2,400 | 2,400 | 2,400 | 2,400 | 2,400 | 3,600 | 2,000

5,400

24.8

MAITLAND

600mm HIGH WALL

DISABLED ACCESSIBLE RAMP

RAMP 1:14

RAMP 1:14

RAMP 1:14

RL 145.60

UP

RL146.88

7
DP1098460

6,200

3,900 | 4,800 | 2,700 | 2,700 | 2,700 | 2,700 | 2,700 | 2,700 | 2,700

SCREENED WASTE COLLECTION AREA
RL 147.33

EMERGENCY

DROP OFF / PICK UP

DROP OFF / PICK UP

DROP OFF / PICK UP

5,400

RL 146.63

RL 147.52

RL 146.82

UP

UP

UP

UP

RAMP 1:14

5,400

49930

FOOT PATH

SHADE SAILS C

46215

3,

WALKWAY 1:25

RL 146.00

REV A	FOR DA SUBMISSION	15/01/2024
MARK	REVISION	DATE

36-38 MAITLAND STREET, MUSWELLBROOK
SWEPT PATH ANALYSIS OF 6.35M LONG MINI GARBAGE TRUCK
DRAWING REF NO. N241-SP01-240115

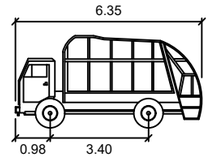
DESIGNED BY	REVIEWED BY
S.Ali	S.Ali

SCALE A3 NTS

Traffic and Transport Planning Solutions
Email: info@myttps.com
Phone: 02 8005 8042

SWEPT PATH KEY:

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 300mm CLEARANCE FROM VEHICLE BODY



6.35m Garwood Miner

	meters
Width	: 1.84
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 45.4

WILDER

600mm HIGH WALL

LETTERBOX

MAITLAND

600mm HIGH WALL

DISABLED ACCESSIBLE RAMP

RAMP 1:14

RAMP 1:14

RL145.60

UP

RL 146.63

RL146.24

RL 146.19

RL 146.19

37.655

1,000

3,800

2,400 2,400 2,400 2,400 2,400 2,400 2,400 2,400

3,600

5,400

5,800

5,400

CARPARK
25 SPACES

2,400 2,400 2,400 2,400 2,400 2,400 2,400 2,400

3,600

2,000

24.8

6.35m Garwood Miner
CITY – REFUSE

6.35m Garwood Miner
CITY – REFUSE

7
DP1098460

6,200

4,800 2,700 2,700 2,700 2,700 2,700 2,700 2,700

3,900

6,300

RAMP 1:14

40930

FOOT PATH

5,400

SCREENED WASTE COLLECTION AREA

EMERGENCY

DROP OFF / PICK UP

DROP OFF / PICK UP

DROP OFF / PICK UP

5,400

RL 147.33

RL 147.52

RL 146.63

RL 146.82

UP

UP

UP

UP

RAMP 1:14

UP

RL 145.65

ENTRY
RL 148.37

PROPOSED CHILDCARE CENTRE

FFL 148.40

SHADE SAILS OVE

46215

3,

WALKWAY 1:25

RL 146.00

RL

RL 148.37

8
DP6758

TIERED PLAY AREA

MARK	REVISION	DATE
REV A	FOR DA SUBMISSION	15/01/2024

36-38 MAITLAND STREET, MUSWELLBROOK

SWEPT PATH ANALYSIS OF 6.35M LONG MINI GARBAGE TRUCK

DRAWING REF NO. N241-SP02-240115

DESIGNED BY	REVIEWED BY
S.Ali	S.Ali

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