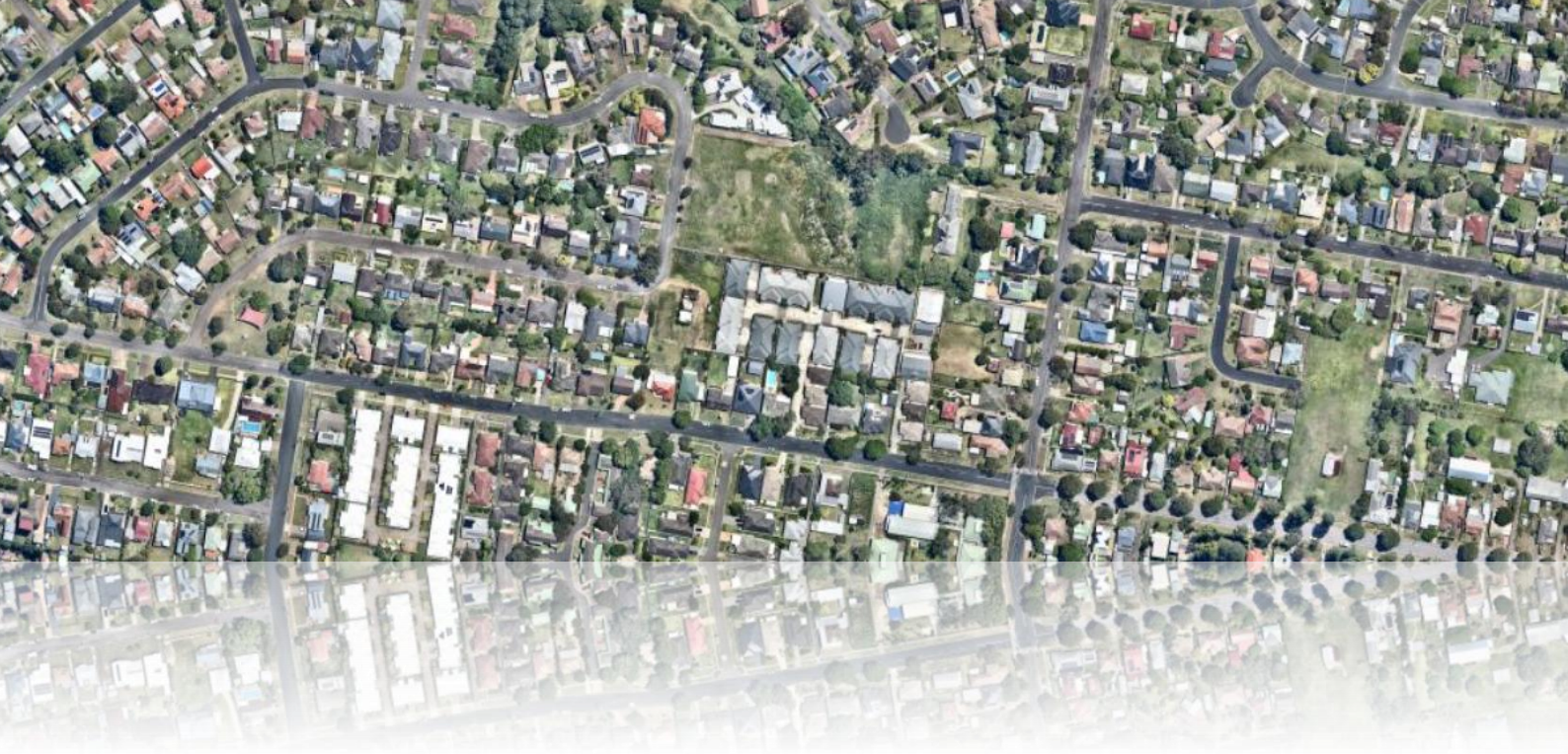

TRAFFIC AND PARKING IMPACT ASSESSMENT OF THE PROPOSED CHILD CARE CENTRE AT 2 COLLINSON STREET, TENAMBIT

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241088.01FD - 12 August 2025

Development Type: Child Care Centre

Site Address: 2 Collinson Street, Tenambit

Prepared for: Harrington Lawyers

Document reference: 241088.01FD

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TABLE OF CONTENTS

1 INTRODUCTION 1

1.1 Description and Scale of Development 1
1.2 State Environmental Planning Policy (Transport and Infrastructure) 2021 1
1.3 Site Description 1
1.4 Site Context 2

2 EXISTING TRAFFIC AND PARKING CONDITIONS 3

2.1 Road Hierarchy 3
2.1.1 Collinson Street (Thompson Street) 3
2.1.2 Edward Street 3
2.1.3 Chambers Street 3
2.1.4 David Avenue (Goodhugh Street) 3
2.2 Existing Traffic Management 4
2.3 Existing Traffic Environment 4
2.3.1 Existing Road Performance 4
2.4 Public Transport 5
2.5 Future Road and Infrastructure Upgrades 5

3 PARKING ASSESSMENT 6

3.1 Council Parking Requirement 6
3.2 Parking for People with Disabilities 7
3.3 Bicycle & Motorcycle Parking Requirements 7
3.4 Servicing & Loading 8
3.5 Car Park Design & Compliance 8
3.6 Pedestrian Connection 9

4 TRAFFIC ASSESSMENT 10

4.1 Traffic Generation 10
4.1.1 Vehicle Trip Generation 10
4.2 Traffic Assignment 11
4.3 Traffic Impact 11

5 CONCLUSIONS 13

1 INTRODUCTION

M^CLaren Traffic Engineering was commissioned by *Harrington Lawyers* to provide a traffic and parking impact assessment of the proposed Child Care Centre at 2 Collinson Street, Tenambit 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 132 children and 22 staff members as per the following:
    - 28 children between 0-2 years old (staff assigned at 1 per 4 children, or 7 staff)
    - 31 children between 2-3 years old (staff assigned at 1 per 5 children, or 7 staff)
    - 73 children between 3-5 years old (staff assigned at 1 per 10 children, or 8 staff)
- An at-grade parking area with vehicular access via a proposed one-way driveway, with the entrance from Collinson Street and exit onto David Avenue, accommodating 33 car parking spaces including:
    - 14 parent car parking spaces including one (1) accessible spaces;
    - 18 staff car parking spaces;
    - One (1) delivery parking bay.

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 Maitland Council officers.

1.3 Site Description

The subject site includes three (3) lots legally identified as Lot 151, Lot 152 and Lot 153 DP561830 which are currently zoned *R1 – General Residential* under the *Maitland Council Local Environmental Plan 2011* and is currently occupied by a single residential dwelling. The site has frontages to Collinson Street to the south and David Avenue to the north.

The site is generally surrounded by low to medium density residential dwellings in all directions, with Tenambit Public School located 150m east of the site and Tenambit Local Centre located 200m to the south of the site.

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.

FIGURE 1: SITE CONTEXT – AERIAL PHOTO

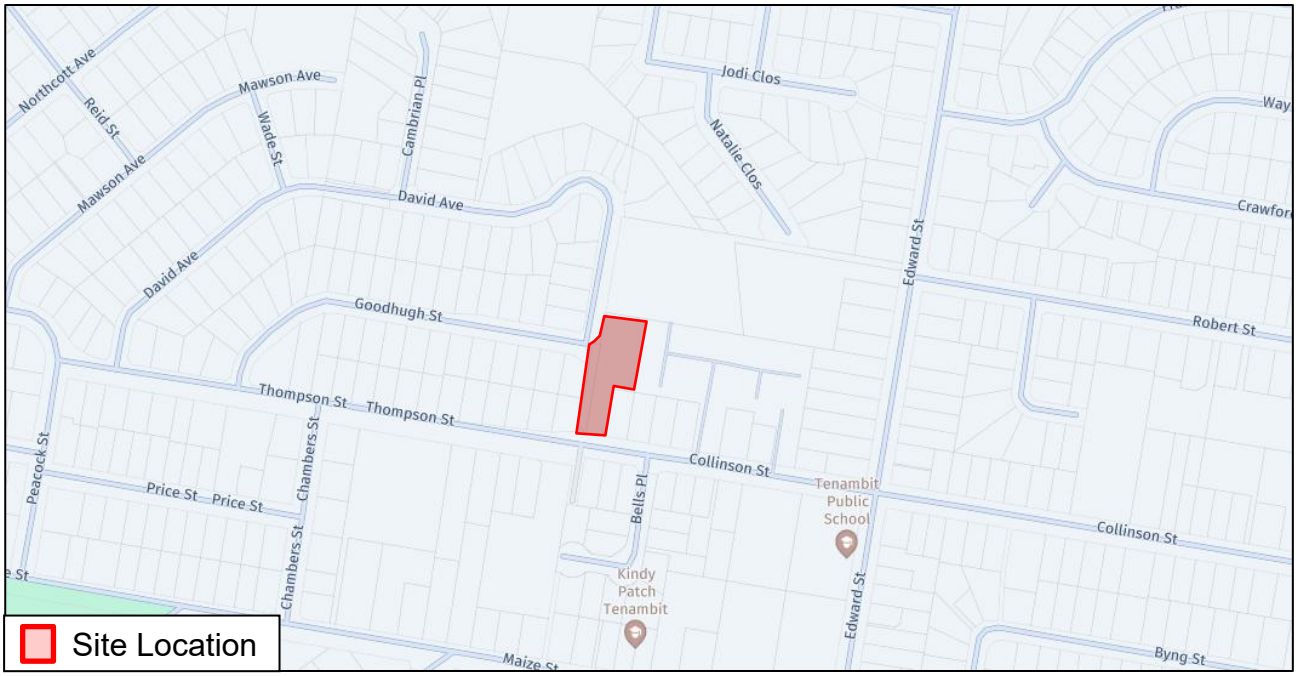

FIGURE 2: SITE CONTEXT – STREET MAP

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 Collinson Street (Thompson Street)

- Unclassified COLLECTOR Road;
- Approximately 11m wide carriageway facilitating one (1) traffic flow lane in each direction and kerbside parking on both sides of the road;
- Signposted 50km/h speed limit;
- 40km/h speed limit applies during school zone hours;
- Unrestricted kerbside parking permitted along both sides of the road.

2.1.2 Edward Street

- Unclassified LOCAL Road;
- Approximately 10m wide carriageway facilitating one (1) traffic flow lane in each direction and kerbside parking on both sides of the road;
- Signposted 50km/h speed limit;
- 40km/h speed limit applies during school zone hours;
- Generally unrestricted kerbside parking permitted along both sides of the road.

2.1.3 Chambers Street

- Unclassified LOCAL Road;
- Approximately 10m wide carriageway facilitating two-way traffic flow and kerbside parking on both sides of the road;
- Default 50km/h speed limit;
- Unrestricted kerbside parking permitted along both sides of the road.

2.1.4 David Avenue (Goodhugh Street)

- Unclassified LOCAL Road;
- Approximately 9m wide carriageway facilitating two-way traffic flow and kerbside parking on both sides of the road;
- Default 50km/h speed limit;
- Unrestricted kerbside parking permitted along both sides of the road.

2.2 Existing Traffic Management

- Priority controlled intersection of Thompson Street / Chambers Street;
- Priority controlled intersection of Thompson Street / Goodhugh Street;
- "Stop" controlled intersection of Collinson Street / Edward Street;
- Pedestrian crossings at the intersection of Collinson Street / Edward Street across the northern and western legs of the intersection.

2.3 Existing Traffic Environment

Turning movement count traffic surveys were conducted at the intersections of Thompson Street / Chambers Street, Thompson Street / Goodhugh Street and Collinson Street / Edward Street from 7:00AM to 9:30AM and 2:30PM to 6:00PM on Tuesday 11 February 2025 representing a typical operating weekday. The full survey results are shown in **Annexure B** for reference.

2.3.1 Existing Road Performance

The performance of the surrounding intersections under the existing traffic conditions has been assessed using SIDRA INTERSECTION 9.1, **Table 1** summarises the resultant intersection performance data, with full SIDRA results reproduced in **Annexure C**.

TABLE 1: EXISTING INTERSECTION PERFORMANCES (SIDRA INTERSECTION 9.1)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/vehicle)	Level of Service[3][4]	Control Type	Worst Movement
EXISTING PERFORMANCE						
Thompson Street / Goodhugh Street	AM	0.03	0.6 (Worst: 4.9)	**N/A** (Worst: A)	Give Way	RT from Goodhugh Street (N)
	PM	0.04	0.8 (Worst: 4.9)	**N/A** (Worst: A)		RT from Goodhugh Street (N)
Chambers Street / Thompson Street	AM	0.06	3.5 (Worst: 5.2)	**N/A** (Worst: A)	Give Way	RT from Chambers Street (S)
	PM	0.04	3.1 (Worst: 4.9)	**N/A** (Worst: A)		RT from Chambers Street (S)
Edward Street / Collinson Street	AM	0.10	3.4 (Worst: 9.1)	**N/A** (Worst: A)	Stop	RT from Collinson Street (W)
	PM	0.08	2.5 (Worst: 8.3)	**N/A** (Worst: A)		RT from Collinson Street (W)

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 relevant intersections are currently performing at a high level of efficiency, with an overall or worst movement Level of Service “A” condition in both the AM & PM peak hour periods. The Level of Service “A” performance is characterised by low approach delays and spare capacity.

2.4 Public Transport

The subject site has access to the existing bus stop (Stop ID: 2323156) located approximately 250m walking distance to the west of site on Thompson Street. The bus stop services existing bus route 184 (Morpeth to Green Hills Shopping Centre via Tenambit & East Maitland), provided by Hunter Valley Buses.

The site also has access to the existing bus stop (Stop ID: 2323111) located approximately 300m walking distance to the east of the site on Edward Street. The bus stop services existing bus route 183 (Rutherford to Tenambit via Maitland & Green Hills Shopping Centre), provided by Hunter Valley Buses.

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

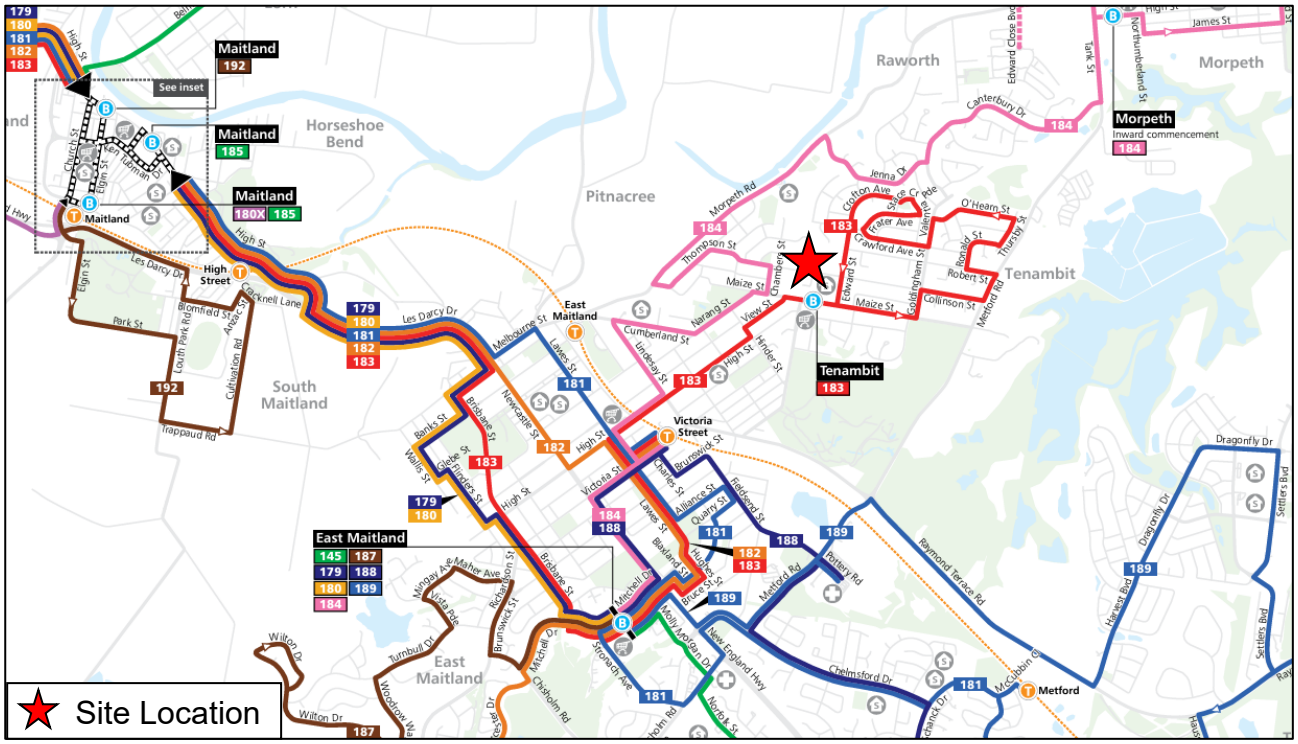

FIGURE 3: PUBLIC TRANSPORT NETWORK MAP

2.5 Future Road and Infrastructure Upgrades

From Maitland Council Development Application tracker and TfNSW Projects 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 *Maitland Development Control Plan 2011 (MDCP 2011) Part C – Design Guidelines* which designates the following parking rates applicable to the proposed development:

> ***C.11 - Vehicular Access & Car Parking***
>
> *1.2 Calculation of Parking Requirements*
>
> *a) The minimum number of parking spaces to be provided for a particular development is to be calculated in accordance with Appendix A of this policy.*
>
> *c) Where the calculation results in a fraction of a space, the total number of parking spaces required will be the next highest whole number.*
>
> ***Appendix A – Car Parking Requirements for Specific Land Uses***
>
> *Child Care Centre*
>
> *1 space per 4 children in attendance or part thereof.*

Table 2 presents the parking requirements of the proposal according to MDCP 2011 above car parking rates.

TABLE 2: DCP PARKING RATES

Land Use	Scale	Rate	Spaces Required	Spaces Provided
Child Care Centre	132 Children	1 per 4 children	33	33

As shown, strict application of the MDCP 2011 requires the provision of **33** car parking spaces. The proposed plans detail the provision of **33** car parking spaces, resulting in compliance with MDCP 2011 parking requirements. The proposed plans detail 15 visitor car parking spaces and 18 staff car parking spaces.

The number of parking spaces allocated to parents and visitors was determined using queuing theory, with full results reproduced in **Annexure D.** Using the arrival rate of 53 vehicles per hour, with an average wait time of 496 seconds (based on the TEF Consulting Validation Trip Generation Surveys - Child Care Centre - Analysis Report - 2015), it was determined that 14 visitor parking spaces are needed to ensure a car parking demand is satisfied.

3.2 Parking for People with Disabilities

MDCP 2011 states the following regarding accessible parking provision relevant to the proposed development:

> *In general, where 10 or more vehicle spaces are required, one designated parking space for people with disabilities is required per 100 (or part thereof) car spaces provided.*

The proposed site requires **33** car parking spaces and as such the DCP requires the provision of one (**1**) accessible car parking space. The proposed car parking layout incorporates one (**1**) parking space for people with disabilities resulting in compliance with Council's DCP requirements.

Further, reference is made to the *Section D4D6* of the *Building Code of Australia* (BCA) as part of the *National Construction Code 2022* (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 accessible space for every 50 carparking spaces or part thereof.*

In accordance with the BCA requirements, one (**1**) car parking space for people with disabilities is to be provided. The proposed car parking layout details the provision of one (**1**) car parking space designed in accordance with *AS2890.6:2022*, complying with BCA requirements.

3.3 Bicycle & Motorcycle Parking Requirements

MDCP 2011 states the following regarding the bicycle provision relevant to the proposed development:

> ***5. Bicycle Parking***
>
> *Provision is to be made for cyclists via the installation of bicycle parking facilities in accordance with Australian Standard AS 2890.3.2015 – Bicycle Parking Facilities and the Austroads Guide to Traffic Engineering, Part 14, Bicycles: Second edition.*

The above technical documents do not provide a specific provision of bicycle parking for child care centres and as such there are no specified number of bicycle spaces required. It is however recommended that some staff bicycle parking is provided on-site to help encourage alternative travel modes.

MDCP 2011 does not require the provision of motorcycle parking for child care centres. No motorcycle parking has been provided, satisfying Council's requirements.

3.4 Servicing & Loading

Reference is made to MDCP 2011 – *Part C: Design Guidelines* which outlines the following with respect to loading and unloading requirements:

> *3.1 On-site loading and unloading facilities must be provided for all businesses, commercial, industrial, retail and storage uses and any other where regular deliveries of goods are made to or from the site.*

The proposed child care centre shall be serviced by vans (standard B99 design vehicle) outside of peak pick-up and drop-off periods which is common practice for child care centres and will not noticeably affect the operation of the site. As such, a delivery bay has been provided within the proposed car park to accommodate all loading and unloading for the development. This parking space can be used by either visitors or staff during the peak pick-up and drop-off periods when a delivery vehicle would not be accessing the site. Swept path testing of a typical B99 delivery van have been reproduced in **Annexure E.**

It is expected that site will be serviced by a private waste collection service from the David Avenue frontage.

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 reproduced within **Annexure E** for reference.

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

- 3.5m wide one-way driveway facilitating access from Collinson Street;
- 3.5m wide one-way driveway facilitating access to David Avenue;
- Minimum 6.1m wide parking aisles;
- Minimum 6.1m wall-to-wall width along ramp;
- Compliant ramp grades not exceeding 25% for private developments and no grade change greater than 12.5%:
    - Maximum proposed grade is 25%.
- Minimum 5.4m long, 2.4m wide spaces for staff;
- Minimum 5.4m long, 2.6m wide spaces for parents;
- Minimum 5.4m long, 2.4m wide accessible spaces with adjacent associated 5.4m long, 2.4m wide shared space;
- Minimum headroom of 2.2m for general circulation and 2.5m headroom clearance provided over accessible and adaptable parking areas;
- 2.0m x 2.5m pedestrian sight triangles clear of obstructions.

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.
It should be noted that the proposed location of the building and the site having two (2) road frontages results in an ideal car parking arrangement of a one-way traffic aisle. A one-way traffic aisle improves efficiency while also improving safety of pedestrians within the parking aisle. In addition to the above, having the entry driveway on Collison Street and the exit driveway on David Avenue helps to improve the amenity of the surrounding roads by splitting the traffic between two (2) roads rather than concentrating the traffic onto a single road.

3.6 Pedestrian Connection

It is noted that the pre-lodgement meeting dated 22nd August 2024 states that *"a pedestrian crossing will likely be required, to connect to the existing footpath on the opposite side of Collinson Street."* Reference is made to the *RMS Australian Standard Supplements – AS1742 Manual of Uniform Traffic Control Devices – Part 10: Pedestrian control and protection 2009 (16 March 2021)* which states the following:

> *RMS practice for numerical warrants for Pedestrian (Zebra) Crossings, which is referred to in Guide to Traffic Management, Section 8, 7.5.6:*
>
> *i) Normal Warrant:*
>
> *A pedestrian (Zebra) Crossing is warranted where:*
>
> *In each of three separate one-hour periods in a typical day*
>
> *(a) the pedestrian flow per hour (P) crossing the road is greater than or equal to 30*
>
> *AND*
>
> *(b) the vehicular flow per hour (V) through the site is greater than or equal to 500*
>
> *AND*
>
> *(c) the product PV is greater than or equal to 60,000*

As there are only 120 vehicle trips on Collinson Street in the peak hour, a pedestrian crossing is not warranted in accordance with the guidelines.

A lower order treatment is a pedestrian refuge; however, these are only deemed necessary when the vehicle volumes exceed 500 trips in an hour, according to *Austroads Guide to Road Design – Part 4: Intersections and Crossings General (2023) – Section 8.2.2.*

As a result, no pedestrian crossing treatment is required due to the proposed development. A pedestrian trying to access the site can easily cross at the nearby zebra crossing or cross the road at the midblock without any formal crossing facilities.

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

4.1.1 Vehicle Trip Generation

Traffic generation rates for the relevant land uses are provided in the *TfNSW Guide to Transport Impact Assessment (2024)* and are as follows:

> ***5.6.8 Education Facilities – Child Care Centres***
>
> *Long-day care centre*
>
> *Site AM peak hour* *0.81 peak vehicle trips per child*
>
> *Site PM peak hour* *0.80 peak vehicle trips per child*

The resulting AM and PM peak hourly traffic generation is summarised in **Table 3**.

TABLE 3: ESTIMATED TRAFFIC GENERATION

Use	Scale	Peak	Generation Rate	Trips(1)
Long-day care	132 Children	AM	0.81 per child	107 (54 in, 53 out)
		PM	0.8 per child	106 (53 in, 53 out)

Notes:
(1) 50% inbound and 50% outbound assumed for the AM and PM peak periods.

As shown, the expected traffic generation associated with the proposed development is in the order of **107** vehicle trips in the AM peak period (54 in, 53 out) and **106** vehicle trips in the PM peak period (53 in, 53 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, shown in **Figure 4** below.

FIGURE 4: TRIP DISTRIBUTION

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 9.1 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**.

TABLE 4: INTERSECTION PERFORMANCE (SIDRA INTERSECTION 9.1)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/vehicle)	Level of Service[3][4]	Control Type	Worst Movement
EXISTING PERFORMANCE						
Thompson Street / Goodhugh Street	AM	0.03	0.6 (Worst: 4.9)	**N/A** (Worst: A)	Give Way	RT from Goodhugh Street (N)
	PM	0.04	0.8 (Worst: 4.9)	**N/A** (Worst: A)		RT from Goodhugh Street (N)
Chambers Street / Thompson Street	AM	0.06	3.5 (Worst: 5.2)	**N/A** (Worst: A)	Give Way	RT from Chambers Street (S)
	PM	0.04	3.1 (Worst: 4.9)	**N/A** (Worst: A)		RT from Chambers Street (S)
Edward Street / Collinson Street	AM	0.10	3.4 (Worst: 9.1)	**N/A** (Worst: A)	Stop	RT from Collinson Street (W)
	PM	0.08	2.5 (Worst: 8.3)	**N/A** (Worst: A)		RT from Collinson Street (W)
FUTURE (POST-DEVELOPMENT) PERFORMANCE						
Thompson Street / Goodhugh Street	AM	0.05	2.3 (Worst: 5.8)	**N/A** (Worst: A)	Give Way	RT from Goodhugh Street (N)
	PM	0.04	1.3 (Worst: 5.7)	**N/A** (Worst: A)		RT from Goodhugh Street (N)
Chambers Street / Thompson Street	AM	0.07	2.9 (Worst: 5.8)	**N/A** (Worst: A)	Give Way	RT from Chambers Street (S)
	PM	0.06	2.6 (Worst: 5.4)	**N/A** (Worst: A)		RT from Chambers Street (S)
Edward Street / Collinson Street	AM	0.10	4.3 (Worst: 9.5)	**N/A** (Worst: A)	Stop	RT from Collinson Street (W)
	PM	0.08	3.8 (Worst: 8.7)	**N/A** (Worst: A)		T from Collinson Street (E)

NOTES: Refer to **Table 1**.

As shown, the intersections of Thompson Street / Chambers Street, Thompson Street / Goodhugh Street and Collinson Street / Edward Street all retain the same overall level of service under future conditions with minimal delays and additional capacity, indicating that there will be no adverse impact on the existing road network as a result of the proposed development.

5 CONCLUSIONS

In view of the foregoing, the subject Child Care Centre proposal at 2 Collinson Street, Tenambit (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:

a) The proposal includes the provision of **33** car parking spaces within a proposed carpark, comprised of **14** for parent use, **18** for staff use and one (**1**) for delivery use, satisfying the relevant controls applicable to the development, including Council's DCP requirements.

b) Council's DCP does not require the provision of bicycle and motorcycle parking facilities. As such nil (**0**) bicycle / motorcycle parking spaces have been provided.

c) 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 the results are reproduced within **Annexure E.**

d) The traffic generation of the proposed development has been estimated to be some **107** trips in the AM peak period (54 in, 53 out) and **106** trips in the PM peak period (53 in, 53 out). The impacts of the traffic generation have been modelled using SIDRA INTERSECTION 9.1, indicating that there will be no adverse impact to the performance of the intersections as a result of the generated traffic.

ANNEXURE A: PROPOSED PLANS
(2 SHEETS)


SECTION AA
T.N.
M.M.
DAVID AVENUE
7
D.P.262490
6
D.P.262490
No. 94
BRICK RES
TILE ROOF
RL: 50.15
No. 39
BRICK RES
TILE ROOF
RL: 48.13
METAL AWNING
CARPORT
RL:46.10
METAL FENCE
BRICK WALL
METAL POST & RAIL FENCE
153
18.6m²
152
D.P.561830
487.9m²
74.545
66.95
No. 2
BRICK RES
TILE ROOF
RL: 48.81
FL:43.50
CONCRETE PATIO
RL:43.39
CONC RAMP
METAL AWNING
CARPORT
STANDARD KERB & GUTTER
IN
OUT
GRADE 6.25%
GRADE 5.0%
BINS
TIMBER FENCE
39.625
HEDGE
No. 6
BRICK RES
TILE ROOF
RL: 47.33
TILE PATIO RL:43.07
ENCLOSED
150
D.P.561830
METAL FENCE
17.68
2-3
31 CHILD
124.1m2
BATH
STORE
KITCHEN
METAL HORSE SHED
LNDY
RL37.65
LIFT
CLEAN
STORE
0-2
28 CHILD
109.4m2
STORE
COTS
BATH
OUTDOOR PLAY
AREA
132 CHILD
1,124m2
151
D.P.561830
2760m²
SHIP CONTAINER
METAL SHED
RL35.50
OUTDOOR STORE
BOUDNARY WALL ELEVATION HH
METAL POST AND WIRE FENCE
BOUNDARY WALL ELEVATION GG
METAL FENCE
No. 9/16-22
BRICK RES
METAL ROOF
No. 10/16-22
BRICK RES
METAL ROOF
RL: 40.52
801
D.P.1213967
SECTION AA
LEVELS LEGEND
39.02 EXISTING/CURRENT LEVELS
+39.02 PROPOSED LEVELS

Figured dimensions are to be used in preference to scaling. Contractor to check all dimensions prior to the commencement of work

PROJECT
NEW CHILDCARE CENTRE

LOCATION
2 COLLINSON ST TENAMBIT

DRAWING
LOWER GROUND FLOOR

SCALE	1:100
DRAWN	BJI
DATED	20.07.24

DRAWING
094-102

REV
-

BRAD INWOOD ARCHITECTS
ARCHITECTURE+PLANNING+INTERIORS
277 TRAFALGAR STREET PETERSHAM NSW 2049
P.O. BOX 442 PETERSHAM NSW 2049
p.9590 4592 f.9590 4592 brad@biarchitects.com.au
Nominated Architect NSW 7108

SECTION AA

T.N.
M.M.

BOUNDARY WALL ELEVATION KK

BOUNDARY WALL ELEVATION JJ

BOUNDARY WALL ELEVATION HH

BOUNDARY WALL ELEVATION II

SECTION AA

COLLINSON STREET

DAVID AVENUE

STANDARD KERB & GUTTER

PICKET FENCE

1.8m HIGH BARRIER

1.8m HIGH BARRIER ABOVE RETAINING WALL

2.1m HIGH BARRIER

2.1m HIGH BARRIER ABOVE RETAINING WALL

2.1m HIGH BARRIER WITH 45 DEGREE ANGLE EXTENDING TO 1m (2.8m IN TOTAL)

METAL FENCE

METAL POST AND WIRE FENCE

BRICK WALL

HEDGE

TIMBER FENCE

IN

OUT

GRADE 9.5%

GRADE 6.25%

RAMP

GRADE 2.5%

GRADE 6.25%

GRADE 18.75%

GRADE 25.0%

GRADE 18.75%

GRADE 6.25%

GRADE 5.0%

DELIVERIES PARKING BAY

BOLLARD

CONCRETE PATIO

CONC RAMP

RAMP 1:14

METAL AWNING CARPORT RL:46.10

METAL AWNING CARPORT

METAL SHED

METAL HORSE SHED

SHIP CONTAINER

ENCLOSED

TILE PATIO RL:43.07

No. 94
BRICK RES
TILE ROOF
RL: 50.15

No. 2
BRICK RES
TILE ROOF
RL: 46.61

No. 6
BRICK RES
TILE ROOF
RL: 47.33

No. 39
BRICK RES
TILE ROOF
RL: 48.13

No. 9/16-22
BRICK RES
METAL ROOF
RL: 40.92

No. 10/16-22
BRICK RES
METAL ROOF
RL: 40.52

7
D.P.262490

6
D.P.262490

153
18.6m²

D.P.561830
487m²

74.545

39.625

150
2323

17.68

61.09

26.18

31.472

151
D.P.561830
2760m²

801
D.P.1213967

4-5
38 CHILD
148.1m2

3-4
35 CHILD
130.8m2

OFFICE
ADMIN
ENTRY
STORE
BATH
VOID
LIFT
STORE
INTERNAL WASTE
DIS WC
FEMALE
MALE
STAFF
RL40.8

TIMBER DECK FL:45.75
TIMBER DECK FL:46.16
TILE PATIO FL41.08
TIMBER DECK FL:42.34
BUILDING LINE

LEVELS LEGEND

39.02 EXISTING/CURRENT LEVELS

+39.02 PROPOSED LEVELS

0 10 20 30

PROJECT
NEW CHILDCARE CENTRE

LOCATION
2 COLLINSON ST TENAMBIT

DRAWING
GROUND FLOOR

SCALE 1:100
DRAWN BJI
DATED 20.07.24

DRAWING
094-103

REV
-

BRAD INWOOD ARCHITECTS
ARCHITECTURE+PLANNING+INTERIORS
277 TRAFALGAR STREET PETERSHAM NSW 2049
P.O. BOX 442 PETERSHAM NSW 2049
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Nominated Architect NSW 7108

ANNEXURE B: TRAFFIC SURVEY DATA
(3 SHEETS)

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Thompson St and Goodhugh St, East Ma

GPS *-32.741025, 151.600241*

Date:	Tue 11/02/25
Weather:	Overcast
Suburban:	East Maitland
Customer:	McLaren

North:	Goodhugh St
East:	Thompson St
South:	N/A
West:	Thompson St

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:	2:30 PM-3:30 PM

All Vehicles

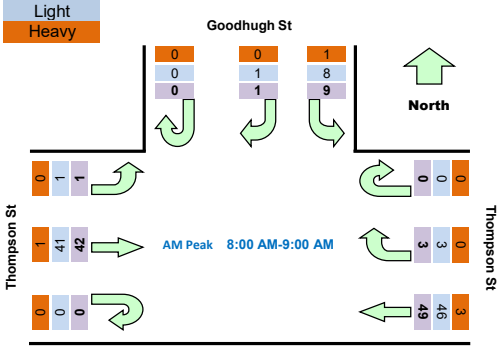
Time		orth Approach Goodhugh S			ast Approach Thompson S			est Approach Thompson S			Hourly Total	
Period Start	**Period End**	**U**	**R**	**L**	**U**	**R**	**WB**	**U**	**EB**	**L**	**Hour**	**Peak**
7:00	7:15	0	1	1	0	0	2	0	5	1	62	
7:15	7:30	0	1	1	0	1	6	0	6	1	76	
7:30	7:45	0	1	3	0	1	11	0	6	0	86	
7:45	8:00	0	0	4	0	0	8	0	2	0	86	
8:00	8:15	0	0	3	0	0	14	0	7	0	105	Peak
8:15	8:30	0	0	2	0	0	11	0	13	0	98	
8:30	8:45	0	0	2	0	1	9	0	10	0	90	
8:45	9:00	0	1	2	0	2	15	0	12	1		
9:00	9:15	0	0	2	0	0	10	0	5	0		
9:15	9:30	0	1	0	0	2	8	0	7	0		
14:30	14:45	0	0	0	0	3	12	0	12	0	117	Peak
14:45	15:00	0	1	0	0	3	12	0	16	1	117	Peak
15:00	15:15	0	0	1	0	2	13	0	9	0	112	
15:15	15:30	0	3	1	0	4	15	0	9	0	116	
15:30	15:45	0	0	2	0	2	14	0	8	1	112	
15:45	16:00	0	2	0	0	3	12	0	10	1	110	
16:00	16:15	0	0	2	0	1	14	0	10	2	98	
16:15	16:30	0	0	0	0	2	14	0	10	2	93	
16:30	16:45	0	0	1	0	1	10	0	12	1	87	
16:45	17:00	0	0	0	0	2	7	0	7	0	84	
17:00	17:15	0	0	0	0	2	12	0	10	0	84	
17:15	17:30	0	0	1	0	4	8	0	9	0		
17:30	17:45	0	1	3	0	3	9	0	6	0		
17:45	18:00	0	0	2	0	1	7	0	6	0		

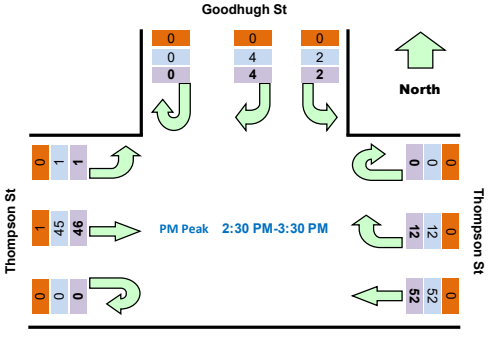
Peak Time		orth Approach Goodhugh S			ast Approach Thompson S			est Approach Thompson S			Peak
Period Start	**Period End**	U	R	L	U	R	WB	U	EB	L	**total**
8:00	9:00	0	1	9	0	3	49	0	42	1	105
14:30	15:30	0	4	2	0	12	52	0	46	1	117

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





TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Thompson St and Chambers St, East Mai

GPS *-32.741140, 151.600966*

Date:	Tue 11/02/25
Weather:	Overcast
Suburban:	East Maitland
Customer:	McLaren

North:	N/A
East:	Thompson St
South:	Chambers St
West:	Thompson St

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:	2:30 PM-3:30 PM

All Vehicles

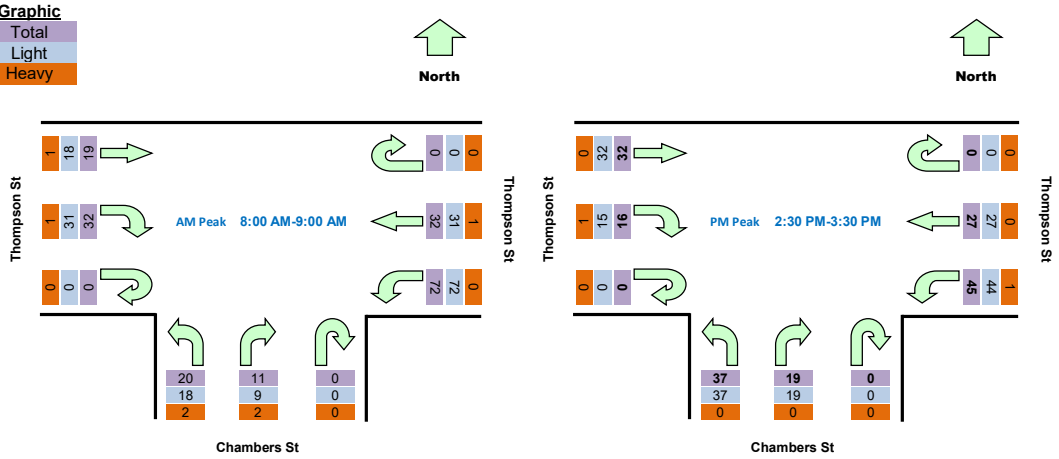
Time		East Approach Thompson S			South Approach Chambers			West Approach Thompson S			Hourly Total	
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	Hour	Peak
7:00	7:15	0	2	0	0	0	0	0	2	4	72	
7:15	7:30	0	5	4	0	0	2	0	6	1	94	
7:30	7:45	0	9	4	0	2	3	0	7	2	118	
7:45	8:00	0	7	4	0	1	1	0	4	2	147	
8:00	8:15	0	12	5	0	1	2	0	8	2	186	Peak
8:15	8:30	0	7	15	0	1	4	0	9	6	181	
8:30	8:45	0	6	30	0	4	4	0	7	5	159	
8:45	9:00	0	7	22	0	5	10	0	8	6		
9:00	9:15	0	7	8	0	0	3	0	5	2		
9:15	9:30	0	4	1	0	2	6	0	2	5		
14:30	14:45	0	7	6	0	5	8	0	4	8	176	Peak
14:45	15:00	0	8	12	0	4	7	0	6	10	170	
15:00	15:15	0	7	22	0	6	8	0	4	6	162	
15:15	15:30	0	5	5	0	4	14	0	2	8	150	
15:30	15:45	0	10	2	0	4	6	0	4	6	146	
15:45	16:00	0	8	10	0	4	7	0	5	5	141	
16:00	16:15	0	6	9	0	5	9	0	4	8	122	
16:15	16:30	0	4	2	0	6	12	0	2	8	111	
16:30	16:45	0	6	1	0	2	5	0	7	6	111	
16:45	17:00	0	7	2	0	2	2	0	4	3	113	
17:00	17:15	0	6	3	0	3	8	0	2	8	117	
17:15	17:30	0	3	2	0	10	9	0	2	8		
17:30	17:45	0	4	4	0	4	8	0	3	6		
17:45	18:00	0	4	6	0	2	4	0	2	6		

Peak Time		East Approach Thompson S			South Approach Chambers			West Approach Thompson S			Peak
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	total
8:00	9:00	0	32	72	0	11	20	0	32	19	186
14:30	15:30	0	27	45	0	19	37	0	16	32	176

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



TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Collinson St and Edward St, Tenambit

GPS -32.741765, 151.605916

Date:	Tue 11/02/25
Weather:	Overcast
Suburban:	Tenambit
Customer:	McLaren

North:	Edward St
East:	Collinson St
South:	Edward St
West:	Collinson St

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:	2:30 PM-3:30 PM

All Vehicles

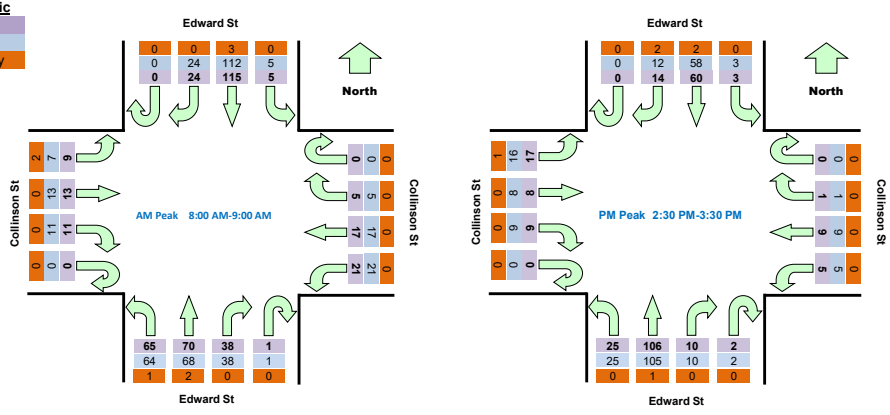
Time		North Approach Edward St				East Approach Collinson St				South Approach Edward St				West Approach Collinson St				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:00	7:15	0	2	12	1	0	1	0	0	0	2	5	4	0	4	3	1	173	
7:15	7:30	0	2	19	0	0	0	1	3	1	0	2	3	0	1	2	0	201	
7:30	7:45	0	5	28	2	0	0	0	0	0	5	4	6	0	1	2	1	254	
7:45	8:00	0	6	23	1	0	0	1	2	2	1	6	4	0	1	2	1	334	
8:00	8:15	0	7	21	2	0	2	8	3	1	2	10	3	0	1	2	1	394	Peak
8:15	8:30	0	4	32	1	0	2	2	3	0	5	16	16	0	1	4	1	370	
8:30	8:45	0	10	40	1	0	1	6	8	0	16	19	25	0	4	4	0	324	
8:45	9:00	0	3	22	1	0	0	1	7	0	15	25	21	0	5	3	7		
9:00	9:15	0	2	10	0	0	0	1	0	0	2	17	4	0	0	2	1		
9:15	9:30	0	1	14	1	0	0	2	0	0	2	14	3	0	0	2	2		
14:30	14:45	0	4	18	1	0	0	2	0	1	3	22	6	0	3	2	6	269	Peak
14:45	15:00	0	1	15	0	0	0	3	2	0	3	27	10	0	1	3	6	256	
15:00	15:15	0	7	15	2	0	1	2	1	1	3	26	7	0	1	1	5	249	
15:15	15:30	0	2	12	0	0	0	2	2	0	1	31	2	0	4	2	0	248	
15:30	15:45	0	1	11	2	0	0	4	1	1	1	28	2	0	1	1	2	261	
15:45	16:00	0	3	15	0	0	0	3	1	0	2	20	7	0	2	4	7	256	
16:00	16:15	0	1	13	0	0	1	3	2	0	3	30	5	0	2	4	7	228	
16:15	16:30	0	3	16	0	0	0	3	3	0	2	31	6	0	2	4	1	202	
16:30	16:45	0	1	12	0	0	1	3	0	0	2	21	3	0	2	5	0	168	
16:45	17:00	0	0	5	2	0	0	2	2	0	1	20	2	0	1	0	1	155	
17:00	17:15	0	0	18	0	0	0	2	0	0	0	19	0	0	0	4	2	139	
17:15	17:30	0	0	9	0	0	1	2	2	0	1	12	1	0	3	6	0		
17:30	17:45	0	0	12	1	0	0	3	2	0	1	12	1	0	1	4	0		
17:45	18:00	0	1	3	0	0	0	3	0	0	1	6	3	0	1	0	2		

Peak Time		North Approach Edward St				East Approach Collinson St				South Approach Edward St				West Approach Collinson St				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
8:00	9:00	0	24	115	5	0	5	17	21	1	38	70	65	0	11	13	9	394
14:30	15:30	0	14	60	3	0	1	9	5	2	10	106	25	0	9	8	17	269

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



ANNEXURE C: SIDRA RESULTS
(12 SHEETS)

MOVEMENT SUMMARY

Site: 101 [Existing AM - Thompson Street / Goodhugh Street (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Thompson Street / Goodhugh Street
Tenambit, NSW
Existing AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Thompson Street (E)															
5	T1	All MCs	52	6.1	52	6.1	0.029	0.0	LOS A	0.0	0.1	0.02	0.03	0.02	49.8
6	R2	All MCs	3	0.0	3	0.0	0.029	4.6	LOS A	0.0	0.1	0.02	0.03	0.02	48.3
Approach			55	5.8	55	5.8	0.029	0.3	NA	0.0	0.1	0.02	0.03	0.02	49.7
North: Goodhugh Street (N)															
7	L2	All MCs	9	11.1	9	11.1	0.007	4.8	LOS A	0.0	0.2	0.12	0.50	0.12	45.5
9	R2	All MCs	1	0.0	1	0.0	0.007	4.9	LOS A	0.0	0.2	0.12	0.50	0.12	45.5
Approach			11	10.0	11	10.0	0.007	4.8	LOS A	0.0	0.2	0.12	0.50	0.12	45.5
West: Thompson Street (W)															
10	L2	All MCs	1	0.0	1	0.0	0.024	4.6	LOS A	0.0	0.0	0.00	0.01	0.00	48.7
11	T1	All MCs	44	2.4	44	2.4	0.024	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
Approach			45	2.3	45	2.3	0.024	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.9
All Vehicles			111	4.8	111	4.8	0.029	0.6	NA	0.0	0.2	0.02	0.07	0.02	49.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Existing PM - Thompson Street / Goodhugh Street (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Thompson Street / Goodhugh Street
Tenambit, NSW
Existing PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Thompson Street (E)															
5	T1	All MCs	55	0.0	55	0.0	0.036	0.0	LOS A	0.1	0.5	0.06	0.11	0.06	49.3
6	R2	All MCs	13	0.0	13	0.0	0.036	4.7	LOS A	0.1	0.5	0.06	0.11	0.06	47.8
Approach			67	0.0	67	0.0	0.036	0.9	NA	0.1	0.5	0.06	0.11	0.06	49.0
North: Goodhugh Street (N)															
7	L2	All MCs	2	0.0	2	0.0	0.005	4.7	LOS A	0.0	0.1	0.15	0.51	0.15	45.6
9	R2	All MCs	4	0.0	4	0.0	0.005	4.9	LOS A	0.0	0.1	0.15	0.51	0.15	45.4
Approach			6	0.0	6	0.0	0.005	4.8	LOS A	0.0	0.1	0.15	0.51	0.15	45.5
West: Thompson Street (W)															
10	L2	All MCs	1	0.0	1	0.0	0.026	4.6	LOS A	0.0	0.0	0.00	0.01	0.00	48.7
11	T1	All MCs	48	2.2	48	2.2	0.026	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
Approach			49	2.1	49	2.1	0.026	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.9
All Vehicles			123	0.9	123	0.9	0.036	0.8	NA	0.1	0.5	0.04	0.09	0.04	49.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Existing AM - Thompson Street / Chambers Street (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Thompson Street / Chambers Street
Tenambit, NSW
Existing AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Chambers Street (S)															
1	L2	All MCs	21	10.0	21	10.0	0.025	4.8	LOS A	0.1	0.7	0.12	0.51	0.12	43.9
3	R2	All MCs	12	18.2	12	18.2	0.025	5.2	LOS A	0.1	0.7	0.12	0.51	0.12	43.5
Approach			33	12.9	33	12.9	0.025	4.9	LOS A	0.1	0.7	0.12	0.51	0.12	43.7
East: Thompson Street (E)															
4	L2	All MCs	76	0.0	76	0.0	0.058	4.6	LOS A	0.0	0.0	0.00	0.37	0.00	45.5
5	T1	All MCs	34	3.1	34	3.1	0.058	0.0	LOS A	0.0	0.0	0.00	0.37	0.00	47.9
Approach			109	1.0	109	1.0	0.058	3.2	NA	0.0	0.0	0.00	0.37	0.00	46.4
West: Thompson Street (W)															
11	T1	All MCs	20	5.3	20	5.3	0.032	0.3	LOS A	0.1	1.0	0.21	0.36	0.21	47.6
12	R2	All MCs	34	3.1	34	3.1	0.032	4.9	LOS A	0.1	1.0	0.21	0.36	0.21	44.8
Approach			54	3.9	54	3.9	0.032	3.2	NA	0.1	1.0	0.21	0.36	0.21	46.0
All Vehicles			196	3.8	196	3.8	0.058	3.5	NA	0.1	1.0	0.08	0.39	0.08	45.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Existing PM - Thompson Street / Chambers Street (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Thompson Street / Chambers Street
Tenambit, NSW
Existing PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Chambers Street (S)															
1	L2	All MCs	39	0.0	39	0.0	0.041	4.6	LOS A	0.2	1.1	0.10	0.51	0.10	44.1
3	R2	All MCs	20	0.0	20	0.0	0.041	4.9	LOS A	0.2	1.1	0.10	0.51	0.10	43.9
Approach			59	0.0	59	0.0	0.041	4.7	LOS A	0.2	1.1	0.10	0.51	0.10	44.1
East: Thompson Street (E)															
4	L2	All MCs	47	2.2	47	2.2	0.040	4.6	LOS A	0.0	0.0	0.00	0.34	0.00	45.8
5	T1	All MCs	28	0.0	28	0.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.34	0.00	48.1
Approach			76	1.4	76	1.4	0.040	2.9	NA	0.0	0.0	0.00	0.34	0.00	46.8
West: Thompson Street (W)															
11	T1	All MCs	34	0.0	34	0.0	0.028	0.1	LOS A	0.1	0.7	0.12	0.20	0.12	48.7
12	R2	All MCs	17	6.3	17	6.3	0.028	4.8	LOS A	0.1	0.7	0.12	0.20	0.12	46.1
Approach			51	2.1	51	2.1	0.028	1.7	NA	0.1	0.7	0.12	0.20	0.12	48.0
All Vehicles			185	1.1	185	1.1	0.041	3.1	NA	0.2	1.1	0.07	0.36	0.07	46.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Existing AM - Collinson Street / Edward Street (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Collinson Street / Edward Street
Tenambit, NSW
Existing AM
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Edward Street (S)															
1	L2	All MCs	68	1.5	68	1.5	0.101	4.8	LOS A	0.3	2.2	0.14	0.34	0.14	45.4
2	T1	All MCs	74	2.9	74	2.9	0.101	0.2	LOS A	0.3	2.2	0.14	0.34	0.14	47.0
3	R2	All MCs	40	0.0	40	0.0	0.101	5.0	LOS A	0.3	2.2	0.14	0.34	0.14	45.2
Approach			182	1.7	182	1.7	0.101	3.0	NA	0.3	2.2	0.14	0.34	0.14	46.0
East: Collinson Street (E)															
4	L2	All MCs	22	0.0	22	0.0	0.046	7.9	LOS A	0.2	1.2	0.30	0.89	0.30	42.1
5	T1	All MCs	18	0.0	18	0.0	0.046	8.9	LOS A	0.2	1.2	0.30	0.89	0.30	44.2
6	R2	All MCs	5	0.0	5	0.0	0.046	8.7	LOS A	0.2	1.2	0.30	0.89	0.30	44.0
Approach			45	0.0	45	0.0	0.046	8.4	LOS A	0.2	1.2	0.30	0.89	0.30	43.3
North: Edward Street (N)															
7	L2	All MCs	5	0.0	5	0.0	0.082	5.0	LOS A	0.2	1.3	0.10	0.15	0.10	47.9
8	T1	All MCs	121	2.6	121	2.6	0.082	0.1	LOS A	0.2	1.3	0.10	0.15	0.10	48.7
9	R2	All MCs	25	0.0	25	0.0	0.082	5.0	LOS A	0.2	1.3	0.10	0.15	0.10	47.7
Approach			152	2.1	152	2.1	0.082	1.1	NA	0.2	1.3	0.10	0.15	0.10	48.4
West: Collinson Street (W)															
10	L2	All MCs	9	22.2	9	22.2	0.040	8.6	LOS A	0.1	1.0	0.30	0.90	0.30	43.8
11	T1	All MCs	14	0.0	14	0.0	0.040	8.7	LOS A	0.1	1.0	0.30	0.90	0.30	44.1
12	R2	All MCs	12	0.0	12	0.0	0.040	9.1	LOS A	0.1	1.0	0.30	0.90	0.30	41.8
Approach			35	6.1	35	6.1	0.040	8.8	LOS A	0.1	1.0	0.30	0.90	0.30	43.4
All Vehicles			414	2.0	414	2.0	0.101	3.4	NA	0.3	2.2	0.16	0.38	0.16	46.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Existing PM - Collinson Street / Edward Street (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Collinson Street / Edward Street
Tenambit, NSW
Existing PM
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Edward Street (S)															
1	L2	All MCs	26	0.0	26	0.0	0.079	4.6	LOS A	0.1	0.7	0.04	0.15	0.04	47.1
2	T1	All MCs	112	0.9	112	0.9	0.079	0.0	LOS A	0.1	0.7	0.04	0.15	0.04	48.7
3	R2	All MCs	13	0.0	13	0.0	0.079	4.7	LOS A	0.1	0.7	0.04	0.15	0.04	46.8
Approach			151	0.7	151	0.7	0.079	1.2	NA	0.1	0.7	0.04	0.15	0.04	48.2
East: Collinson Street (E)															
4	L2	All MCs	5	0.0	5	0.0	0.015	7.7	LOS A	0.1	0.4	0.24	0.91	0.24	42.3
5	T1	All MCs	9	0.0	9	0.0	0.015	8.2	LOS A	0.1	0.4	0.24	0.91	0.24	44.3
6	R2	All MCs	1	0.0	1	0.0	0.015	8.2	LOS A	0.1	0.4	0.24	0.91	0.24	44.1
Approach			16	0.0	16	0.0	0.015	8.0	LOS A	0.1	0.4	0.24	0.91	0.24	43.7
North: Edward Street (N)															
7	L2	All MCs	3	0.0	3	0.0	0.046	5.0	LOS A	0.1	0.8	0.12	0.16	0.12	47.9
8	T1	All MCs	63	3.3	63	3.3	0.046	0.1	LOS A	0.1	0.8	0.12	0.16	0.12	48.7
9	R2	All MCs	15	14.3	15	14.3	0.046	5.2	LOS A	0.1	0.8	0.12	0.16	0.12	47.4
Approach			81	5.2	81	5.2	0.046	1.2	NA	0.1	0.8	0.12	0.16	0.12	48.3
West: Collinson Street (W)															
10	L2	All MCs	18	5.9	18	5.9	0.035	8.1	LOS A	0.1	0.9	0.26	0.89	0.26	44.2
11	T1	All MCs	8	0.0	8	0.0	0.035	8.2	LOS A	0.1	0.9	0.26	0.89	0.26	44.3
12	R2	All MCs	9	0.0	9	0.0	0.035	8.3	LOS A	0.1	0.9	0.26	0.89	0.26	42.0
Approach			36	2.9	36	2.9	0.035	8.2	LOS A	0.1	0.9	0.26	0.89	0.26	43.8
All Vehicles			283	2.2	283	2.2	0.079	2.5	NA	0.1	0.9	0.10	0.29	0.10	47.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Future AM - Thompson Street / Goodhugh Street (Site Folder: Future)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Thompson Street / Goodhugh Street
Tenambit, NSW
Future AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Thompson Street (E)															
5	T1	All MCs	52	6.1	52	6.1	0.029	0.0	LOS A	0.0	0.1	0.02	0.03	0.02	49.7
6	R2	All MCs	3	0.0	3	0.0	0.029	4.6	LOS A	0.0	0.1	0.02	0.03	0.02	48.3
Approach			55	5.8	55	5.8	0.029	0.3	NA	0.0	0.1	0.02	0.03	0.02	49.7
North: Goodhugh Street (N)															
7	L2	All MCs	55	1.9	55	1.9	0.053	5.6	LOS A	0.2	1.4	0.16	0.54	0.16	51.4
9	R2	All MCs	20	0.0	20	0.0	0.053	5.8	LOS A	0.2	1.4	0.16	0.54	0.16	51.6
Approach			75	1.4	75	1.4	0.053	5.6	LOS A	0.2	1.4	0.16	0.54	0.16	51.4
West: Thompson Street (W)															
10	L2	All MCs	1	0.0	1	0.0	0.033	4.8	LOS A	0.0	0.0	0.00	0.01	0.00	51.0
11	T1	All MCs	63	1.7	63	1.7	0.033	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	52.5
Approach			64	1.6	64	1.6	0.033	0.1	NA	0.0	0.0	0.00	0.01	0.00	52.5
All Vehicles			194	2.7	194	2.7	0.053	2.3	NA	0.2	1.4	0.07	0.22	0.07	51.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Future PM - Thompson Street / Goodhugh Street (Site Folder: Future)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Thompson Street / Goodhugh Street
Tenambit, NSW
Future PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Thompson Street (E)															
5	T1	All MCs	55	0.0	55	0.0	0.036	0.1	LOS A	0.1	0.5	0.07	0.12	0.07	49.2
6	R2	All MCs	13	0.0	13	0.0	0.036	4.8	LOS A	0.1	0.5	0.07	0.12	0.07	47.8
Approach			67	0.0	67	0.0	0.036	0.9	NA	0.1	0.5	0.07	0.12	0.07	49.0
North: Goodhugh Street (N)															
7	L2	All MCs	2	0.0	2	0.0	0.022	4.7	LOS A	0.1	0.5	0.20	0.56	0.20	48.0
9	R2	All MCs	23	0.0	23	0.0	0.022	5.7	LOS A	0.1	0.5	0.20	0.56	0.20	50.7
Approach			25	0.0	25	0.0	0.022	5.6	LOS A	0.1	0.5	0.20	0.56	0.20	50.5
West: Thompson Street (W)															
10	L2	All MCs	1	0.0	1	0.0	0.035	4.8	LOS A	0.0	0.0	0.00	0.01	0.00	50.9
11	T1	All MCs	67	1.6	67	1.6	0.035	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	52.3
Approach			68	1.5	68	1.5	0.035	0.1	NA	0.0	0.0	0.00	0.01	0.00	52.3
All Vehicles			161	0.7	161	0.7	0.036	1.3	NA	0.1	0.5	0.06	0.14	0.06	50.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Future AM - Thompson Street / Chambers Street (Site Folder: Future)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Thompson Street / Chambers Street
Tenambit, NSW
Future AM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Chambers Street (S)															
1	L2	All MCs	21	10.0	21	10.0	0.032	4.8	LOS A	0.1	0.9	0.14	0.52	0.14	44.1
3	R2	All MCs	18	11.8	18	11.8	0.032	5.8	LOS A	0.1	0.9	0.14	0.52	0.14	45.4
Approach			39	10.8	39	10.8	0.032	5.2	LOS A	0.1	0.9	0.14	0.52	0.14	44.7
East: Thompson Street (E)															
4	L2	All MCs	76	0.0	76	0.0	0.058	4.6	LOS A	0.0	0.0	0.00	0.37	0.00	45.5
5	T1	All MCs	34	3.1	34	3.1	0.058	0.0	LOS A	0.0	0.0	0.00	0.37	0.00	47.9
Approach			109	1.0	109	1.0	0.058	3.2	NA	0.0	0.0	0.00	0.37	0.00	46.4
West: Thompson Street (W)															
11	T1	All MCs	78	1.4	78	1.4	0.066	0.2	LOS A	0.2	1.6	0.15	0.22	0.15	54.5
12	R2	All MCs	40	2.6	40	2.6	0.066	5.1	LOS A	0.2	1.6	0.15	0.22	0.15	49.4
Approach			118	1.8	118	1.8	0.066	1.8	NA	0.2	1.6	0.15	0.22	0.15	53.0
All Vehicles			266	2.8	266	2.8	0.066	2.9	NA	0.2	1.6	0.09	0.33	0.09	49.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Future PM - Thompson Street / Chambers Street (Site Folder: Future)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Thompson Street / Chambers Street
Tenambit, NSW
Future PM
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Chambers Street (S)															
1	L2	All MCs	39	0.0	39	0.0	0.048	4.6	LOS A	0.2	1.2	0.11	0.52	0.11	44.3
3	R2	All MCs	26	0.0	26	0.0	0.048	5.4	LOS A	0.2	1.2	0.11	0.52	0.11	45.1
Approach			65	0.0	65	0.0	0.048	4.9	LOS A	0.2	1.2	0.11	0.52	0.11	44.6
East: Thompson Street (E)															
4	L2	All MCs	47	2.2	47	2.2	0.040	4.6	LOS A	0.0	0.0	0.00	0.34	0.00	45.8
5	T1	All MCs	28	0.0	28	0.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.34	0.00	48.1
Approach			76	1.4	76	1.4	0.040	2.9	NA	0.0	0.0	0.00	0.34	0.00	46.8
West: Thompson Street (W)															
11	T1	All MCs	91	0.0	91	0.0	0.061	0.1	LOS A	0.1	1.0	0.08	0.13	0.08	54.8
12	R2	All MCs	23	4.5	23	4.5	0.061	5.1	LOS A	0.1	1.0	0.08	0.13	0.08	50.6
Approach			114	0.9	114	0.9	0.061	1.1	NA	0.1	1.0	0.08	0.13	0.08	54.1
All Vehicles			255	0.8	255	0.8	0.061	2.6	NA	0.2	1.2	0.07	0.29	0.07	49.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Future AM - Collinson Street / Edward Street (Site Folder: Future)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Collinson Street / Edward Street
Tenambit, NSW
Future AM
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Edward Street (S)															
1	L2	All MCs	68	1.5	68	1.5	0.101	4.8	LOS A	0.3	2.2	0.14	0.34	0.14	45.4
2	T1	All MCs	74	2.9	74	2.9	0.101	0.2	LOS A	0.3	2.2	0.14	0.34	0.14	47.0
3	R2	All MCs	40	0.0	40	0.0	0.101	5.0	LOS A	0.3	2.2	0.14	0.34	0.14	45.2
Approach			182	1.7	182	1.7	0.101	3.0	NA	0.3	2.2	0.14	0.34	0.14	46.0
East: Collinson Street (E)															
4	L2	All MCs	22	0.0	22	0.0	0.085	7.9	LOS A	0.3	2.2	0.35	0.91	0.35	43.8
5	T1	All MCs	51	0.0	51	0.0	0.085	9.4	LOS A	0.3	2.2	0.35	0.91	0.35	47.6
6	R2	All MCs	5	0.0	5	0.0	0.085	9.2	LOS A	0.3	2.2	0.35	0.91	0.35	45.3
Approach			78	0.0	78	0.0	0.085	9.0	LOS A	0.3	2.2	0.35	0.91	0.35	46.5
North: Edward Street (N)															
7	L2	All MCs	5	0.0	5	0.0	0.086	5.0	LOS A	0.2	1.5	0.12	0.17	0.12	47.9
8	T1	All MCs	121	2.6	121	2.6	0.086	0.1	LOS A	0.2	1.5	0.12	0.17	0.12	48.7
9	R2	All MCs	32	0.0	32	0.0	0.086	5.2	LOS A	0.2	1.5	0.12	0.17	0.12	48.5
Approach			158	2.0	158	2.0	0.086	1.3	NA	0.2	1.5	0.12	0.17	0.12	48.6
West: Collinson Street (W)															
10	L2	All MCs	16	13.3	16	13.3	0.083	8.5	LOS A	0.3	2.2	0.33	0.91	0.33	47.0
11	T1	All MCs	46	0.0	46	0.0	0.083	9.2	LOS A	0.3	2.2	0.33	0.91	0.33	48.2
12	R2	All MCs	12	0.0	12	0.0	0.083	9.5	LOS A	0.3	2.2	0.33	0.91	0.33	44.0
Approach			74	2.9	74	2.9	0.083	9.1	LOS A	0.3	2.2	0.33	0.91	0.33	47.4
All Vehicles			492	1.7	492	1.7	0.101	4.3	NA	0.3	2.2	0.20	0.46	0.20	47.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Future PM - Collinson Street / Edward Street (Site Folder: Future)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Collinson Street / Edward Street
Tenambit, NSW
Future PM
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival 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	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Edward Street (S)															
1	L2	All MCs	26	0.0	26	0.0	0.079	4.6	LOS A	0.1	0.7	0.04	0.15	0.04	47.1
2	T1	All MCs	112	0.9	112	0.9	0.079	0.0	LOS A	0.1	0.7	0.04	0.15	0.04	48.7
3	R2	All MCs	13	0.0	13	0.0	0.079	4.7	LOS A	0.1	0.7	0.04	0.15	0.04	46.8
Approach			151	0.7	151	0.7	0.079	1.2	NA	0.1	0.7	0.04	0.15	0.04	48.2
East: Collinson Street (E)															
4	L2	All MCs	5	0.0	5	0.0	0.049	7.7	LOS A	0.2	1.2	0.30	0.93	0.30	45.1
5	T1	All MCs	41	0.0	41	0.0	0.049	8.7	LOS A	0.2	1.2	0.30	0.93	0.30	49.1
6	R2	All MCs	1	0.0	1	0.0	0.049	8.6	LOS A	0.2	1.2	0.30	0.93	0.30	46.3
Approach			47	0.0	47	0.0	0.049	8.6	LOS A	0.2	1.2	0.30	0.93	0.30	48.7
North: Edward Street (N)															
7	L2	All MCs	3	0.0	3	0.0	0.050	5.0	LOS A	0.1	1.0	0.14	0.20	0.14	47.9
8	T1	All MCs	63	3.3	63	3.3	0.050	0.2	LOS A	0.1	1.0	0.14	0.20	0.14	48.7
9	R2	All MCs	21	10.0	21	10.0	0.050	5.4	LOS A	0.1	1.0	0.14	0.20	0.14	48.6
Approach			87	4.8	87	4.8	0.050	1.6	NA	0.1	1.0	0.14	0.20	0.14	48.6
West: Collinson Street (W)															
10	L2	All MCs	24	4.3	24	4.3	0.074	8.2	LOS A	0.3	1.9	0.29	0.91	0.29	46.9
11	T1	All MCs	40	0.0	40	0.0	0.074	8.7	LOS A	0.3	1.9	0.29	0.91	0.29	48.6
12	R2	All MCs	9	0.0	9	0.0	0.074	8.6	LOS A	0.3	1.9	0.29	0.91	0.29	44.2
Approach			74	1.4	74	1.4	0.074	8.5	LOS A	0.3	1.9	0.29	0.91	0.29	47.6
All Vehicles			359	1.8	359	1.8	0.079	3.8	NA	0.3	1.9	0.15	0.42	0.15	48.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

ANNEXURE D: QUEUING CALCULATIONS
(1 SHEETS)

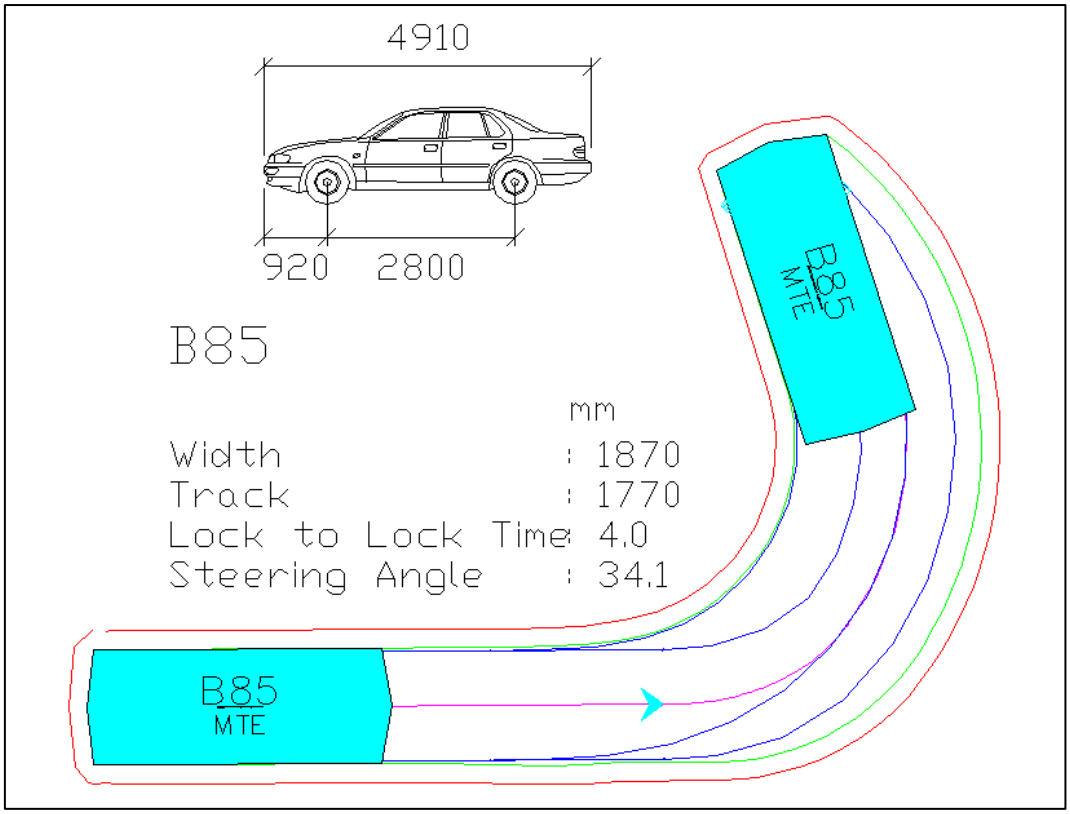
Multi-Server Queue Worksheet

Service Bays	14	Arrival Rate (vehicles/hour)	53	Wait Time in Each Bay (seconds)	496
Vehicles/Second IN	0.0147	Vehicles/Second OUT (per bay)	0.0020		
P0	0.0007	rho (M/M/c and M/M/1) Non-Random Service Bays Minimum	7.302	rho (M/M/1 only)	0.5216

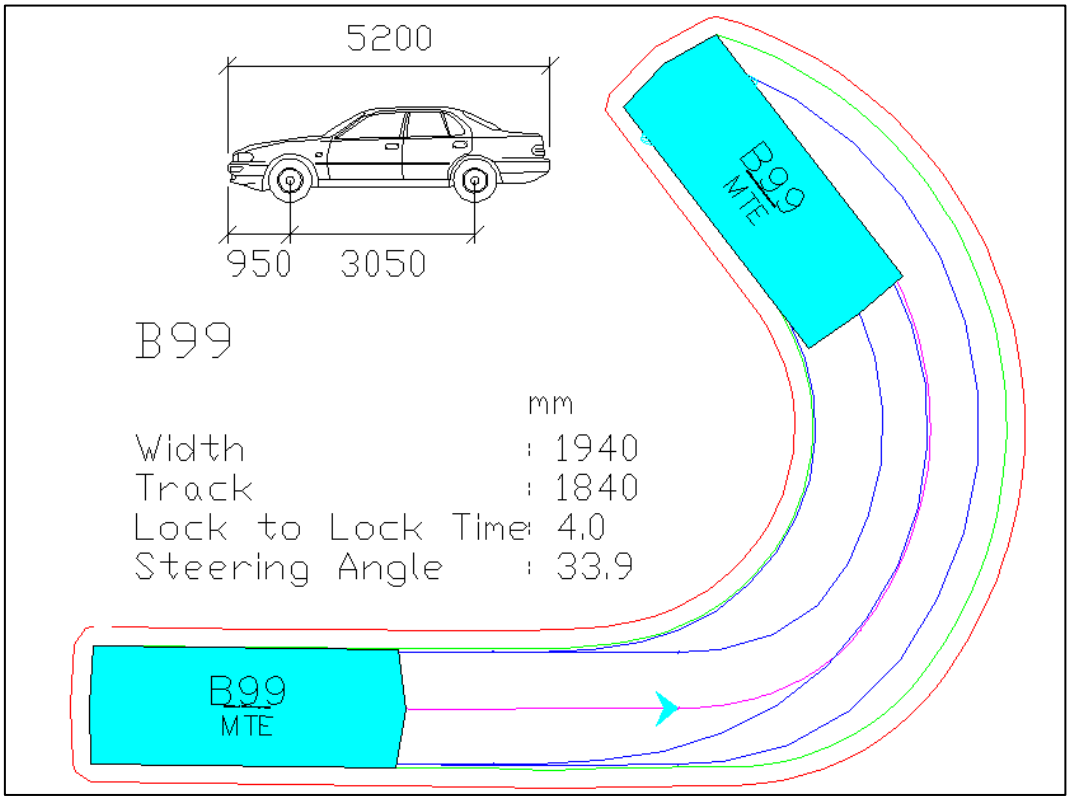
n	1st Term	Pn	P(>n)	Alternate (P>n)
0	1.00E+00	0.001	99.9%	99.93%
1	7.30E+00	0.005	99.4%	99.44%
2	2.67E+01	0.018	97.6%	97.64%
3	6.49E+01	0.044	93.3%	93.27%
4	1.18E+02	0.080	85.3%	85.28%
5	1.73E+02	0.116	73.7%	73.62%
6	2.11E+02	0.142	59.5%	59.43%
7	2.20E+02	0.148	44.7%	44.62%
8	2.01E+02	0.135	31.3%	31.11%
9	1.63E+02	0.109	20.3%	20.14%
10	1.19E+02	0.080	12.3%	12.14%
11	7.89E+01	0.053	7.0%	6.82%
12	4.80E+01	0.032	3.8%	3.59%
13	2.70E+01	0.018	2.0%	1.77%
14	1.41E+01	0.009	1.0%	0.82%
15	6.84E+00	0.005	0.5%	0.36%
16	3.12E+00	0.003	0.3%	0.15%
17	1.34E+00	0.001	0.1%	0.06%
18	5.44E-01	0.001	0.1%	0.02%
19	2.09E-01	0.000	0.0%	0.01%
20	7.64E-02	0.000	0.0%	0.00%
21	2.66E-02	0.000	0.0%	0.00%
22	8.82E-03	0.000	0.0%	0.00%
23	2.80E-03	0.000	0.0%	0.00%
24	8.52E-04	0.000	0.0%	0.00%
25	2.49E-04	0.000	0.0%	0.00%
26	6.99E-05	0.000	0.0%	0.00%
27	1.89E-05	0.000	0.0%	0.00%
28	4.93E-06	0.000	0.0%	0.00%
29	1.24E-06	0.000	0.0%	0.00%
30	3.02E-07	0.000	0.0%	0.00%
31	7.11E-08	0.000	0.0%	0.00%

Percentile	Number of Vehicles in System	Number of Vehicles Queued
0%	0	0
50%	7	0
60%	8	0
70%	9	0
80%	10	0
90%	11	0
98%	13	0
99.90%	18	4
	Erlang	
	Erlang-B (Blocking)	Erlang-C (Queueing)
		Average Queue Time = 0.1 seconds
	Probability of Overspill	Probability of Arriving Driver Having to Queue
	1.0%	2.0%
Lamda	53	
mu	7.258064516	
Erlangs	7.302222222	
n		
0	1.000	1.000
1	7.302	7.302
2	26.661	26.661
3	64.895	64.895
4	118.470	118.470
5	173.019	173.019
6	210.571	210.571
7	219.662	219.662
8	200.503	200.503
9	162.679	162.679
10	118.792	118.792
11	78.859	78.859
12	47.987	47.987
13	26.955	26.955
14	14.059	14.059

ANNEXURE E: SWEPT PATH TESTING
(4 SHEETS)



AUSTRALIAN STANDARD 85TH PERCENTILE SIZE VEHICLE (B85)



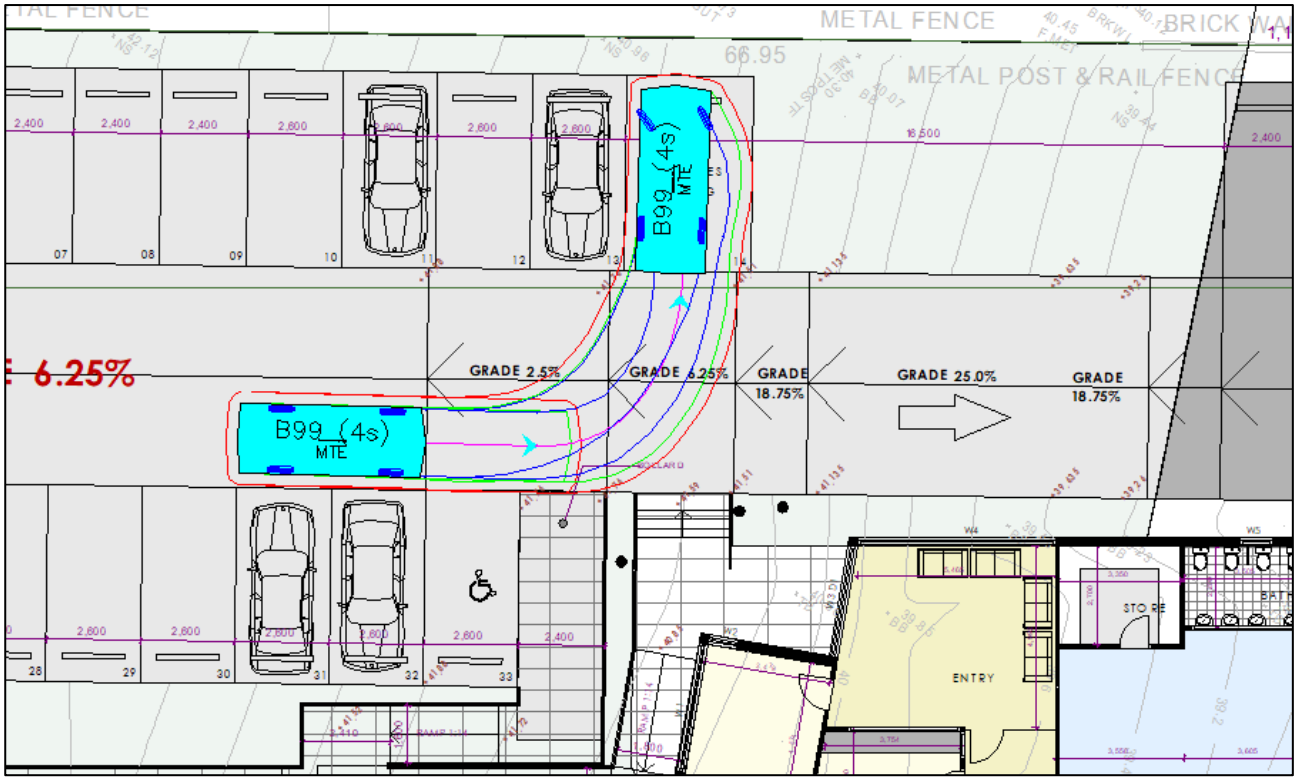
AUSTRALIAN STANDARD 99.8TH PERCENTILE SIZE VEHICLE (B99)

Blue – Tyre Path

Green – Vehicle Body

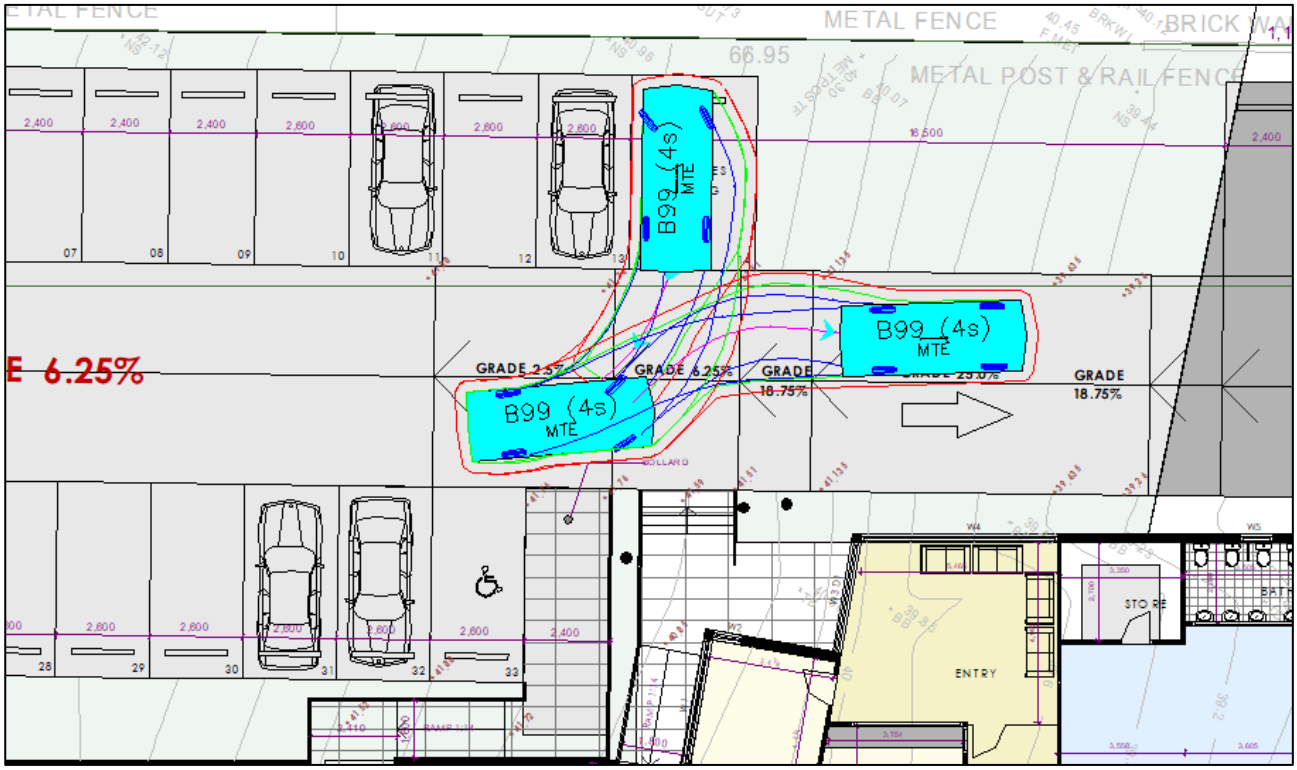
Red – 300mm Clearance

All tests performed at 10km/h on public roads and 5km/h internally.



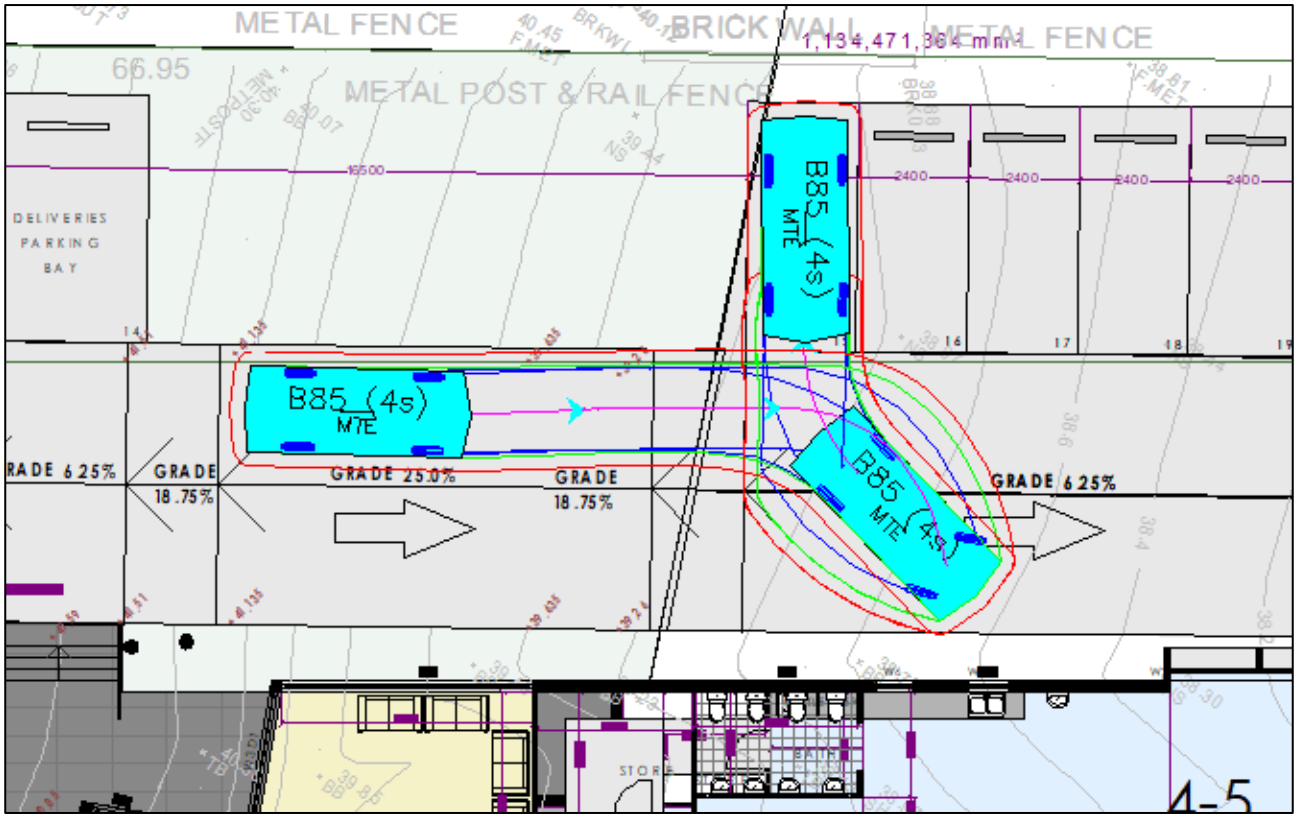
B99 Entry to Delivery Bay

SUCCESSFUL – 1 Manoeuvre Forward IN

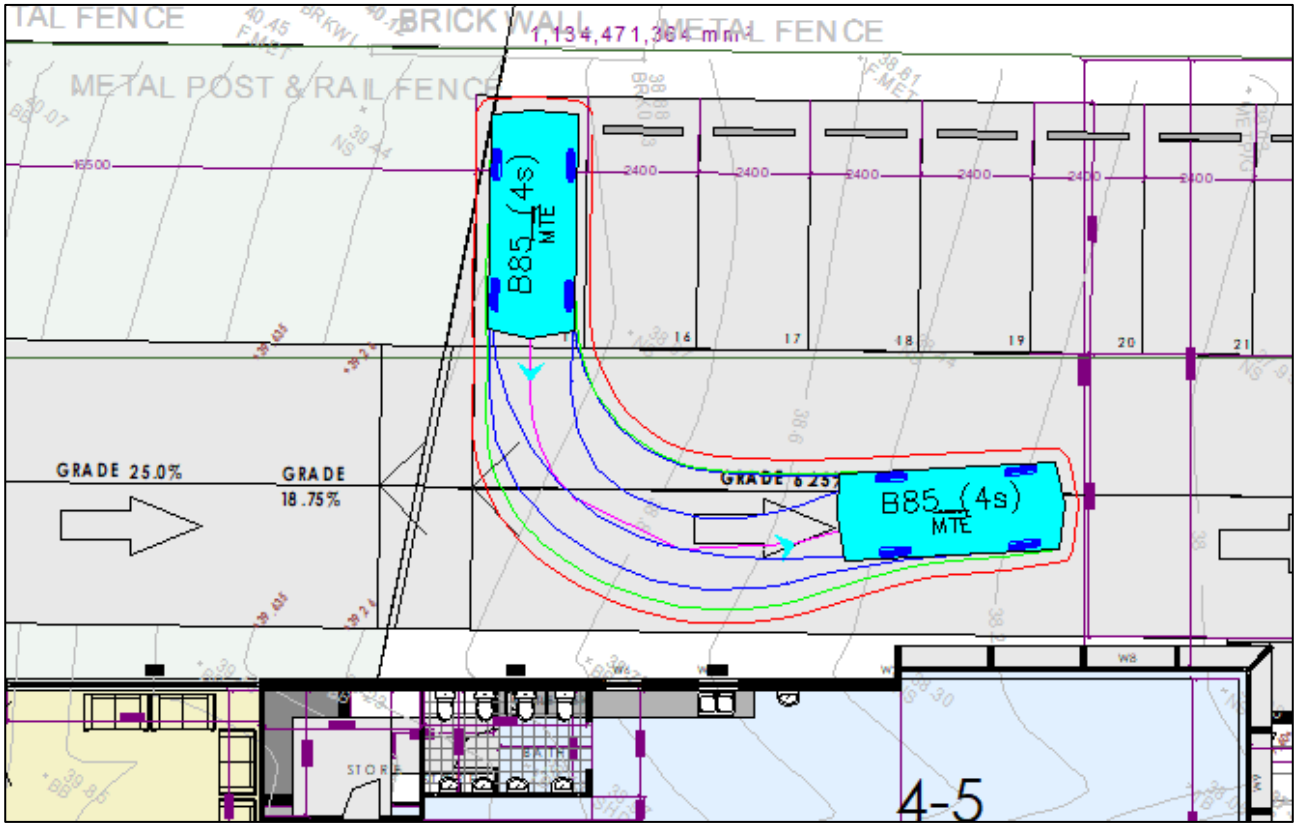


B99 Exit from Delivery Bay

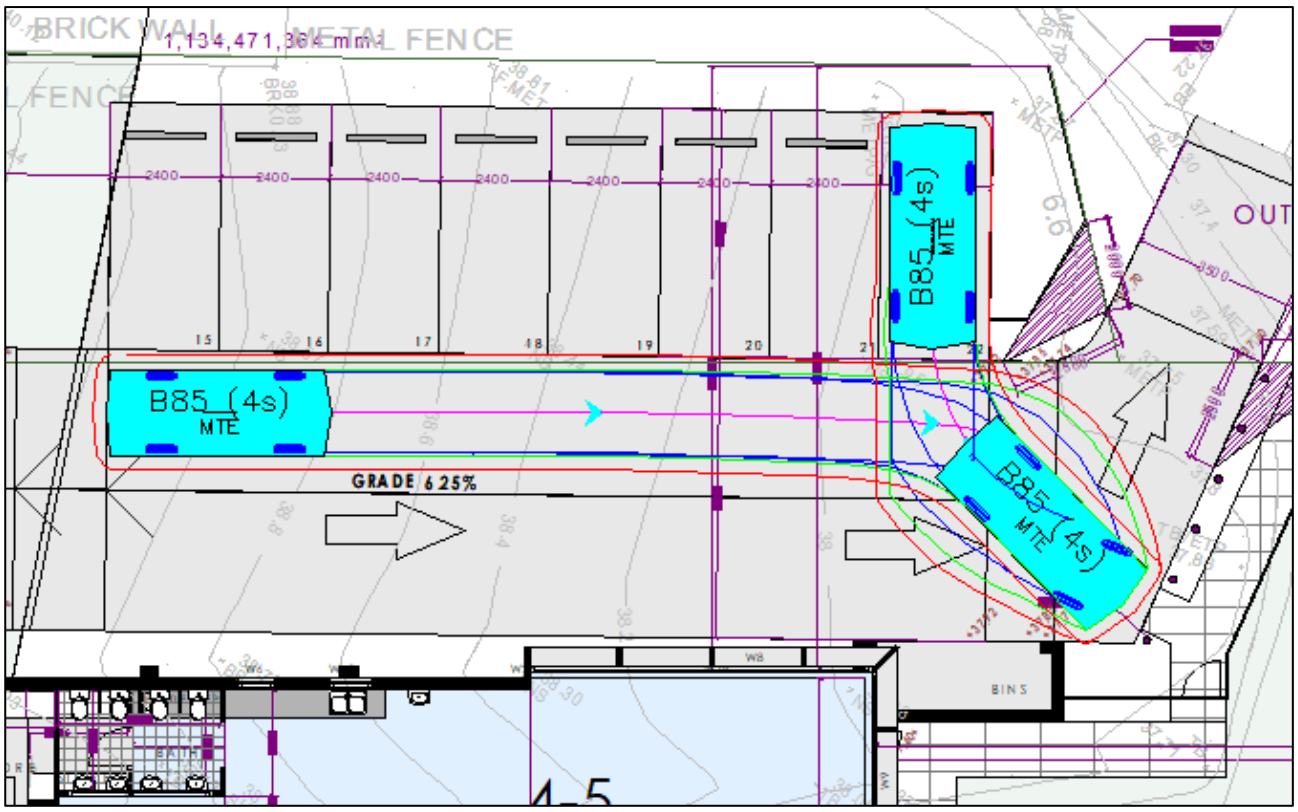
SUCCESSFUL – 2 Manoeuvres Reverse OUT



B85 Entry to Adjacent Ramp Space
SUCCESSFUL – 2 Manoeuvres Reverse IN



B85 Exit from Adjacent Ramp Space
SUCCESSFUL – 1 Manoeuvre Forward OUT



B85 Entry to End Space

SUCCESSFUL – 2 Manoeuvres Reverse IN

B85 Exit from End Space

SUCCESSFUL – 3 Manoeuvres Forward OUT