30 AUBURN ROAD PTY LTD

SSD-57703458 - STAGE 3 BUILDING C

TRAFFIC IMPACT ASSESSMENT

AFFORDABLE HOUSING DEVELOPMENT

AT

30 - 46 AUBURN ROAD, REGENTS PARK.

REV B

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1.0 INTRODUCTION

1.1 Executive Summary

This report has been prepared to address the Planning Secretary's environmental assessment requirements (SEARS) to respond to Traffic, Transport and Accessibility for Stage 3 Building C.

The proposed site is located at 30-46 Auburn Road Regents Park and comprises of Lot 1 DP 656032 and Lot 2 DP 433938 and has a site area of 21,170m^2.

The site has two metal and concrete warehouses and smaller metal and fibro warehouse buildings currently partially occupied. The site is part of a small industrial precinct which is bound by Magney Reserve to the east and Regents Park Public School to the north and the T3 Southern Railway line to the west and south.

The Stage 3 development encompasses the construction of Building C. The general Site Arrangement Plan is shown in **Appendix A** of this report.

Stage	SSD number	Status
Concept	SSD-20724880	Under review by DPE
Stage 1	SSD-54988962	Submitted
Stage 2	SSD-57394209	Submitted
Stage 3	SSD-57703458	This submission
Stage 4	SSD-57703462	No action

1.2 Background

We have been requested by 30 Auburn Road Pty Ltd to prepare a Traffic and Parking Assessment Report for the Stage 3 Building C.

A concept application SSD-20724880 is currently under review by DPE for a proposed mixed-use development at 30-46 Auburn Road Regents Park. The project proposes a mixed-use development including residential and commercial floor space with 15% of the residential accommodation provided as affordable rental accommodation. The SEARS (State Environmental Assessment Requirements) was provided by the Department of Planning and Environment to guide the EIS for the development application for Stage 3. The Traffic Impact Assessment will form part of the documentation required to fulfill the requirements listed in the SEARS and to support the development application.

1.3 Scope of Report

This report has been prepared to address the requirements listed in the SEARS Issue and Assessment Requirements; Item 9 Traffic, Transport and Accessibility. Review and analyse the existing transport network, including road hierarchy and any pedestrian, cycle or public transport infrastructure, current daily peak hour vehicle movements and existing performance levels at nearby intersections.

From the *Planning Secretary's Environmental Assessment Requirements (SEARS) Reference No. SSD-57703458* the Traffic Impact Assessment is to address items noted in Item 10 Traffic, Transport and Accessibility is described below.

Provide a transport and accessibility impact assessment, which includes: -

Provide a Transport Impact Assessment (TIA) in accordance with the processes and methodology recommended in the *Guide to Transport Impact Assessment (GITA)* published by TfNSW.

If the construction of the development would cause interruptions to regular pedestrian and transport routes (including public transport, active transport or general traffic), a preliminary Construction Traffic (or Transport) Management Plan (CTMP) should be prepared as part of the TIA to mitigate any such impacts.

The letter from the Department of Planning for the SEARS Application No 57703458 dated 9 May 2023 states that the report must address the following issues: -

- *Traffic generation – the transport and accessibility assessment submitted with Stage 3 must address the impact of traffic generated by the child care centre on the existing network.*
- *Child safety from vehicles entering the site – discuss and provide any required mitigation measures to ensure a high level of child safety can be achieved for any outdoor play area fronting Auburn Road.*

Regarding the child care centre, the following must be considered in preparing the EIS: -

- Pedestrian safety – consider any conflict between pedestrians and vehicles within the basement and at ground level.

A further letter from the Department of Planning for the SEARS Application No 57703458 dated 20 December 2024 required further issues to be addressed under Item 9: -

- Provide a Transport Impact Assessment (TIA) in accordance with the processes and methodology recommended in the Guide to Transport Impact Assessment (GITA) published by TfNSW.
- If the construction of the development would cause interruptions to regular pedestrian and transport routes (including public transport, active transport or general traffic), a preliminary Construction Traffic (or Transport) Management Plan (CTMP) should be prepared as part of the TIA to mitigate any such impacts.

(1.3 continued.)

Additional traffic counts were carried out by Matrix Transport and Data on the 6/3/2024 at key intersections in Auburn Road near the site. A summary of this data is covered in Section 2.5 of this report.

The site locality is shown in **Figure 1 Site Locality Plan**.

NORTH

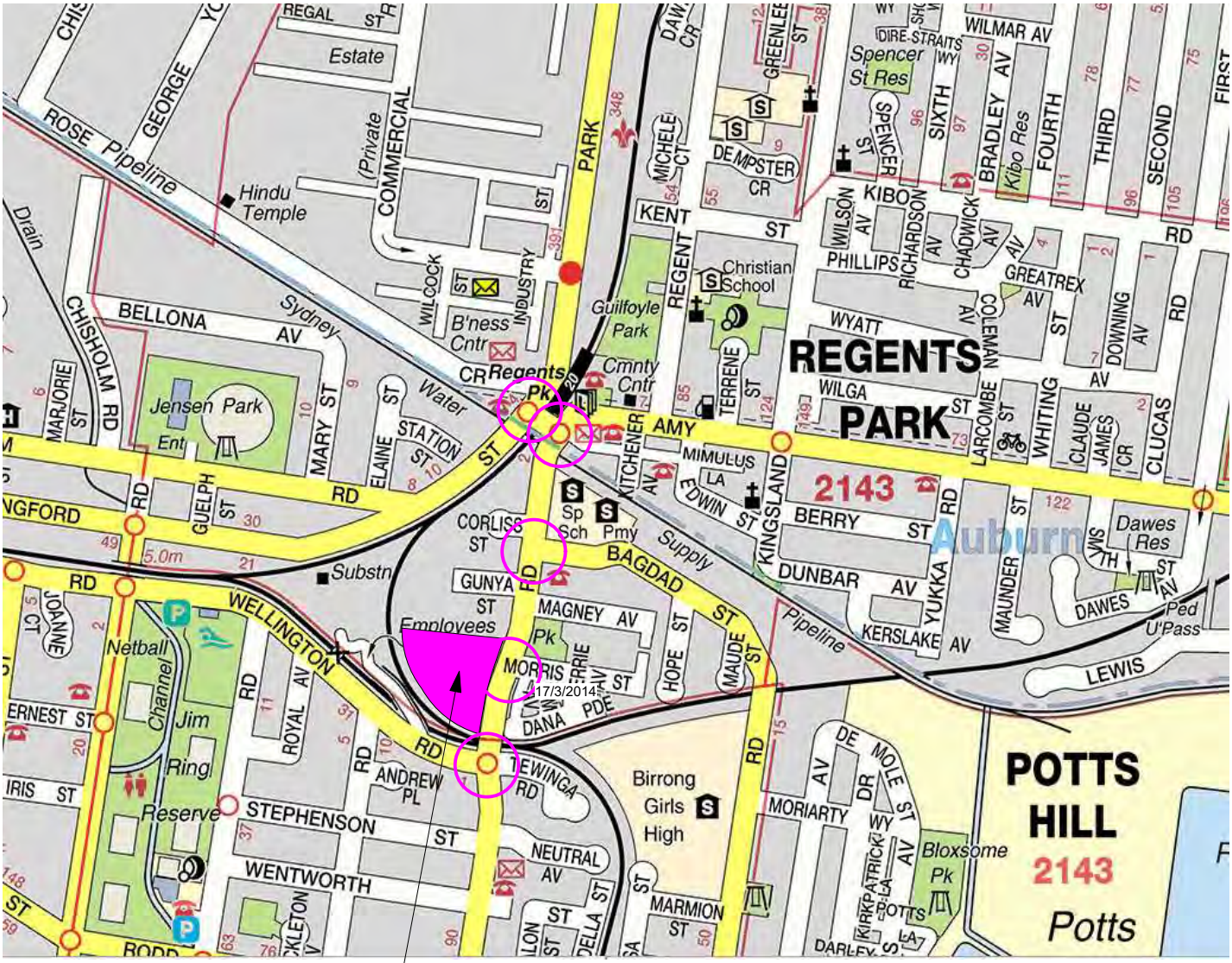


FIGURE 1
LOCALITY MAP

2.0 EXISTING TRAFFIC CONDITIONS

2.1 Site Description

The Site Area is 21,170m^2 and comprises of Lot 1 DP 656032 and Lot 2 DP 433938. The site is located in Regents Park which is located 20 kilometres south-west of Sydney CBD and 5 kilometres north of Bankstown CBD. The site is located approximately 500 metres south of Regents Park Railway Station, 1.2 kilometres north-east of Sefton Railway Station and 700 metres north of Birrong Railway Station.

The site is located within the Birrong-Regents Park Potts Hill statistical area and has a current population of 5,577 persons with an average household size of 3.24 persons per dwelling and 7.2% are aged between 0-4 years old.

2.2 Site Location and Area

The site as shown in **Figure 1** is a consolidation of Lot 1 in DP 656032 and Lot 2 in DP 433938 located on the western side of Auburn Road some 500 metres south of Regents Park Railway Station.

The irregular slope allotment occupies an area of 21,170m^2 with a frontage to Auburn Road of 166.5 metres and is bounded to the south and west by the railway line.

The site is partially occupied by industrial uses. The existing floor area is some 5735m^2. The site has four existing driveway crossings to Auburn Road.

The site is contained within a small industrial precinct which is surrounded by residential uses, Magney Reserve to the east and Regents Park Public School to the north.

2.3 Road Network

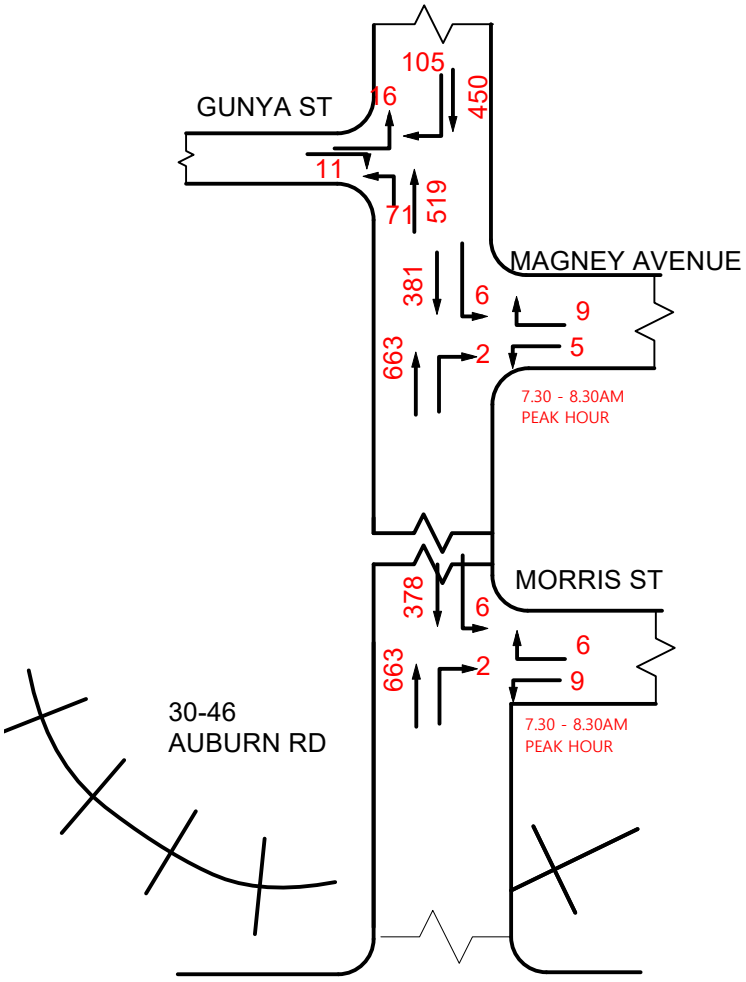
The existing road network surrounding the site including the key intersections is illustrated in **Figures 2E1** and **2F1** and **Figure 2E2** and **Figure 2F2**.

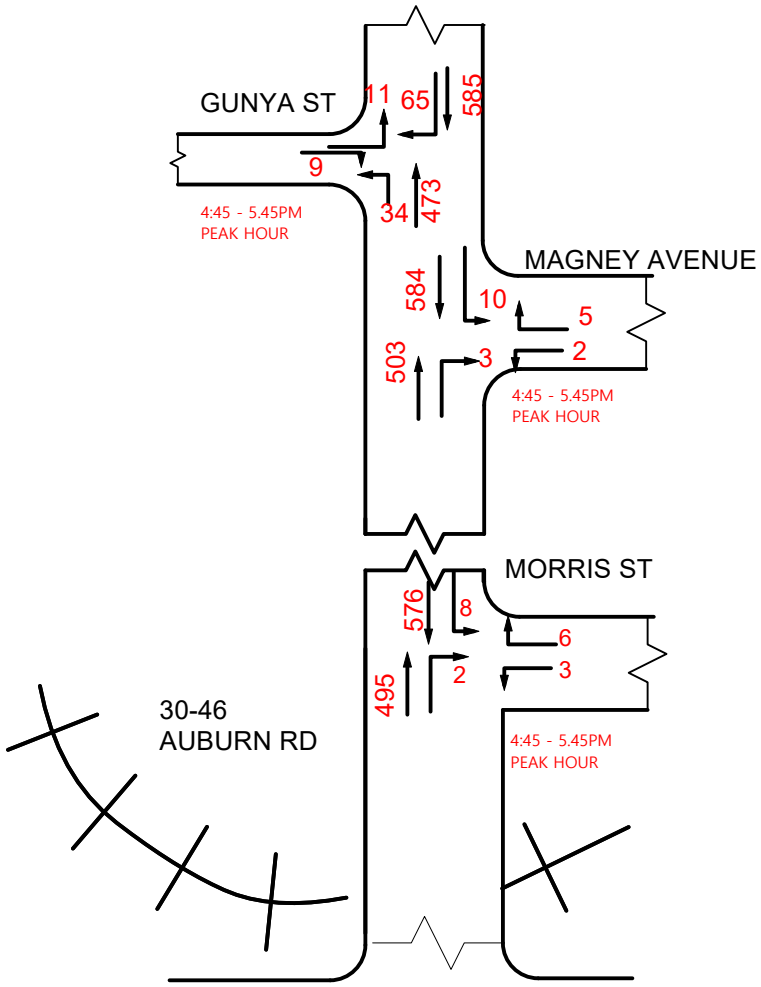
The road network in the vicinity of the proposed site consists of the following roads:

Hume Highway (A22) – a State Highway and principal arterial route between Sydney and south-western suburbs.

Rookwood Road (A6) – a state road and arterial route providing a north-south link between Hume Highway and Great Western Highway and connection to the M4.

Brunker Road/Ferrier Road – is an east west collector road route travelling from Hume Highway to the east, crossing Auburn Road and connecting to Rose Street to the West.





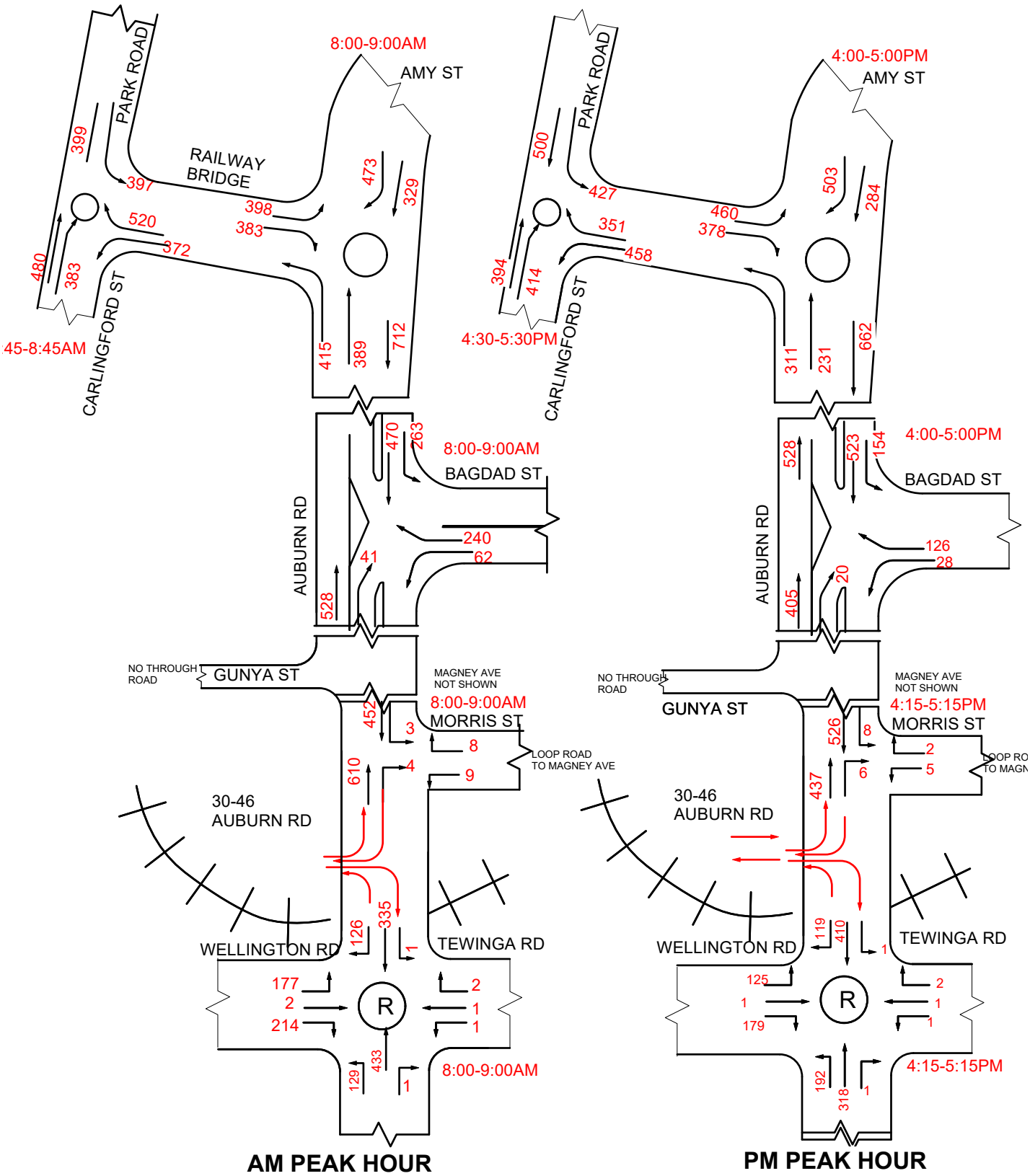
LEGEND

8.00 - 9.00AM PEAK HOUR
4.30 -5.30PM PEAK HOUR
OR AS STATED ABOVE

EXISTING PEAK HOUR VOLUMES
WED 6/3/2024

N

FIGURES 2E1 + 2F1



LEGEND

8.00 - 9.00AM PEAK HOUR
4.30 -5.30PM PEAK HOUR
AS STATED ABOVE

EXISTING PEAK HOUR VOLUMES
THURS 23/2/2023

N

FIGURES 2E2 + 2F2

(2.3 Continued.)

Auburn Road – is a regional road and a major collector road connecting to Amy Street to the north to Hume Highway at Yagoona to the south. The **Road Network** is shown in **Figure 1B**.

Amy Street/Carlingford Street and Park Road are collector routes serving the Regents Park Area.

Auburn Road has a 60km/hour speed limit. There is a school zone speed limit south of Magney Avenue which continues north to Amy Street and includes the Bridge Overpass connecting Auburn Road to Carlingford Street and Park Road.

2.4 Existing Peak Hour Traffic Counts

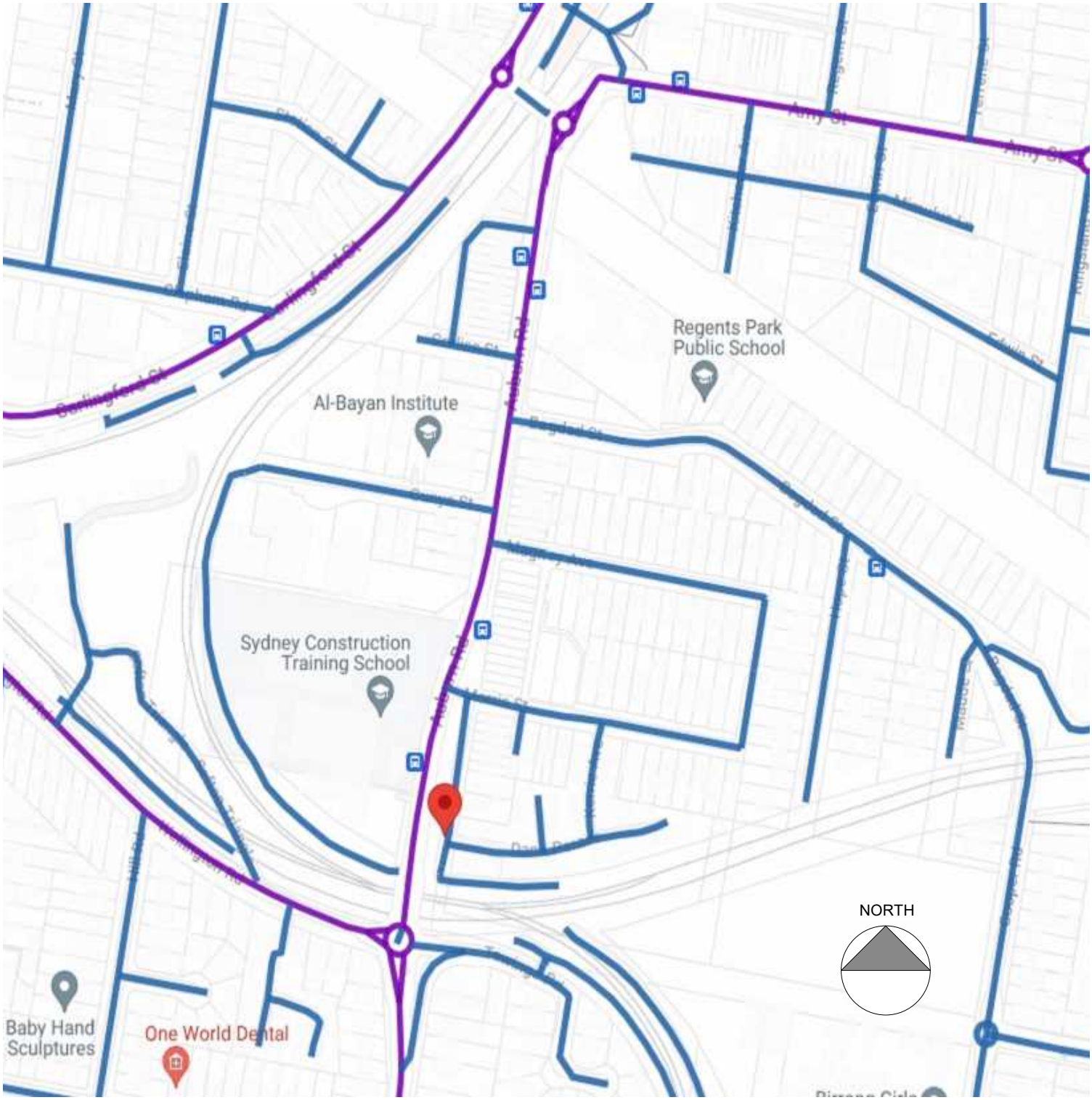
Updated traffic count data is included in **Appendix B** and **C**.

Traffic surveys were carried out by Matrix Traffic and Transport at all the key intersections on 23/02/2023 and the results are included in **Appendix C** of this report.

Additional traffic count data was carried out on Wednesday 6th March 2024 at the intersection of Auburn Road and Morris Street, Auburn Road and Magney Reserve and Auburn Road and Gunya Street. Results are included in **Appendix B.**

The Existing 2023 Base SIDRA Model was calibrated and analysed. The summary of the results are shown in **Table 2.4b**. Full SIDRA summaries are provided in **Appendix D** of this report.

All intersections under existing conditions are operating with spare capacity. Current peak hour traffic volumes are summarized in **Figure 2E1** and **2F1** for counts carried out at Magney Avenue/Auburn Road and Morris Street Auburn Road on 6/3/2024 and **Figure 2E2** and **2F2** for all other intersection counts carried out on 23/2/2023.



SOURCE TFNSW ROAD NETWORK MAP

LEGEND



FIGURE 1B
ROAD NETWORK MAP

2.4.1 Analysis of Existing Intersections

The Level of Service criteria for intersections are explained in **Table 2.4.2a** taken from the *RTA Guide to Traffic Generating Developments*.

The two signalized intersections at Carlingford Street/ Auburn Road/ Park Road and Auburn Road/ Amy Street are networked.

Table 2.4.2a Level of Service Criteria for Intersections

Level of Service	Average Delay per Vehicle (secs/ veh)	Traffic Signals, Roundabout	Give Way & Stop signs
A	<14	Good operation	Good operation
B	15 TO 28	Good with acceptable delays spare capacity	Acceptable delays & spare capacity
C	29 TO 42	Satisfactory	Satisfactory, but accident study required
D	43 TO 56	Operating near capacity	Near capacity & accident study required
E	57 TO 70	At capacity; at signals, incidents will cause excessive delays. Roundabouts require other control mode.	At capacity, requires other control mode

Source: Table 4.2 from RTA Guide to Traffic Generating Developments

The results of the analysis are set out in **Table 2.4.2b.** A summary of the output from the SIDRA analysis of intersection performance under peak hour traffic volumes is contained in **Appendix F**.

(2.4.1 continued.)

EXISTING SIDRA ANALYSIS –
Table 2.4.2b Intersection Performance Under Existing 2023 Peak Hour Traffic Volumes

2023 Pre Development SIDRA

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/vehicle)	Level of Service[3]	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE							
*Carlingford Street / Park Road	AM	0.626	8.9	**A**	Roundabout	RT from Carlingford Street	2.1 veh (15.2m) Carlingford Street
			(Worst: 12.3)	(Worst: A)			
	PM	0.614	8.4	**A**		East Approach RT from Auburn Road	1.5 veh (10.6m) Carlingford Street
			(Worst: 9.5)	(Worst: A)			
*Auburn Road / Amy Street	AM	0.630	8.3	**A**	Roundabout	RT from Amy Street	2.1 veh (15m) Amy St(N)
			(Worst: 11.1)	(Worst: A)			
	PM	0.571	7.4	**A**		RT from Amy Street	1.8 veh (13.1m) Amy St(N)
			(Worst: 10.1)	(Worst: A)			
Bagdad Street / Auburn Road	AM	0.518	4.7	**N/A**	Give Way (Seagull)	RHT from Bagdad Street	2.9 veh (20.8m) Bagdad Street €
			(Worst: 18.9)	(Worst: B)			
	PM	0.388	3.1	**N/A**		RHT from Bagdad Street	1.2 veh (8.7m) Bagdad Street €
			(Worst: 16.0)	(Worst: B)			
Auburn Road/ Wellington Road /Tewinga Road	AM	0.487	6.3	**A**	Roundabout	RT from Wellington Road	3.7 veh (26.2m) Wellington Rd
			(Worst: 11.1)	(Worst: A)			
	PM	0.487	5.5	**A**		RT from Tewinga Road	0 veh (0.71m) Tewinga Rd
			(Worst: 10.5)	(Worst: A)			
Auburn Road/ Morris Street	AM	0.324	0.4	**NA**	Give Way	RT from Morris Street	0.2 veh (1.6m) Morris Street
			(Worst: 38.9)	(Worst: B)			
	PM	0.279	0.3	**NA**		RT from Morris Street	0.0 veh (0.3m) Morris Street
			(Worst 29.5)	(Worst: C)			

Note: Denoted in ( ) is the worst movement.
Note: Control SS = Stop sign, S = Signal, G = Giveway, R = Roundabout.
Note*: Intersection Networked

Peak Flow default is 30 minutes in SIDRA 9.0 program. This means that within the 1 hour peak period there is a more specific flow period. Volumes are shown higher on the SIDRA movement summaries than actual survey data as a result.

2.5 Existing Vehicular, Pedestrian and Cyclist and Existing Site Traffic Volumes

A pedestrian, cyclist and vehicular count was undertaken on Tuesday afternoon between 4 - 6 pm on 01/08/2023 and Wednesday morning 02/08/2023 between 7-9am to ascertain peak pedestrian, cyclist and vehicles and classification of vehicles.

The summary of the results is included in **Appendix B** of this report.

A summary is located below. Please note there was a breakdown in Auburn Road south of Auburn Road Bridge/ Amy Street in the morning peak hour resulting in platooning of vehicles.

The vehicle counts were undertaken again by Matrix Traffic and Data on the 6/3/2024 to recount the key intersections of Auburn Road/Morris Street, Auburn Road/Magney Reserve and Auburn Road/Gunya Street during AM and PM hours.

Table 2.5.1a Peak Hour 7:45 – 8:45 am

	Auburn Road	
Mode	**Northbound**	**Southbound**
Car	*	*
Truck 2 axle and above	15	13
Bicycle	1	1
Pedestrians	**Northbound**	**Southbound**
Western side	0	0
Eastern Side	4	3
Crossing	East	West
	0	2
Site	**IN**	**OUT**
Cars	2	1
Trucks	0	1

* Note: Recount undertaken on 6/3/2024. Volumes were 669 and 453. See **Table 2.5.2c**.

(2.5 continued.)

Table 2.5.1b Peak Hour 4:45 – 6:45 pm

	Auburn Road	
Mode	**Northbound**	**Southbound**
Car	*	*
Truck 2 axle and above	7	5
Bicycle	2	0
Pedestrians		
	9	9
Crossing	West	East
	0	2
Site	**IN**	**OUT**
Cars	0	2
Trucks	0	1

Note*: Volumes northbound 453 and 586 southbound. See **Table 2.5.2c**.

Volumes for pedestrians and cyclists are low in both AM and PM peak hours. The count data is summarised in **Figure 2G** of this report.

Additional traffic counts were undertaken at Auburn Road/Morris Street, Auburn Road/Magney Reserve and Auburn Road/Gunya Street on Wednesday 6th March 2024 between 7 – 9 am and 4 – 6 pm.

The results show that the intersections counted on Wednesday 2024 have a small variation to the count data taken on Thursday 23/2/2023. Count data results show that the Wednesday Count data has slightly lower volumes in Auburn Road southbound in the AM and that the side street of Morris Street are within the acceptable range.

The results of the survey are summaries in **Table 2.5.2c**.

NORTH ACCESS

RW1

LEFT IN
LEFT OUT

CONCRETE HARD STAND AREA

EXISTING BUILDING

EXISTING BUILDING

future road access

AUBURN ROAD

1, 1HV

2

0

(2, (2hv)

2, (0)

(0,4)

0,(0)

0,(1)

1229C**,
15HV
(855,7HV)

7,(9)

1B
(2B)

1B
(0B)

3, (12)

0, (0)

546,13HV
(556,5HV)

4

3

HV= HEAVY VEHICLES
B- BICYCLE
C= CAR
(12)= pm PEAK HOUR DENOTED IN BRACKETS

(1B) 1B

cyclist volumes

7

pedestrian volumes

546,13HV

vehicular volumes

future road access

future line marking median

1229C**, morning peak hour blockage in system

0 5 10 15 20 25 M

PEDESTRIAN /CYCLIST AND VEHICLE COUNT
WEDESDAY 2/8/2023 7-9AM AND
TUESDAY 1/8/2023 4-6PM

FIGURE 2G
PEDESTRIAN /VEHICLE COUNT

(2.5 continued.)

Table 2.5.2c Summary of Intersection Counts Carried out on Wednesday 6/3/2024

AM Peak Hour Count at Intersection for Auburn Road and Morris Street 7:30-8:30am

	Northbound			Southbound		
	Thru	RT	Total	Through	LT	Total
Auburn Rd	663	6	669	378	7	385
	Westbound					
Morris Street	LT	RT				
	9	6				

PM Peak Hour Count at Intersection for Auburn Road and Morris Street 4:45-5:45pm

	Northbound			Southbound		
	Thru	RT	Total	Through	LT	Total
Auburn Rd	445	8	453	576	10	586
	Westbound					
Morris Street	LT	RT				
	3	6				

AM Peak Hour Count at Intersection for Auburn Road and Magney Reserve 7:30-8:30am

	Northbound			Southbound		
	Thru	RT	Total	Through	LT	Total
Auburn Rd	663	2	665	381	6	387
	Westbound					
Magney Reser	LT	RT				
	5	9				

PM Peak Hour Count at Intersection for Auburn Road and Magney Reserve 4:45-5:45pm

	Northbound			Southbound		
	Thru	RT	Total	Through	LT	Total
Auburn Rd	503	3	506	584	10	594
	Westbound					
Morris Street	LT	RT				
	2	5				

AM Peak Hour Count at Intersection for Auburn Road and Gunya Street 8:00-9:00am

	Northbound			Southbound		
	Thru	LT	Total	Through	RT	Total
Auburn Rd	519	71	590	450	105	555
	Eastbound					
Gunya Street	LT	RT				
	16	11				

PM Peak Hour Count at Intersection for Auburn Road and Gunya Street 4:45-5:45pm

	Northbound			Southbound		
	Thru	LT	Total	Through	RT	Total
Auburn Rd	473	34	507	585	65	650
	Eastbound					
Gunya Street	LT	RT				
	11	9				

2.6 Existing Public Transport

2.6.1 Train Services

The site is located approximately 440 metres south of Regents Park Station entrance to Amy Street. The site is also located 1.1km east of Sefton Trainway Station and 630 metres north of Birrong Station.

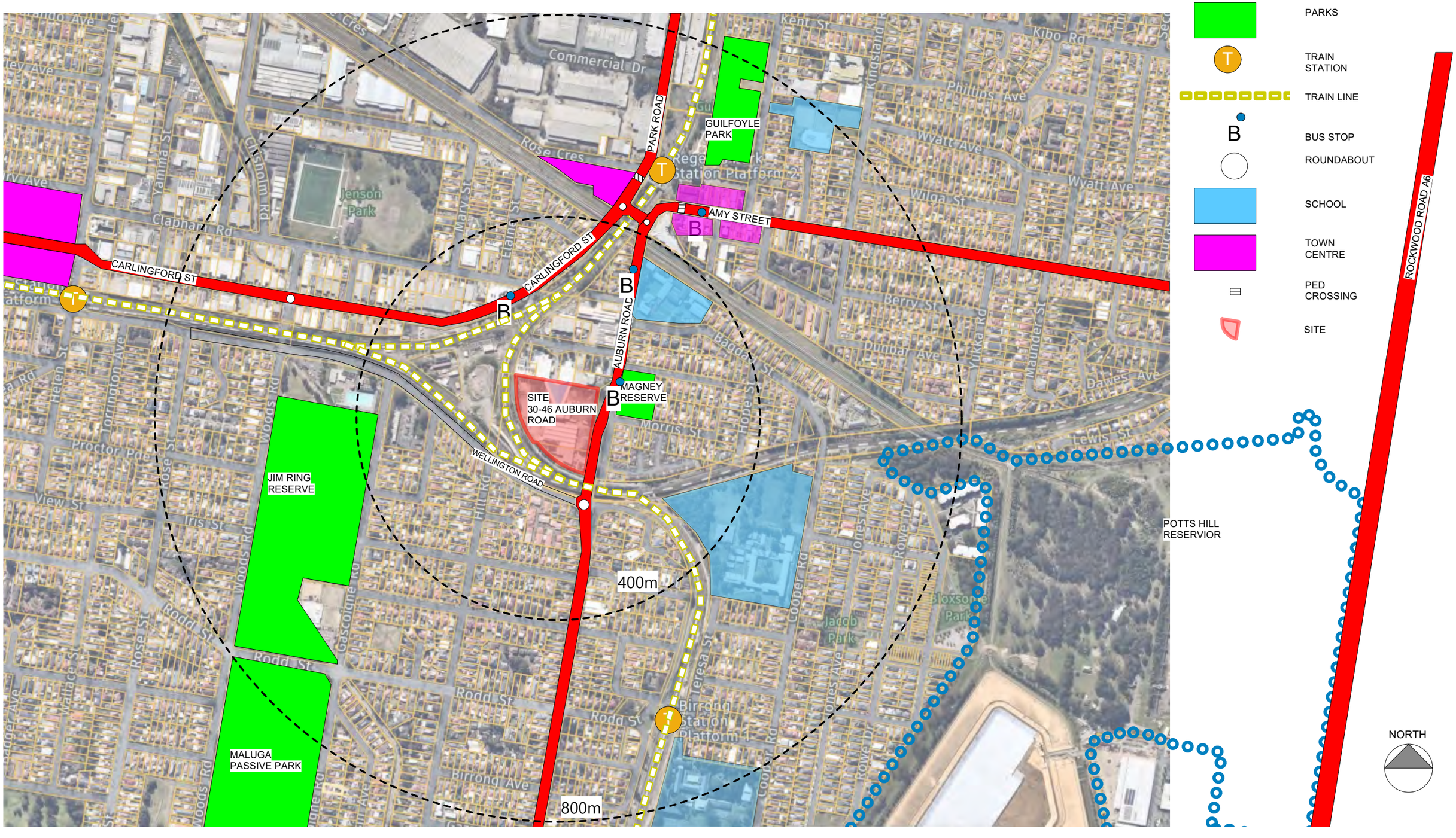
The site location with respect to the railway stations as shown in **Figure 2H**. The site is a 7 minute walk to Regents Park Railway Station.

2.6.2 Bus Services

The site is serviced by the following bus services: -

Route No	Route Description	Stop No	Service
909	Bankstown to Parramatta via Birrong and Auburn	Nearest stop Auburn Road opp Morris St 214396	7 days Mon - Fri, 5:39am to 10:20pm, services every 30 mins. Sat, 6:30am to 6:30pm. Sun and Public Holidays, 8:25am - 5:25pm.
908	Merrylands to Bankstown via Auburn	Nearest stop Auburn Road opp Morris St 214396	7 days Mon - Fri, 6:20am to 6:30pm, services every 30 mins. Sat, 7:46am to 5:29pm. Sun and Public Holidays, 9:00am - 4:40pm.

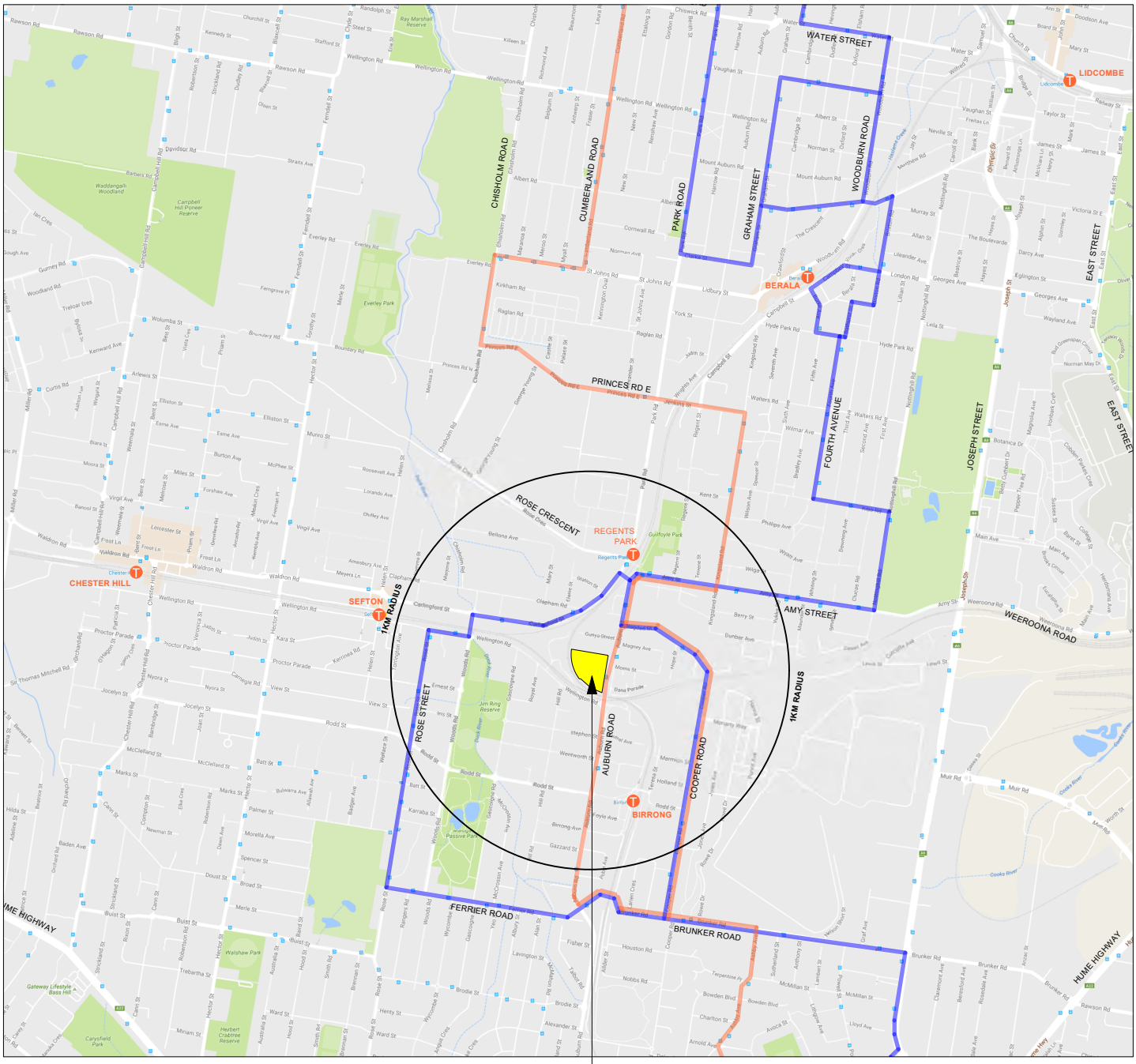
Refer to **Figure 2I** for Bus Network.



SOURCE NEARMAP

FIGURE 2H PUBLIC TRANSPORT AND SITE CONTEXT

N



SUBJECT SITE:
30-46 AUBURN ROAD,
REGENTS PARK

LEGEND

908 BUS ROUTE
MERRYLANDS TO BANKSTOWN

909 BUS ROUTE
BANKSTOWN TO PARRAMATTA

0M 1000M

FIGURE 2I
MAP OF EXISTING BUS ROUTES WITHIN 1KM OF 30 - 46 AUBURN ROAD, REGENTS PARK

2.6.3 Active Transport

Bicycle Routes

There is a network of existing bicycle routes north of the subject site. The existing bicycle routes are shown in **Figure 2J**.

Pedestrian Routes

There is a network of existing footpaths in the vicinity of the subject site. The footpath audit is shown in **Figure 2K**.

Whilst **Figure 2H** in this report refers to radial distances between railway stations the walking distances are calculated using georeferencing software for walking distances and are shown in **Figure 2L** below.

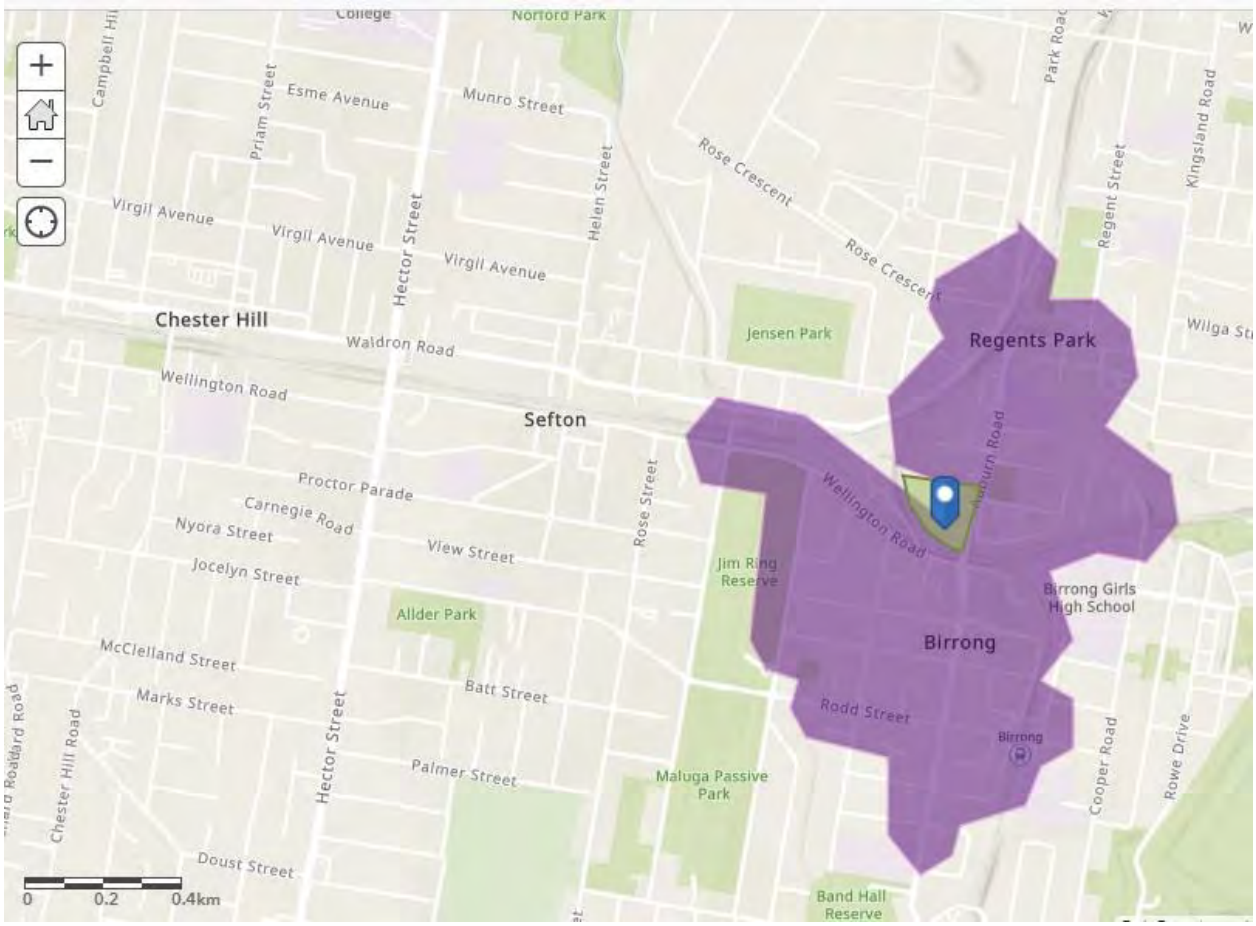


Figure 2L 800 walking distance in metres to railway stations from proposed site. *Source ESRI Geoscience Australia*

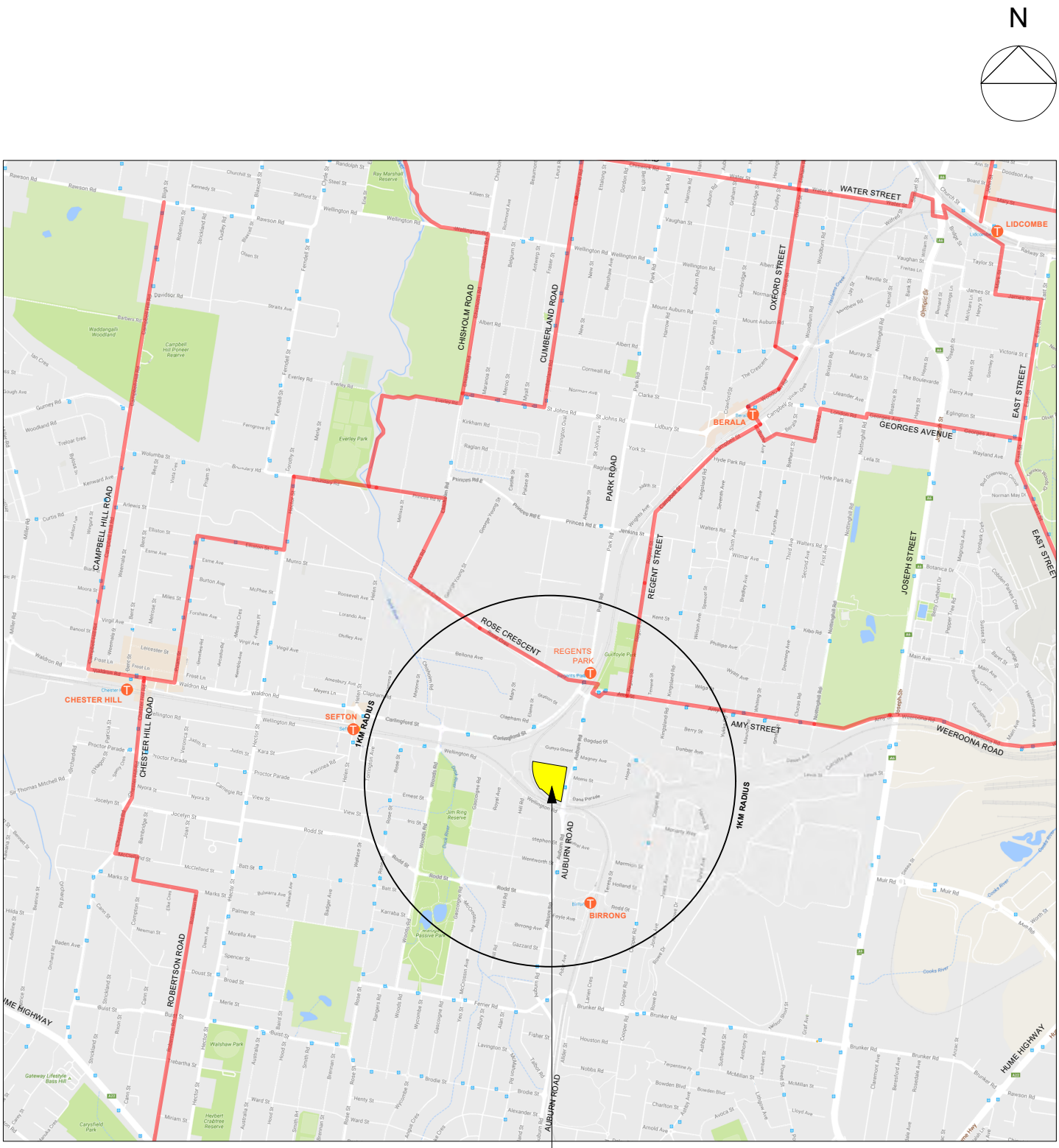


FIGURE 2J
MAP OF EXISTING CYCLEWAYS SURROUNDING 30 - 46 AUBURN ROAD, REGENTS PARK

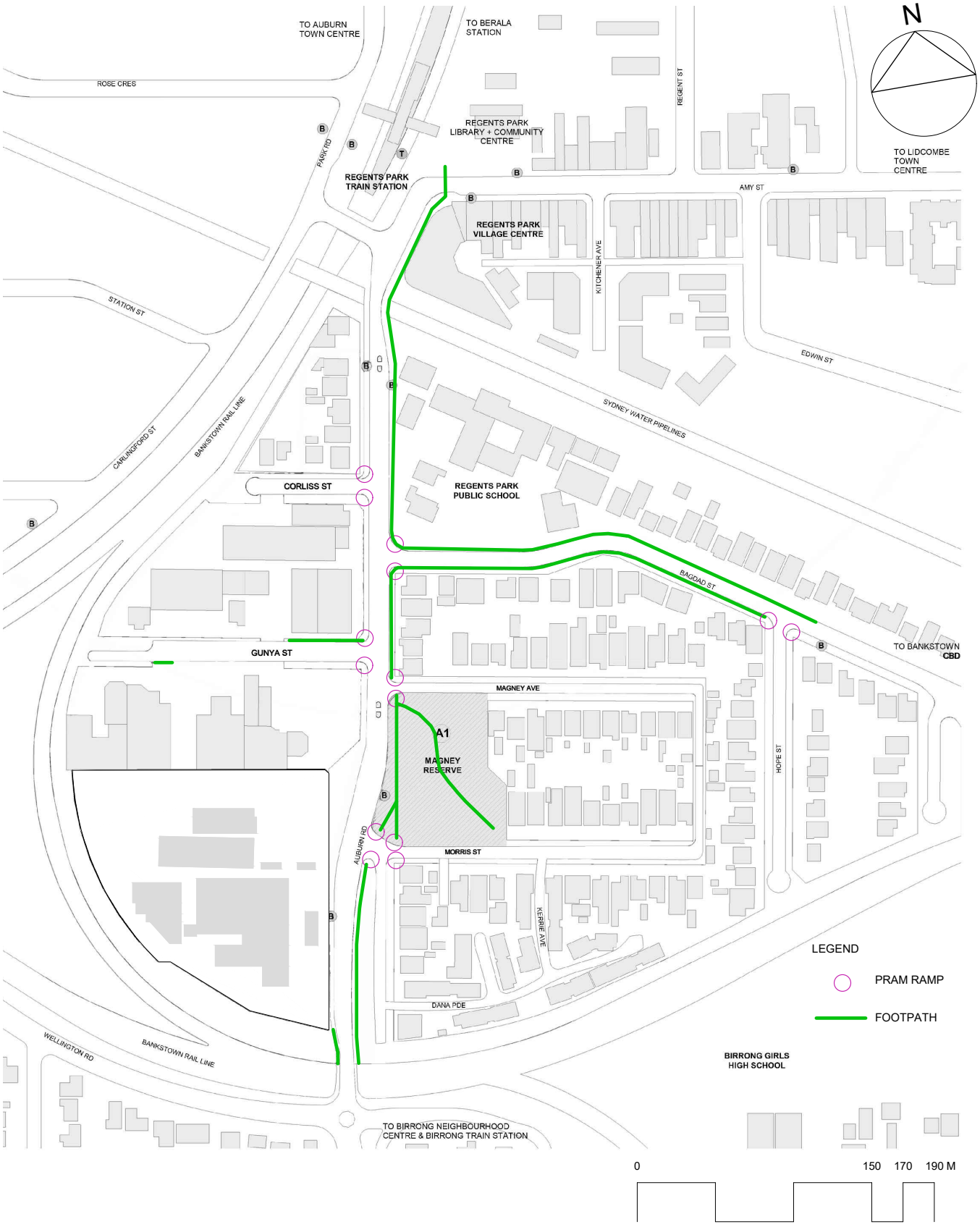


FIGURE 2K
EXISTING FOOTPATH NETWORK

2.7 Existing On Street Car Parking

The existing on street parking supply outside the site frontage is 15 spaces and 1 bus zone. The on street parking supply is shown in **Figure 2M On Street Parking and Inventory**.

Parking Counts were carried out within a 400 metre walking distance of the subject site. The walking distance was derived from ESRI geographical software to determine the streets to be surveyed. The area of the parking study is shown in **Figures 2N** and **2O**.

The parking survey was carried out on Tuesday 23/4/24 between 7:00am and 5:00pm to ascertain the parking demand in the streets surrounding the subject site. Numberplates were taken to ascertain the duration of parking. As the surveys commenced around 7:00am it would indicate that a majority of these vehicles in residential streets are residents' cars. The results show that outside the site frontage there are 2 vehicles which were unregistered and parked continuously all day and across the street in Auburn Road and eastern slip road the parking demand is low. In Gunya Street, the parked cars are likely to be employee vehicles which were recorded parked at 7:00am and visitors from the commercial businesses. After 3pm the parking demand reduced in this street. There are 652 car parking spaces on street some with car parking restrictions such as 1 disabled space and 1 x ¼ hour parking in Stephenson Street and southern side of Wentworth Street there are 8 x ½ hour parking spaces. The results show a peak occupancy rate of 0.35 at 7:00am in the morning. In Auburn Road, in closest proximity to the site the car parking demand is low. The survey results are summarised in **Table 2.7**.

match line

GUNYA STREET

MAGNEY AVENUE

MAGNEY RESERVE

SCHOOL ZONE SIGN

SCHOOL ZONE SIGN

G9-18 NO THROUGH ROAD

R5-400 NO STOPPING

R5-400 NO STOPPING

W6-3

R1-2

NORTH ACCESS

RW1

site compound parking

MAIN ACCESS IN ONLY

AUBURN ROAD

RAILWAY LINE

MORRIS STREET

TO SEFTON

WELLINGTON RD

TEWINGA RD

TO HUME HIGHWAY

TO AUBURN

PARK ROAD

TO JOSEPH ST

AMY STREET

CARLINGFORD STREET

AUBURN ROAD

CORLISS STREET

BAGDAD STREET

match line

KEY DIAGRAM

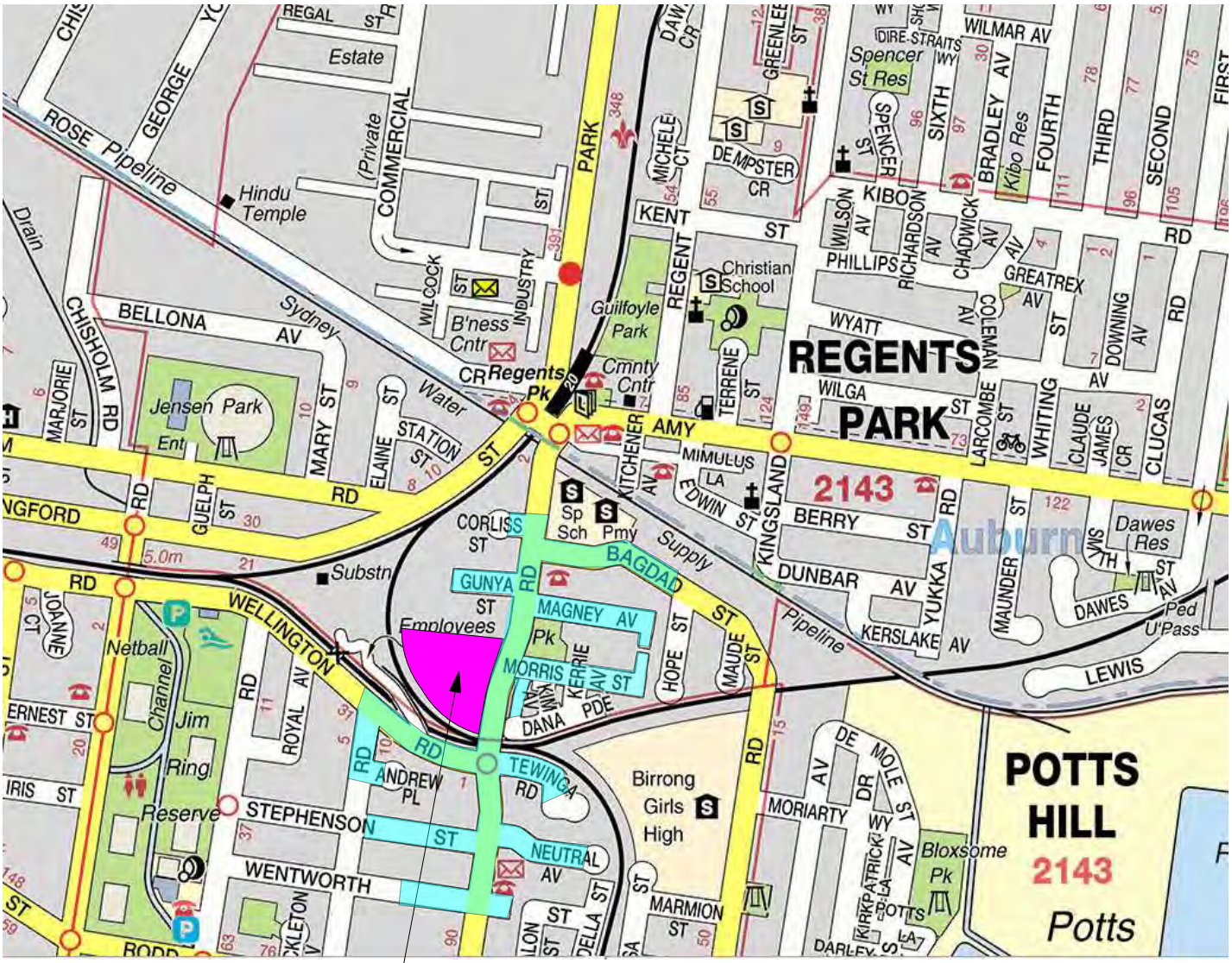
LEGEND
EXISTING STREET INVENTORY SIGNS

- G9-18 — No Through Road
- School speed zone signage
- R1-2 — Give Way
- 3T GVM — 3T Load Limit
- W6-3 — Children Crossing
- Speed Limit Sign Auburn Road
- BZ — Bus Zone
- SP — Existing on street parking outside site frontage
- Future Infrastructure Roads
- Existing Buildinsg to be demolished

0 5 10 15 20 25 M

FIGURE 2M
STREET INVENTORY
SHEET 1

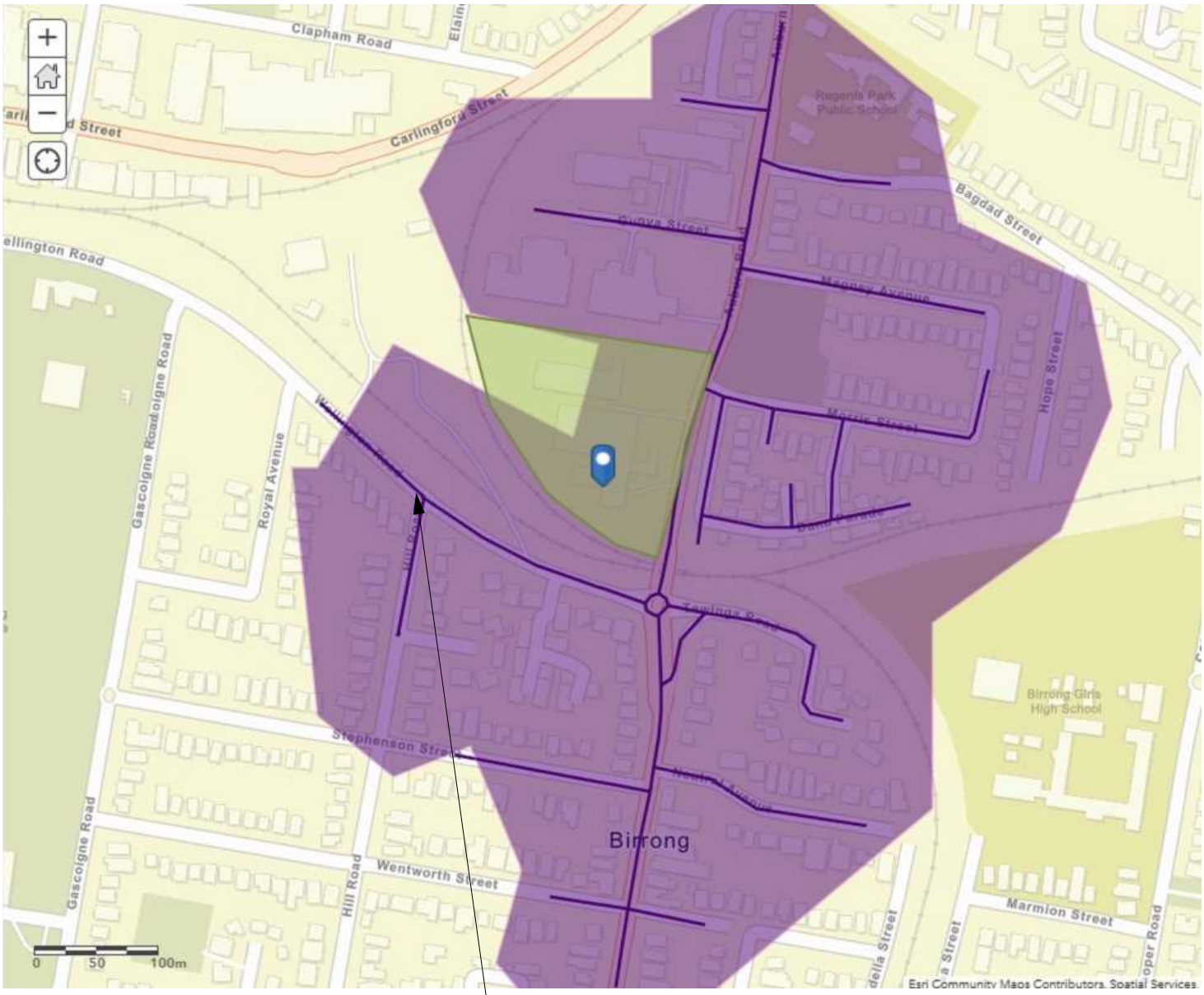
NORTH



SUBJECT SITE
30-46 AUBURN ROAD
REGENTS PARK

PARKING COUNT WITHIN 400 METRES WALKING DISTANCE

FIGURE 2N
PARKING COUNT
STREET LOCATION
WITHIN 400M WALKING
DISTANCE



- [x] Map Notes
- [x] Travel from Map Notes Walking 400 metres - travelareas
- [x] Travel from Map Notes Walking 400 metres - Reachable Streets
- [ ] Walking 5 minutes
- [ ] Travel from Map Notes (Points) 800 metres

survey in Wellington Road extended to Hill Road

FIGURE 2O SHOWING REACHABLE STREETS WITHIN 400 METRES WALKING DISTANCE

Table 2.7 On Street Parking Accumulation Count

Street	Total Parking No	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00
Corliss St South then North side	21	15	15	15	15	14	14	13	12	8	9	7
Auburn Rd West - Gunya St to Corliss St	No Spaces											
Gunya St North side to Auburn Rd (4)	5	5	5	5	5	5	5	4	4	3	2	4
Gunya St North side (3)	13	11	12	12	12	12	12	13	10	9	8	8
Gunya St South side (2)	5	5	5	5	5	5	5	5	4	3	2	1
Gunya St South side (1)	14	12	12	12	12	12	12	11	11	9	8	7
Auburn Rd West side To Gunya (2)	15	5	5	4	4	3	3	2	3	3	3	0
Auburn Rd West side from Railway Bridge outside site frontage	15	4	4	3	4	3	4	5	5	5	5	6
Wellington Rd North side (4)	8	1	1	1	0	0	0	0	0	0	0	0
Wellington Rd North side (3)	20	2	2	2	2	2	2	2	2	0	0	0
Hill Rd West side (2)	15	4	4	3	2	2	3	2	2	2	4	2
Andrew Pl North then South sides	17	0	0	0	0	0	0	0	0	0	1	2
Hill Rd East side (1)	11	4	4	4	4	4	4	5	4	4	3	3
Wellington Rd South side (2)	5	2	2	2	2	2	2	2	2	2	2	1
Wellington Rd South side (1)	17	10	10	10	9	9	9	9	9	10	10	10
Auburn Rd West side	12	3	3	3	1	1	1	1	12	1	3	3
Stephenson St North side (4)	8	6	5	5	4	5	4	3	6	5	5	5
Stephenson St North side (3)	19	7	7	8	7	7	8	8	7	7	6	6
Stephenson St South side (2)	7	3	3	5	4	5	4	4	1	1	1	1
Stephenson St South side (1)	19	3	3	3	4	4	4	3	4	5	8	9
Auburn Rd West side - Wentworth St to Stephenson St	3	2	1	1	1	3	2	2	2	5	3	3
Wentworth St North side (W2)	20	9	9	9	10	9	8	10	6	6	6	5
Wentworth St South side (W1)	20	9	9	9	10	9	8	10	6	6	6	5
Wentworth St South side (E2)	8	3	0	1	3	7	4	4	3	3	3	4
Wentworth St North side (E1)	6	3	2	2	3	3	4	2	3	2	2	3
Auburn Rd Neutral Av to Wentworth	10	3	3	2	3	6	5	7	5	8	3	3
Neutral Av South side (4)	6	5	5	3	3	6	5	7	5	8	3	3
Neutral Av South side (3)	20	6	5	5	5	5	7	7	8	8	8	10
Neutral Av North side (2)	7	3	3	3	2	2	2	2	2	2	2	2
Neutral Av North side (1)	19	11	11	12	13	11	12	12	10	11	9	11
Auburn Rd Tewinga Rd to Neutral Av	10	8	8	8	6	7	9	7	5	4	3	2
Tewinga Rd South side (4)	11	0	0	0	0	0	1	1	1	1	2	2
Tewinga Rd South side (3)	20	3	3	4	3	3	2	2	2	3	3	3
Tewinga Rd North side (2)	7	2	2	2	2	2	2	2	3	2	2	2
Tewinga Rd North side (1)	19	1	1	1	2	0	0	0	0	0	0	0
Auburn Rd bridge approach East side - Morris Street	18	0	0	0	0	0	0	0	0	0	0	0
Auburn Rd service road west side	18	1	0	0	0	0	0	1	1	0	0	0
Auburn Rd service road east side	15	2	2	1	0	0	0	1	1	0	0	1
Morris St South side (S2)	5	1	1	2	2	2	2	2	2	2	2	2
Morris St South side (S1)	19	3	3	3	3	3	3	4	4	6	7	8
Morris St North side (N2)	15	8	8	8	7	7	7	6	7	7	6	5
Morris St North side (N1)	18	2	2	3	3	3	3	3	3	4	5	5
Auburn Rd East side. Magney Ave to Morris St	7	0	0	2	2	2	1	1	0	0	0	0
Magney Av South side (S2)	10	5	6	7	7	7	7	7	7	6	5	4
Magney Av South side (S1)	18	4	4	4	4	4	4	4	4	4	5	7
Magney Av north side (N2)	8	5	5	5	5	5	4	2	2	2	2	2
Magney Av north side (1)	18	10	10	10	10	9	8	8	7	7	7	6
Auburn Rd East side Bagdad St to Magney	8	4	5	5	5	5	4	4	3	3	3	3
Bagdad St South side (S2)	9	5	4	4	5	5	5	5	5	5	6	6
Bagdad St South side (S1)	17	4	3	4	4	3	3	4	5	4	5	3
Bagdad St North side (N2)	11	2	1	1	1	1	2	2	3	2	3	3
Bagdad St North side (N1)	6	4	3	3	4	4	4	4	3	3	4	4
Auburn Rd East side	0	0	0	0	0	0	0	0	3	0	0	0
Total On Street	**652**	**230**	**221**	**226**	**224**	**228**	**224**	**225**	**216**	**201**	**195**	**192**
Occupany Rate		0.35	0.34	0.35	0.34	0.35	0.34	0.35	0.33	0.31	0.30	0.29
Off Street cnr Neutral Av	**25**	**7**	**5**	**7**	**9**	**10**	**16**	**8**	**3**	**3**	**4**	**1**

LEGEND

Sites Closest Proxmity to Site

3.0 PROPOSED DEVELOPMENT

3.1 Proposed Use

The proposed works is for the Developed Design of Building C.

The total site area is 21,170m^2 for the Masterplan site composing of Stages 1 to 4. The site area for Stage 3 is 5646m^2 and corresponding uses include 142 residential units and a childcare centre for 106 childcare places. We understand that the corresponding GFA is 15051m^2. There are a total of 198 car parking spaces provided in a basement car park.

Table 3.1 Summary of Uses and Areas

Building C	No of Residential Units	Childcare Centre
1 Bed 2 Bed 3 Bed	11 86 45	
Total	142	106 child places

3.2 Vehicular Access

Vehicular access through the site is provided by an internal street network. EW1 is a road near the northern boundary of the site that is 6 metres wide. It provides left in left out access to the site for cars only.

Delivery and waste management drivers will be briefed prior to accessing the site. Briefing will identify that use of the loading dock adjoining Building B. Vehicles are required to enter the southern driveway at EW2 and turn and park on the southern side of Building B in the loading dock. This will occur before 7am outside of peak hour activity.

EW2 is 9.0 metres wide and provides all vehicular movements into and out from the site from the southern midblock location. A protected right turn is proposed into the site from the north.

As discussed below, a priority treatment was determined to be the most satisfactory solution for access into the site. The internal road network is shown in **Drawing No 1160-8-23 Figure 8A** located in **Appendix E**.

Please note that references to RW2 on the traffic drawings is the same as EW2 stated on the architectural drawings. RW1 is the same as EW1 on the architectural drawings.

3.3 Swept Path Analysis

The road design general layout is shown in **Figure 1** located in **Appendix E**.

The following swept paths have been prepared for Heavy Rigid Vehicles (HRV) entering the northern driveway, HRV entering and exiting the southern driveway as shown in **Drawing No 1160-8-23 Figure 8B** and **Figure 8C** located in **Appendix E**.

Swept paths for B99 and B85 vehicles entering and exiting the northern and southern driveways are shown on **Drawing No 1160-8-23 Figure 8D** located in **Appendix E**.

The swept path analysis for the entry and exit paths into Building C Car Park are shown in Drawing No Figure 1 Ground Floor. Figure 2 shows the Basement C1 floor plan and swept paths for B85 and B99 swept paths are shown in all critical spaces and aisles. Figure 3 shows the swept paths for B99 and B85 vehicles in Basement B2. Figure 4 shows the swept paths in Basement C3 level for B99 and B85 vehicles. These drawings are located in **Appendix E**.

3.4 Car Parking Provision

Car parking rates for the retail shops and childcare centre has been calculated in accordance with the *Canterbury-Bankstown DCP 2023 Section 3.2*.

One of the objectives listed in Section 3.2 is to provide adequate car parking and reduce car dependency. This can be achieved through the promotion of active travel and so the development has adopted a lower requirement than what is proposed in the *CBDCP*. A green travel plan has been prepared for the development. It is important to note that on-streetcar parking surrounding the development site is constrained due to the isolated geographical nature of the site being bounded by the railway line and Auburn Road.

Table 3.4a Proposed Summary of Uses and Parking Requirements

Location	Uses	Area M^2	GFA	Children	No of Units	Parking Rate Proposed	Parking Required	Bicycle Parking Rate	Bicycle Parking
								18 staff	
	Childcare Centre	855		106		1 space per 4 children *	27	1 space per 4 staff	4
		855					**27**		4
	Residential	14153			**142**			1 visitor space per 10 dwellings	
	1 bed				11	1 spaces per dwelling	11		2
	2 bed				86	1 spaces per dwelling	86		9
	3 bed				45	1 spaces per dwelling	45		5
	Visitor *					1 space per 5 units	28		
							170		16
Total GFA	**Total**						**198**		**20**

Note* Rates per *Canterbury-Bankstown DCP 2023 Section 3.2.*

(3.4 continued.)

A car wash bay is required to be provided for each building. One (1) car wash bay is provided for Building C. The basement car parking also provides two (4) motorbike parking spaces and 5 bicycle parking spaces.

The parking schedule and summary provided in the architectural drawings prepared by Smith and Tzannes is shown in **Table 3.4b**

Table 3.4b Parking Provision

Parking Schedule Summary	
Type	**Quantity**
CCC Staff & Visitor	27
Resident	143
Visitor Resi.	28
	198

Parking Schedule Per Floor		Other Vehicles	
Type	**Quantity**	**Motorbike**	**Bicycles**
Basement C3			
Resident	68	6	8
Basement C2			
Resident	64	6	8
Basement C1			
CCC Staff	15		
Resident	10		
Visitor Resi.	28	4	28
Level 0			
Visitor CCC	12	4	9
	198	20	53

Disabled Car Parking

1. Retail Premises
   Disabled car parking is required. 1 space for every 50 car parking spaces or part thereof, 2 spaces are provided.

2. Residential Car Parking
   Disabled car parking is required in accordance with *Section B2.7* of the *Canterbury-Bankstown DCP 2023 Section 3.2*. Accessible car parking must be provided within the car park for visitors. Car parking should be provided at the rate of at least one car space per 100 car parking spaces and for every adaptable unit. One space is provided for visitors.

The car parking provision is shown in **Table 3.4a** and provides car parking at a lower rate than the DCP to promote active transport and walking.

The proposed required car parking is calculated to be **198** car parking spaces. The car park provides for 198 spaces.

3.5 Parking Layout and Circulation

The layout and circulation of the basement car parking levels has been assessed in accordance with *AS/NZS 2890.1-2004*.

Disabled car parking spaces are 2.4 metres wide with a shared zone 2.4 metres wide and bollard in accordance with *AS/NZS 2890.6-2018*. The spaces are located on ground level 0 for childcare centre parking.

The driveway has a central median which is 1.4 metres wide and provides 300mm clearance to the central column. At the driveway entry the width is 3.05 and 2.9 metres between kerbs. This widens to 3.75 and 3.6 metres wide beyond the roller shutter door, with a full width of 7.2 metres between kerbs.

The driveway is graded at 5% for the first 14 metres, then at 5% from RL 32.500 to 31.800 over 14 metres to Level C0.

3.5.2 Spaces and Aisle Widths – Childcare Centre Parking

The childcare centre parking design and layout has been reviewed with respect to the comments on traffic management provided in the SEARS response letter regarding pedestrian safety for childcare centres. The childcare centre aisle and space layout complies with the requirements for Class 3A spaces. Separate pedestrian walkways are provided for childcare centre parking to access lifts. Wheel stops are provided to the end of spaces in accordance with *AS/NZS 2890.1-2004.*

Parking on the Ground Floor Level 0

Parking spaces are 5.4 metres long and comply with the required depth specified in *AS/NZS 2890.1-2004*. Spaces are 2.6 metres wide and are clear of structural columns. The aisle widths varies 6.95 to 7.25 metres and exceeds the 6.6 metres width requirement to comply with *AS 2980.1-2004*. Separate access paths are provided with minimum width of 1 metre for pedestrians. Vehicles will be travelling at low speeds.

Additional traffic management signage can include “Watch for Pedestrians” and a speed hump to ensure speed reduction prior to the parking spaces as shown on the traffic review drawings in **Appendix E**.

Parking on Basement C1

The parking aisle width varies from 6.8 to 6.85 metres wide. The parking spaces for the childcare centre staff use are located on Basement C1 and are intended for employee parking and thus comply with User Class 1A in Table 1.1 in *AS/NZS 2890.1-2004*. The aisle widths are measured as 6.8 metres and comply with *AS 2890.1-2004* for Class 3A spaces.

3.5.3 Ramp Gradients

Ramp from Ground Level 0 to C1 Basement has a at 12.5% at the top for 2 metres and then grades at 1 in 5 (20%) over 6.5 metres and then another transition at 12.5% over to 2 metres and complies with the requirements of *AS 2890.1-2004.* A turning bay on C1 is located under this ramp within 2.2 metres clearance to the underside.

Ramp C1
Level C1 is split level at RL 29.700 there is a ramp graded at 12.5% to RL 28.300 over 11.2 metres between grids 3 and 4 from C1A to C1B There is another ramp between grids 7 and 8 which travels to level C2. This ramp is graded at 12.5% over 11.2 metres.

Ramp C2
Level C2 is also split level. There is a ramp that runs between C2A to C2B and has a ramp at 12.5% grade over 11.2 metres between grids 3 and 4.

Ramp C2 to C3
Another ramp is located between grids 7 and 8 which travels from C2B down to level C3. This ramp is 12.5% over 11.2 metres. The ramp does not require transition and complies with *AS 2890.1-2004.*

Ramp 3
Level 3 is a split level. A ramp travels from C3A to C3B. The ramp is located between grids 3 and 4 with a grade of 12.5% over 11.2 metres.

3.5.4 Aisle Widths and Space Widths

The aisle width of level C0 is 7.270 metres between 4C and 6C.

The aisle width on level C1 is 6.80 between grids 4A and 4B and 6.550 metres between grids 1B and 8B. An aisle width of 6.85 metres is provided between 4D and 8D. The dead end aisle has a width of 6 metres and services 12 spaces.

The aisle widths on level C2 are 6.1 metres between grids 4A and 4B and 6.85 metres between 4C and 8D.

A minimum of 5.8 metre wide aisle is proved between grids 1B and 3B. The dead end aisle services 12 spaces and the aisle width is 6 metres. This area of the car park is for resident parking only and is not open to the public.

Level C3 has the same aisle widths as level C2.

(3.5.4 continued.)

The Basement car parking layouts have been checked using Autoturn 9.03 computer program in Autocad and the following drawings are included in **Appendix E** showing the swept paths in circulation aisles, ramps and end spaces: **Drawing No 1160-8-23 Figure 1** showing B85 and B99 vehicular swept paths on Level 0 (Ground Floor), **Drawing No 1160-8-23 Figure 2A** Level C1 shows B85 and B99 vehicles on Level C1 Basement Car Park, and **Figure 2B** shows B85 vehicle using the turning bay. Drawing **No 1160-8-23 Figure 3** Level C2 showing B85 and B99 vehicle swept paths and **Drawing No 1160-8-23 Figure 4 Level C3 Basement.**

3.6 Safety of Enclosed Childcare Centre Play Areas from Auburn Road Traffic

The external play areas are shown in the architectural plans and Section B-B on **Architectural Drawing DA-A-206**. A copy is located in **Appendix A**.

The external ground floor play areas are protected by a landscape buffer east of the enclosed outdoor play space some 4.325 metres wide. The RL level of the ground floor play area has a relative level of RL 33.200 and natural ground is shown as RL 34.500 at Grid A (1.3 metres above) and RL 36.450 at Grid D (3.25 metres) above the playground level. There is a 0.6m thick reinforced concrete retaining wall east of the landscaped buffer area. The retaining wall could be increased to 1.1 metres above natural ground or a safety barrier installed at ground level above the retaining wall. The enclosed play areas are protected by the retaining wall and landscaped garden areas. Children do not have direct access to the landscaped areas.

The design of the wall will be required to be checked for inclined forces as per *AS/NZS1170.1* subject to the review of the structural engineer.

The first floor play areas are located at RL 36.400. The first floor areas are located above natural ground level between Grids A and C and are protected by retaining walls and landscaped buffer areas. The enclosed play area at the south-western end of the building is protected by a set of stairs and retaining wall adjacent to the enclosed play space and another retaining wall located 1 metre west of the boundary and 4.325 metres east of the enclosed play space.

3.7 Loading and Service Vehicle Provision

Based upon *Table 5.1 in the RMS Guide to Traffic Generating Developments* the number of unloading bays for commercial premises is not specified but under other uses it is given as 1 space per 4000m^2 of GFA. The requirement for the residential units is 1 space for every 50 units under 200 units, therefore 2.84 (3) bays are required. It does not specify the type and size of the loading bays.

Three (3) on grade loading bays are located around the site. A copy of the architectural drawings numbers DA-A010 Site Plan is provided in **Appendix A**. The loading bays are located between buildings C and D (This will service building C), north of building E and north of building A.

These will all cater for Heavy Rigid Vehicles. The loading bays are located 20 metres from the intersections with Auburn Road in accordance with *Australian Road Rules 2008 C|170* and *TTD2014/005* TfNSW Technical Direction. The loading bays are 3 metres in width and 24 metres long and will allow an HRV to enter the bay in a forward direction in a single turn and reverse and exit from a forwards direction.

3.7.1 Emergency Vehicles

Fire truck up to 12.5 metres in length has been checked entering the northern driveway and exiting via the southern driveway. Confirmation of vehicle size has been provided by NSW Fire and included in **Appendix K** of this report**.**

4.0 TRAFFIC IMPACTS TO THE ROAD NETWORK

4.1 Journey To Work Data

The journey to work car driver trips from Regents Park to work destinations and residents' usual residence to work have been obtained from Rob Destradi at the Australian Bureau of Statistics (ABS).

The percentage of car driver trips to journey to work travel destinations are shown in **Table 4.1a** for residents and **Table 4.1b** for workers.

The car driver mode is taken from the Census Population and *Journey to Work Data 2016.*

For a total population of 1390 persons within the three statistical areas the population of car drivers is 73.4%, this is a reduction from the 2011 Census data which was 76.8%; a reduction by 3.4%.

We reviewed the Census data for travel by direction to ascertain whether there has been any change to driver travel. We note that the car drivers as residents, 11% of residents that are car drivers in Birrong, Regents Park and Sefton, 10% of car drivers are undertaking local trips.

(4.1 continued.)

Table 4.1a Journey to Work for Residents

		Method of Travel to Work									
Geography of Usual Residence	*Residence ID*	Car, as driver	Percentage	Car, as passenger	Train (single method)	Other method of travel	Walked only	Worked at home	Did not go to w ork	Not stated	Total
Rest of NSW		668	48.06%	23	32	67	0	3	59	11	862
Yagoona - Birrong	119011361	79	5.68%	13	3	14	13	28	12	3	159
Chester Hill - Sefton	125031479	45	3.24%	5	0	0	3	0	3	0	52
Bass Hill - Georges Hall	119011354	30	2.16%	0	0	0	0	0	4	0	34
Panania - Milperra - Picnic Point	119011359	30	2.16%	3	0	3	0	0	3	4	42
Chullora	119011355	22	1.58%	0	0	3	3	8	3	0	40
Guildford - South Granville	125031483	20	1.44%	0	0	0	0	0	0	0	23
Chipping Norton - Moorebank	127031523	19	1.37%	0	0	0	0	0	0	0	16
Strathfield	120031575	18	1.29%	3	0	0	0	0	0	0	22
Padstow	119011358	18	1.29%	0	0	0	0	0	0	0	18
Menai - Lucas Heights - Woronora	128021535	17	1.22%	0	0	0	0	0	0	0	16
Regents Park	125011587	15	1.08%	4	0	0	8	14	0	0	34
Berala	125011585	15	1.08%	3	4	0	4	0	4	0	31
Bankstow n - North	119011571	15	1.08%	0	0	0	0	0	0	0	11
Revesby	119011360	15	1.08%	0	3	0	0	0	0	0	17
Punchbow l	119021366	15	1.08%	0	0	0	0	0	0	0	21
Concord - Mortlake - Cabarita	120011383	15	1.08%	3	0	0	0	0	5	0	20
Canley Vale - Canley Heights	127021513	13	0.94%	0	0	5	0	0	0	0	17
Greenacre - Mount Lew is	119011357	13	0.94%	0	0	0	0	0	0	0	15
Auburn - Central	125011582	13	0.94%	0	3	0	0	0	0	0	15
Granville - Clyde	125031481	13	0.94%	0	0	0	0	0	0	0	15
Cabramatta West - Mount Pritchard	127021512	12	0.86%	0	0	0	0	0	0	0	16
Smithfield - Wetherill Park	127021519	12	0.86%	0	0	0	0	0	0	0	16
Homebush Bay - Silverw ater	125011473	12	0.86%	0	3	0	0	0	0	0	12
Canterbury (South) - Campsie	119021363	11	0.79%	0	0	0	0	0	0	0	13
Condell Park	119011356	11	0.79%	0	0	0	0	0	0	0	11
Fairfield - East	125031480	11	0.79%	0	3	0	0	0	0	0	15
Mount Annan - Currans Hill	123011435	11	0.79%	0	0	0	0	0	0	0	14
North Parramatta	125041489	10	0.72%	0	0	0	0	0	0	0	13
Croydon Park - Enfield	120031393	10	0.72%	0	0	0	0	0	0	0	10
Parramatta - Rosehill	125041492	10	0.72%	0	0	3	0	0	0	0	18
Northmead	125041491	10	0.72%	3	0	0	0	0	0	0	13
Cabramatta - Lansvale	127021511	9	0.65%	0	0	0	0	0	0	0	18
Bankstow n - South	119011572	9	0.65%	0	0	0	0	0	0	0	10
Wiley Park	119021574	9	0.65%	0	0	0	0	0	0	0	10
Camden - Ellis Lane	123011433	9	0.65%	0	0	0	0	0	0	0	10
Colyton - Oxley Park	124051580	9	0.65%	0	0	0	0	0	0	0	10
Oatlands - Dundas Valley	125021478	9	0.65%	0	0	3	0	0	3	0	16
Lidcombe	125011586	8	0.58%	0	0	0	0	0	4	0	11
Peakhurst - Lugarno	119031372	8	0.58%	0	0	0	0	0	0	0	12
Carlingford	125021476	8	0.58%	0	5	3	0	0	0	0	17
Engadine	128021607	8	0.58%	0	0	0	0	0	0	0	12
Blacktow n (East) - Kings Park	116011303	8	0.58%	0	0	0	0	0	0	0	10
Greystanes - Pemulw uy	125031482	7	0.50%	0	0	0	0	0	0	0	11
Merrylands - Holroyd	125031485	7	0.50%	0	0	3	0	0	0	0	11
Cobbitty - Leppington	127011506	7	0.50%	0	0	0	0	0	0	0	14
Belmore - Belfield	119021362	7	0.50%	0	0	0	0	0	0	0	10
Macquarie Fields - Glenfield	123021442	7	0.50%	0	0	0	0	0	0	0	10
Bossley Park - Abbotsbury	127021510	5	0.36%	0	0	0	0	0	0	0	13
Rosemeadow - Glen Alpine	123021444	5	0.36%	0	0	0	0	0	0	0	11
Ashcroft - Busby - Miller	127011504	5	0.36%	0	0	0	0	0	0	0	12
Ashfield	120031390	4	0.29%	0	0	0	0	0	0	0	14
Concord West - North Strathfield	120011384	4	0.29%	0	3	0	0	0	0	0	12
Eastw ood - Denistone	126021497	3	0.22%	3	0	0	0	0	0	0	12
Casula	127031522	3	0.22%	0	0	3	0	0	0	0	12
	Total (a)	1,390	100.00%	78	71	120	23	51	124	35	1,893

Note: Please note that there are small random adjustments made to all cell values to protect the confidentiality of data. These adjustments may cause the sum of row s or columns to differ by small amounts from table totals.
(a) Includes employed persons w ith a usual residence in another State or Territory.
Data excludes Overseas Visitors.

(4.1 continued.)

Table 4.1b Journey to Work for Workers

		Method of Travel to Work									
Geography: Place of Work (POW)	*Place of Work ID*	Car, as driver	Percentage	Car, as passenger	Train (single method)	Other method of travel	Walked only	Worked at home	Did not go to work	Not stated	Total
POW No Fixed Address (NSW)	199999499	79	7.1%	8	13	10	0	0	3	3	122
Chullora	119011355	56	5.0%	6	0	11	3	8	4	5	91
Yagoona - Birrong	119011361	48	4.3%	9	4	8	13	26	6	0	114
Bankstown - South	119011572	41	3.7%	4	4	4	0	0	0	0	53
Homebush Bay - Silverwater	125011473	41	3.7%	0	7	0	0	0	6	0	50
Chester Hill - Sefton	125031479	38	3.4%	9	0	3	0	0	3	0	56
Condell Park	119011356	35	3.1%	3	0	3	0	0	3	0	41
Lidcombe	125011586	31	2.8%	0	6	3	0	0	3	0	42
Bankstown - North	119011571	27	2.4%	4	5	3	0	0	3	0	41
Parramatta - Rosehill	125041492	24	2.2%	0	20	4	0	0	3	3	57
Regents Park	125011587	22	2.0%	3	0	4	4	10	0	0	46
Sydney - Haymarket - The Rocks	117031337	21	1.9%	3	163	17	0	3	15	0	219
Greenacre - Mount Lewis	119011357	21	1.9%	3	3	0	0	0	0	0	24
Liverpool	127031598	18	1.6%	0	0	4	0	0	3	0	22
Granville - Clyde	125031481	17	1.5%	0	0	0	0	0	0	0	18
Macquarie Park - Marsfield	126021500	16	1.4%	0	4	0	0	0	0	0	21
Erskineville - Alexandria	117031330	15	1.3%	0	7	4	0	0	0	0	22
Strathfield	120031575	15	1.3%	0	4	0	0	0	0	0	21
Bass Hill - Georges Hall	119011354	15	1.3%	5	0	3	0	0	0	0	17
Ermington - Rydalmere	125021477	14	1.3%	0	0	0	0	0	3	0	22
Cabramatta - Lansvale	127021511	14	1.3%	0	3	0	0	0	0	0	22
Homebush	120031396	13	1.2%	0	3	0	0	0	4	0	17
Punchbowl	119021366	13	1.2%	0	3	0	0	0	0	0	17
Canterbury (South) - Campsie	119021363	13	1.2%	0	3	0	0	0	0	0	16
St Leonards - Naremburn	121011401	12	1.1%	0	5	0	0	0	0	0	21
Auburn - South	125011584	12	1.1%	0	0	0	3	0	3	0	18
Wetherill Park Industrial	127021521	12	1.1%	0	0	0	0	0	0	0	12
Prospect Reservoir	116031318	11	1.0%	0	0	0	0	0	0	0	13
Pyrmont - Ultimo	117031334	10	0.9%	0	6	3	0	0	3	0	21
Concord West - North Strathfield	120011384	9	0.8%	0	7	0	0	0	3	0	23
Mascot - Eastlakes	117011322	9	0.8%	0	3	0	0	0	0	0	14
Northmead	125041491	9	0.8%	0	5	0	0	0	0	0	11
Burwood - Croydon	120031391	8	0.7%	0	3	3	0	0	0	0	18
Belmore - Belfield	119021362	8	0.7%	0	3	0	0	0	0	0	15
Leichhardt - Annandale	120021388	8	0.7%	0	0	0	0	0	0	0	12
Auburn - North	125011583	7	0.6%	0	3	0	0	0	0	0	13
Lane Cove - Greenwich	121011400	7	0.6%	0	0	0	0	0	0	0	10
Ashfield	120031390	6	0.5%	0	3	0	0	0	0	0	11
Ingleburn - Denham Court	123021440	6	0.5%	0	0	0	0	0	0	0	10
Waterloo - Beaconsfield	117031338	5	0.4%	0	0	4	0	0	0	0	16
Kingsgrove (North) - Earlwood	119021364	5	0.4%	0	0	0	0	0	0	0	10
North Ryde - East Ryde	126021501	3	0.3%	0	3	4	0	0	0	0	13
North Sydney - Lavender Bay	121041417	0	0.0%	0	16	6	0	0	3	0	22
Surry Hills	117031336	0	0.0%	0	10	0	0	0	0	0	12
	Total (b)	337	30.3%	29	50	48	0	4	32	6	508
		1112	100.0%	103	374	159	24	55	110	27	1964

Note: There are small random adjustments made to all cell values to protect the confidentiality of data.
These adjustments may cause the sum of rows or columns to differ by small amounts from table totals.
(a) Custom area for Place of Usual Residence is a best fit to Work Destination Zones 113551891, 113611854 and 115870001.
It is made up of the following Statistical Area 1 (SA1) of Usual Residence:
1135502, 1136101, 1136102, 1136109, 1136135, 1136136, 1136138, 1136144, 1136145, 1136146, 1158707, 1158708
(b) Includes employed persons with a Place of Work in another State or Territory.
Data excludes Overseas Visitors.

4.2 Travel Time Surveys

In our opinion, in order to confirm routes that drivers would use it was necessary to carry out Travel Time Surveys in the AM peak hour. On these routes where congestion and delays occurred 2 runs were made in each direction from the Potts Hill/ Auburn Road sites. The routes and travel times and route length are listed in **Appendix G.**

4.3 Road Network Impacts

We have engaged Bitzios Traffic Consulting to derive the growth percentage and projected growth volumes from the STEM model. A copy of this data is included in **Appendix H** of this report.

The background traffic growth percentage has been derived from the STFM data. SIDRA analysis has been analysed for Base Model plus 10 Years Background Traffic Grown to 2033.

The results of the SIDRA analysis are summarized in **Table 4.3**. All intersections (except Carlingford Street/ Park Road/ Auburn Road in the AM Peak Hour) are operating with plenty of spare capacity. SIDRA summary analysis files are located in **Appendix F** of this report.

(4.3 continued.)

Table 4.3 Intersection Performance Under 2033 Existing Plus Background Peak Hour Traffic Volumes

2033 Pre Development SIDRA

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/vehicle)	Level of Service[3]	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE PLUS BACKGROUND DEVELOPMENT GROWTH 2033							
*Carlingford Street / Park Road	AM	0.853	30.7	**B**	Roundabout	RT from Carlingford Street	5.2 veh (37.2m) Carlingford Street
			(Worst: 22.2)	(Worst: C)			
	PM	0.870	12.4	**B**		RT from Carlingford Street	4.6 veh (33m) Carlingford Street
			(Worst: 9.5)	(Worst: A)			
*Auburn Road / Amy Street	AM	1.067	25.3	**C**	Roundabout	RT from Amy Street	15.1 veh (108.4m) Amy St (N)
			(Worst: 84.4)	(Worst: F)			
	PM	0.959	12.4	**B**		RT from Amy Street	7.6 veh (54.2m) Amy St (N)
			(Worst: 29.4)	(Worst: C)			
Bagdad Street / Auburn Road	AM	0.745	6.2	**N/A**	Give Way (Seagull)	East RHT from Bagdad Street	5.0 veh (36.5m) Bagdad St (E) Approach
			(Worst: 28.8)	(Worst: C)			
	PM	0.473	3.9	**N/A**		East RHT from Bagdad Street	2.1 veh (15.3m) Bagdad St (E) Approach
			(Worst: 20)	(Worst: B)			
Auburn Road/ Wellington Road/ Tewinga Road	AM	0.647	7.7	**A**	Roundabout	RT from Wellington Road	0.0 veh (0.3m) Tewinga Rd
			(Worst: 11.4)	(Worst: B)			
	PM	0.622	6.2	**A**		East RT from Tewinga Road	0.0 veh (0.3m) Tewinga Rd
			(Worst: 12)	(Worst: A)			
Auburn Road/ Morris Street	AM	0.383	0.7	**NA**	Give Way	RT from Morris Street	0.4 veh (3.0m) Morris Street
			(Worst: 6.6)	(Worst: E)			
	PM	0.340	0.4	**NA**		RT from Morris Street	0.1 veh (0.6m) Morris Street
			(Worst 49.6)	(Worst: D)			

Note: Denoted in ( ) is the worst movement.
Note: Control SS = Stop sign, S = Signal, G = Giveway, R = Roundabout.
Note*: Intersection Networked

4.4 Traffic Generation

4.4.1 Traffic Generation – Childcare Centres

We reviewed TfNSW for 10 childcare centres during actual peak hours. This information was then pro-rata to the number of children at this centre and the car driver mode for the travel zones within a 10 minute travel distance were then applied to determine the number of trips during the AM and PM peak hour. The highest value car driver mode is adopted for calculation purposes. Survey Data for the Long Day Care Centres is contained in **Appendix I**.

Table 4.4.1a The Calculation of Childcare Trips

	AM Peak Hour		PM Peak Hour	
	IN	**OUT**	**IN**	**OUT**
Survey Data Average Peak hour from 10 sites	17.6	17.5	14.6	14.8
Survey Data Average Pro Rata Rates	41	41	34	34
Car Driver Mode Parents	0.474	0.474	0.474	0.474
Survey X Driver Mode	19.4	19.4	16	16
20 Staff Driving 10% allow for trips during AM peak hour and 15% PM Peak Hour*	2	2	3	3
Total Estimate Traffic	**21**	**21**	**19**	**19**

*Architects plans state 18, allow for 20.

Table 4.4.1b Car Travel for Local Trips to Childcare Centre

	Direction	JTW	Percentage	TOTAL TRIPS	
Yagoona	SE	5.58	43.46%	18.25	16.08
Mt Lewis/Sefton	E	0.65	5.06%	2.13	1.87
Greenacre	SE	0.94	7.32%	3.07	2.71
Bass Hill	NE	2.16	16.82%	7.07	6.22
Berala	NE	1.08	8.41%	3.53	3.11
Lidcombe	S	0.56	4.36%	1.83	1.61
Regents Park	WE	1.08	8.10%	3.53	3.11
Condell Park	S	0.79	6.15%	2.58	2.28
				AM	**PM**
		12.84		**42**	**37**

Table 4.4.1c Car Driver Mode Local Residents Travelling to Childcare/Work

	2021
Yagoona	46.4
Mt Lewis/Sefton	45.9
Greenacre	45.9
Bass Hill	36.4
Berala	43. 2
Lidcombe	34.7
Regents Park	45.1
Condell Park	47.4

(4.4.1 continued.)

The traffic generation by the childcare centre and retail shops will be local trips within a 10 minute travel period. A 10 minute travel period during AM and PM Peak hours is shown in **Figure 2P**.

4.4.2 Residential Traffic Generation

The traffic generation rates for the residential units have been adopted from the *RMS TDT04a/2013 Technical Direction* for high density residential units. A rate of 0.19 trips per unit for AM peak hour and 0.15 trips per unit for PM Peak Hour.

For residential units, a directional distribution of 80% OUT and 20% IN in the AM peak hour and 80% IN and 20% OUT in the PM peak hour has been adopted.

There are 142 residential units within the development and the corresponding traffic generation will be 27 vehicles in the AM peak hour and 21 vehicles in the PM peak hour.

4.4.3 Total Traffic Generation for Stage 3

The corresponding traffic generation for Buildings C will be **69** vehicles in the AM Peak Hour and **59** vehicles in the PM peak hour. Traffic generation summary is included in **Table 4.4.3**.

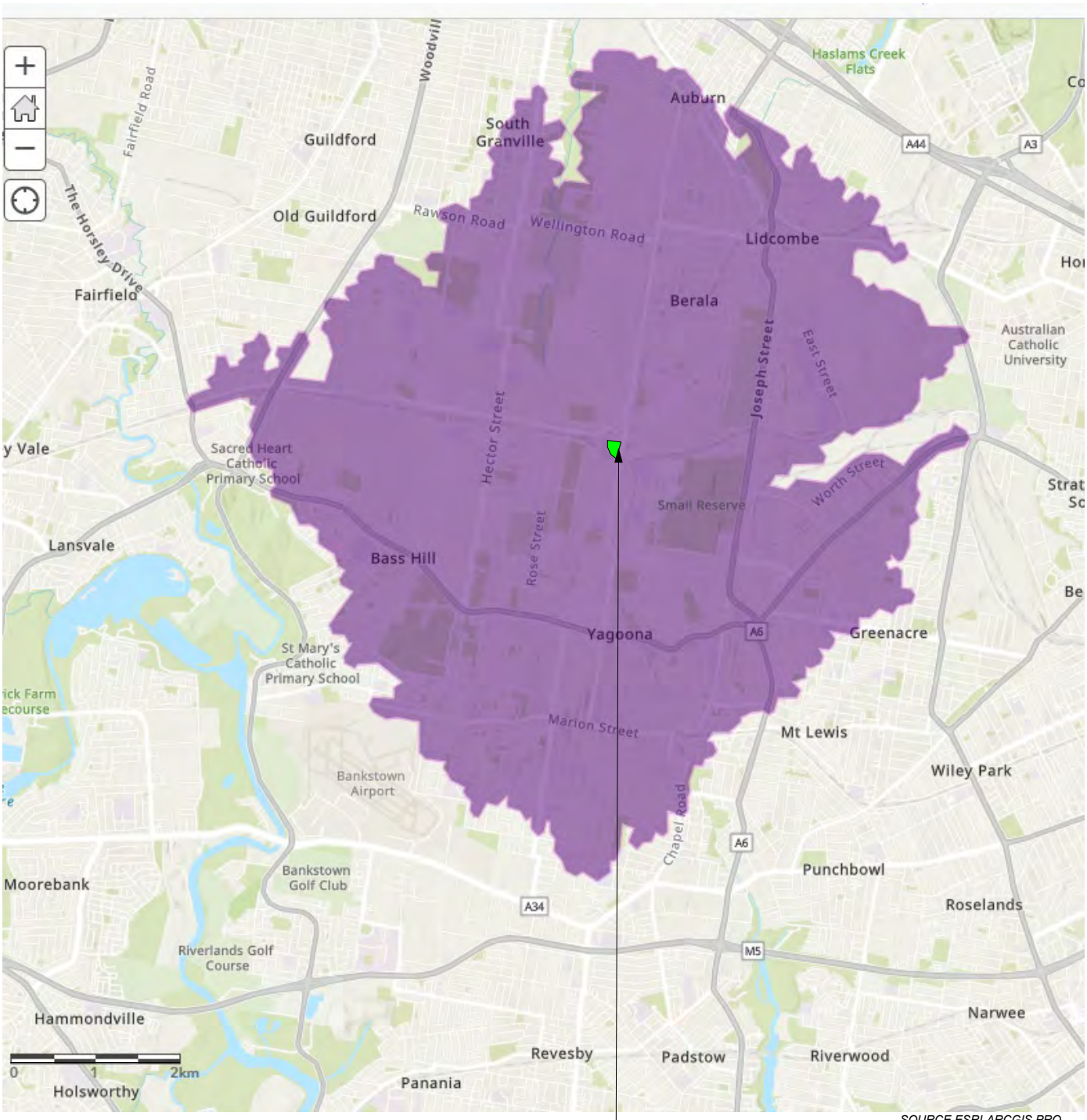
Table 4.4.3 Traffic Generation

Proposed Development Scenario					Peak Hour Rates		Peak Hour Traffic		AM Split		PM Split	
		Mix			AM	PM	AM	PM	IN	OUT	IN	OUT
	14976	1 Bed	2 Bed	3Bed								
Residential	No of Dwellings								20%	80%	80%	20%
	142	11	85	46	0.19	0.15	27	21	5	22	17	4
Childcare	106				106 children at 0.8/2 trips AM	106 x 0.7\2PM	42	38	21	21	19	19
Total							**69**	**59**	**27**	**43**	**36**	**23**

Note: Normally GLFA is used to calculate the traffic generation from shops.

The traffic impact is 69 vehicles (27 IN and 43 OUT in the AM peak hour) and 59 vehicles (36 vehicles IN and 23 vehicles OUT in the PM peak hour). The whole site development traffic generation is 162 vehicles in the AM Peak Hour and 135 vehicle trips in the PM Peak Hour.

The Stage 3 Development Traffic for Building C represents 43% of AM trips and 44% of PM trips. When assigned to the road network, we predict this will not change the Level of Service (LoS) at key intersections.



SOURCE ESRI-ARCGIS PRO

SUBJECT SITE 30
-46 AUBURN ROAD

N

FIGURE 2P
10 MINUTE CAR
TRAVEL TIME DURING
AM/PM PEAK HOURS

4.5 Traffic Assignment to Road Network

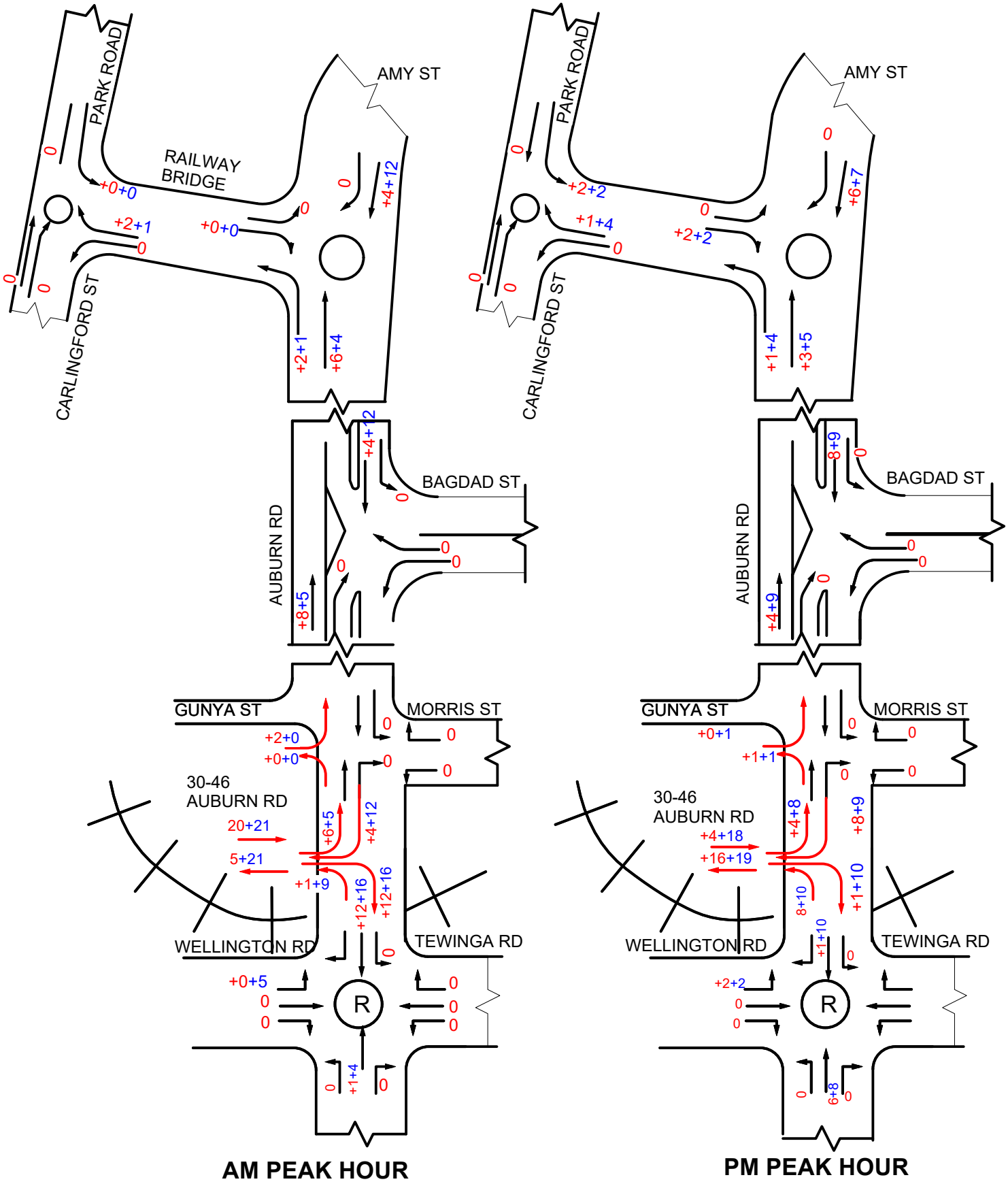
The numerical distribution of AM and PM 'car driver journey to work trips' from 30-46 Auburn Road to the road network are shown in **Figures 3A** and **3B for Stage 3**.

The numerical distribution of AM and PM 'total traffic generation trip' to the road network are shown in **Figures 4A** and **4B,** for 2023 existing volumes plus future development traffic for Stage 3 development. Traffic generation for Existing plus Development traffic for stages 2 and 3 are shown in **Figures 4C** and **4D**

The traffic assignment is based upon the 'arterial road' and 'collector road' network, the shortest path to work destinations from the Regents Park residential area estimated from the *2016 Census Journey to Work* and adjusted based upon peak hour travel time surveys. The traffic assignment in percentage of trips via the various routes is shown in **Figure 5.**

The traffic generation impacts and the assignment to the road network is show in **Figures 3A** and **3B** and do not warrant further SIDRA modelling of these intersections as the future development traffic volumes will not change the level of service. Consideration of the entire development was undertaken by with the assessment of **Report 18/21 Rev H** provided in support of the overall site concept SSD-20724880 and updated in the **Supplementary Technical Report No 12/24** located in **Appendix L** of this report.

Full SIDRA modelling was undertaken for the whole development site in **Report 18/21 Rev H** and updated in **Report No 12/24**.



LEGEND

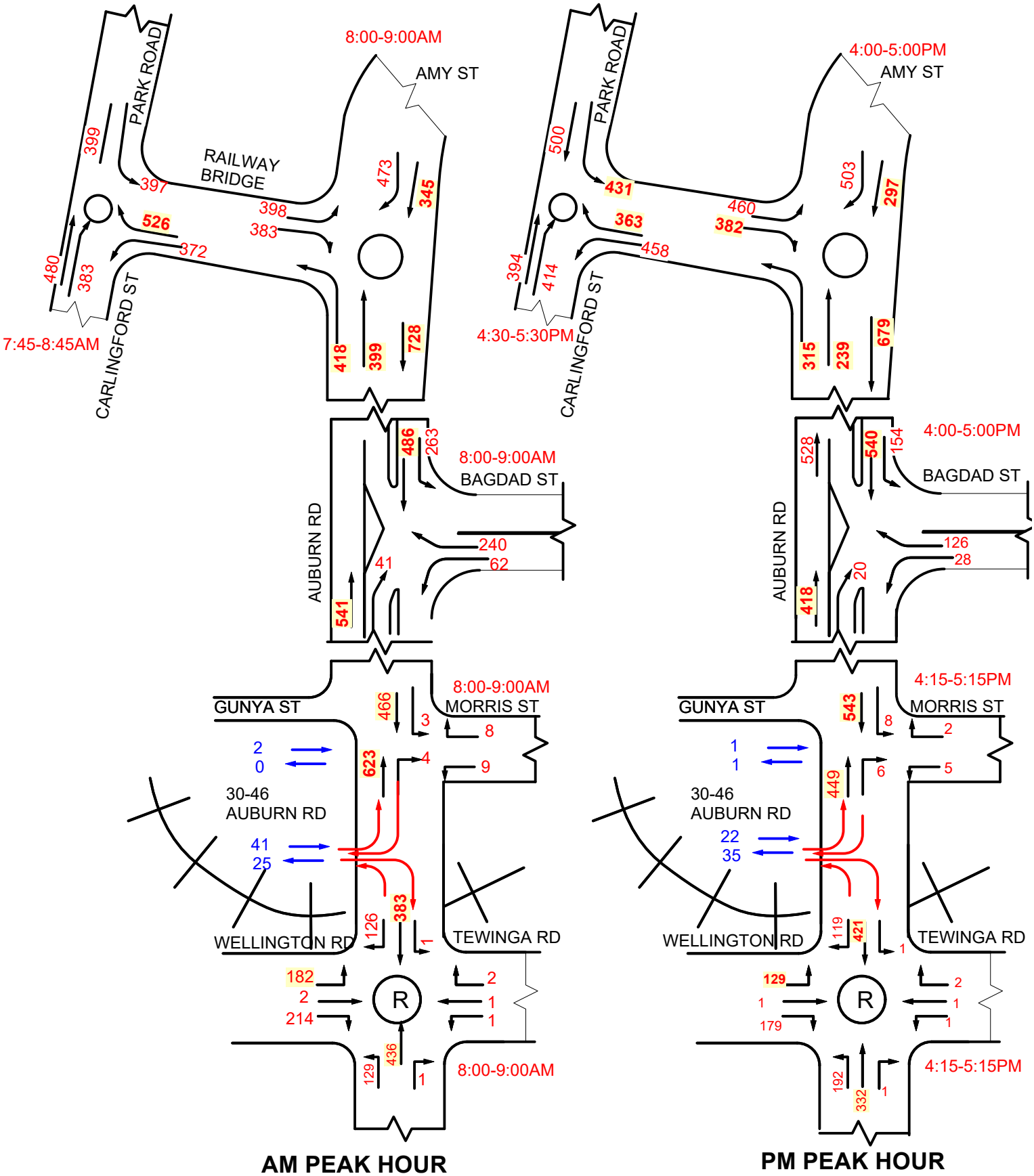
+20 ADDITIONAL PEAK HOUR VOLUMES GENERATED BY THE PROPOSED RESIDENTIAL APARTMENTS SITE AT 30-46 AUBURN ROAD

+21 GENERATED BY CHILDCARE CENTRE

N

STAGE 3 DEVELOPMENT
142 APARTMENTS PLUS
106 PLACE CHILDCARE CENTRE

FIGURES 3A + 3B



LEGEND

473 8.00 - 9.00AM PEAK HOUR
4.30 -5.30PM PEAK HOUR

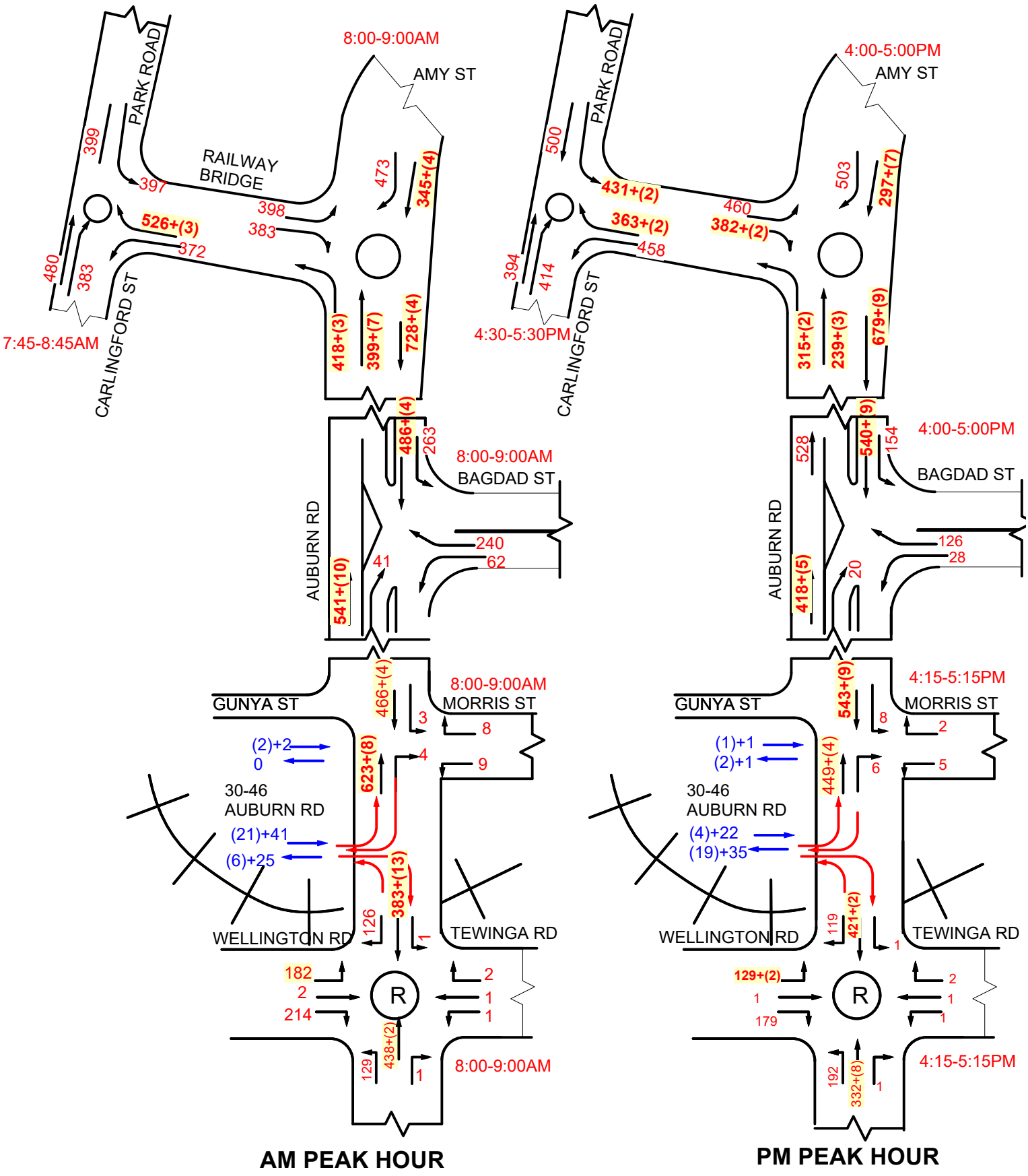
41 → TOTAL SITE DEVELOPMENT VOLUMES

583 EXISTING PLUS DEVELOPMENT VOLUMES FOR STAGE 2

N

FUTURE PEAK HOUR VOLUMES
EXISTING 2023 PLUS FUTURE DEVELOPMENT AT 30-46 AUBURN ROAD-STAGE 3

FIGURES 4A + 4B



AM PEAK HOUR

PM PEAK HOUR

LEGEND

473 8.00 - 9.00AM PEAK HOUR
4.30 -5.30PM PEAK HOUR

41 → TOTAL SITE DEVELOPMENT VOLUMES-STAGE 3

+(21) TOTAL SITE DEVELOPMENT VOLUMES-STAGE 2

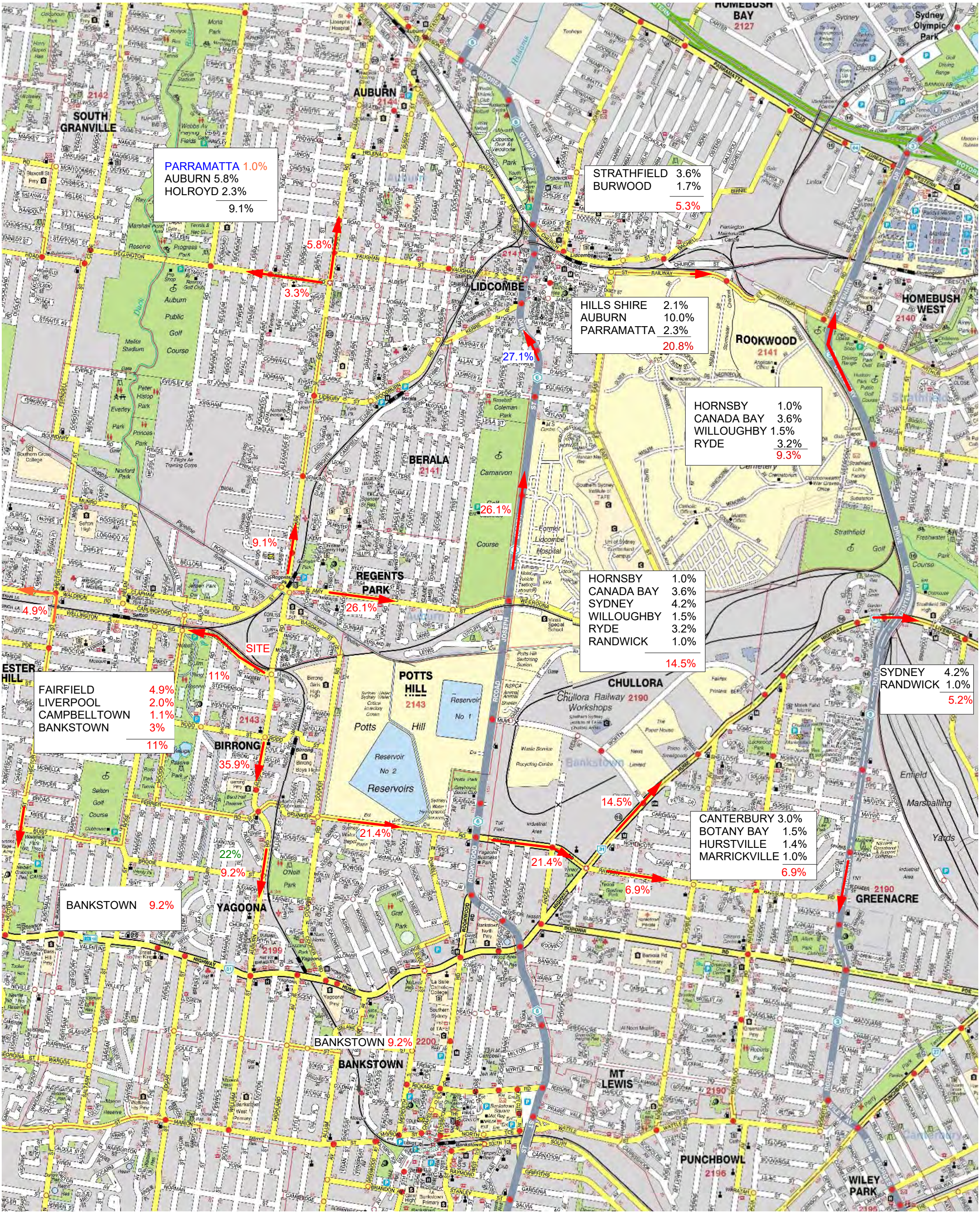
583 EXISTING PLUS DEVELOPMENT VOLUMES FOR STAGE 3

+(21) STAGE 2 VOLUMES

N

FUTURE PEAK HOUR VOLUMES
EXISTING 2023 PLUS FUTURE DEVELOPMENT AT 30-46 AUBURN ROAD-STAGE 3 AND STAGE 2 VOLUMES

FIGURES 4C + 4D



LEGEND

RED% = 100% OF TOTAL CAR DRIVER JTW 2016

FIGURE 5

TRAFFIC ASSIGNMENT FROM SUBJECT SITE
IN PERCENTAGES

5.0 SUMMARY AND CONCLUSIONS

- Stage 3 proposal is for the construction of building C with 142 residential apartments consisting of 11 x 1 bedroom, 86 x 2 bedroom, 45 x 3 bedroom apartments and a childcare centre with 106 childcare places. Car parking is provided on the lower ground floor and Basements C1, C2 and C3 for 198 car parking spaces.

- Additional Traffic count data was carried out on Wednesday 6th March 2024 to check volumes in Auburn Road and side streets Morris Street/ Magney Reserve and Gunya Streets. The 2024 count data volumes in Auburn Road are slightly lower than the 2023 count data for Auburn Road in the AM Peak hour. The 2023 PM count data is within the acceptable range. The 2023 count data is therefore acceptable for the SIDRA analysis.

- The traffic generation for buildings C is less than half of full development volumes at 69 vehicles in the AM peak hour and 59 vehicles in the PM Peak Hour. The traffic generation is less 50% (43%) of the total master plan development site for the AM peak hour and 44% of the PM peak hour. Full SIDRA modelling of the entire development site (all stages) was undertaken in **Report 18/21 Rev H** and updated in **Report No 12/24** included in **Appendix L**.

- Full traffic impacts have been modelled for Stage 3 for the masterplan development in accordance with the requirements of *TfNSW Traffic Impact Assessments*. A Construction Traffic Management Plan has been prepared for Stage 3 separate to this report which addresses the SEARS requirements.

- A Green Travel Plan has been provided in **Report No 12/23**. A copy of this report is included in **Appendix J.**

- We support this development on traffic grounds.

APPENDICES



1 SITE PLAN
1:500

N

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PAPER SIZE: A1
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1:50 (1:100

DOCUMENT
SITE PLAN

DOCUMENT
FOR SUBMISSION

REV E 19-08-2025 MODEL *22_038 Regents Park - Building C*

STAGE
DEVELOPMENT APPLICATION

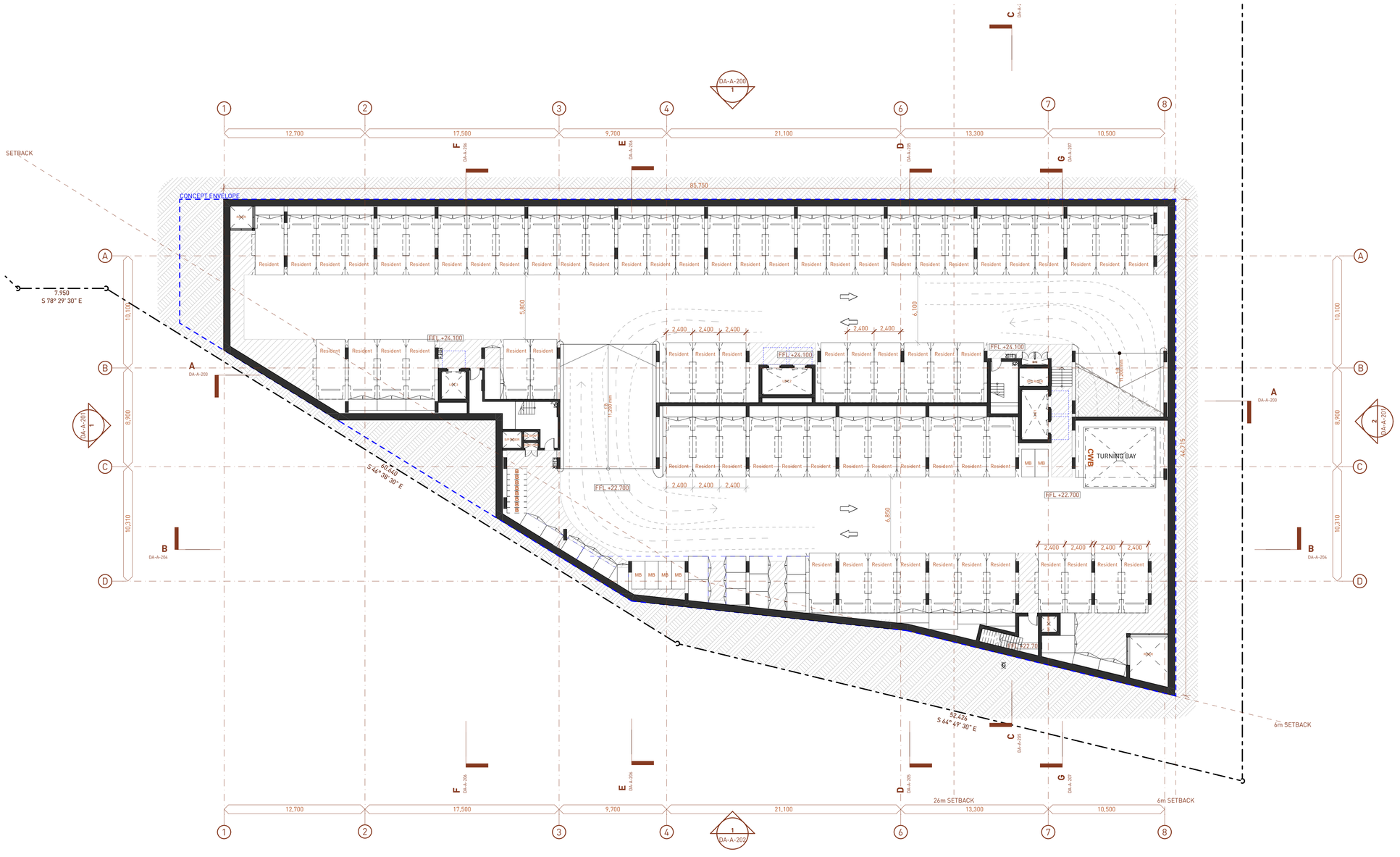
PROJECT
REGENTS PARK - STAGE 3

30-46 AUBURN ROAD REGENTS PARK

CLIENT **30 Auburn Road Pty Ltd**

ARCHITECTURE URBAN PLANNING
M1/147 McEvoy St Alexandria NSW 2015
P 02 9516 2022 **E** email@smithtzannes.com.au
smithtzannes.com.au
Nominated Architect: Peter Smith (Reg 7024)
SMITH & TZANNES

22_038 DA-A-010



1 BASEMENT C3
1:200

PARKING SCHEDULE SUMMARY

Type	Quantity
CCC	27
Resident	143
Visitor Resi.	28
	198

PARKING SCHEDULE PER FLOOR

Type	Quantity
BASEMENT C3	
Resident	68
BASEMENT C2	
Resident	65
BASEMENT C1	
CCC	15
Resident	10
Visitor Resi.	28
LEVEL 0	
CCC	12
	198

MOTORBIKE PARKING

STORY	QUANTITY
Motorbike	
BASEMENT C3	6
BASEMENT C2	6
BASEMENT C1	4
LEVEL 0	4
	20

BICYCLE PARKING

STORY	QUANTITY
Bicycle	
BASEMENT C3	8
BASEMENT C2	8
BASEMENT C1	28
LEVEL 0	9
	53

NOTE

CARPARK DIMENSIONS TYPICAL 2600 WIDE BY 5400 DEEP, UNLESS OTHERWISE DIMENSIONED

NOTES
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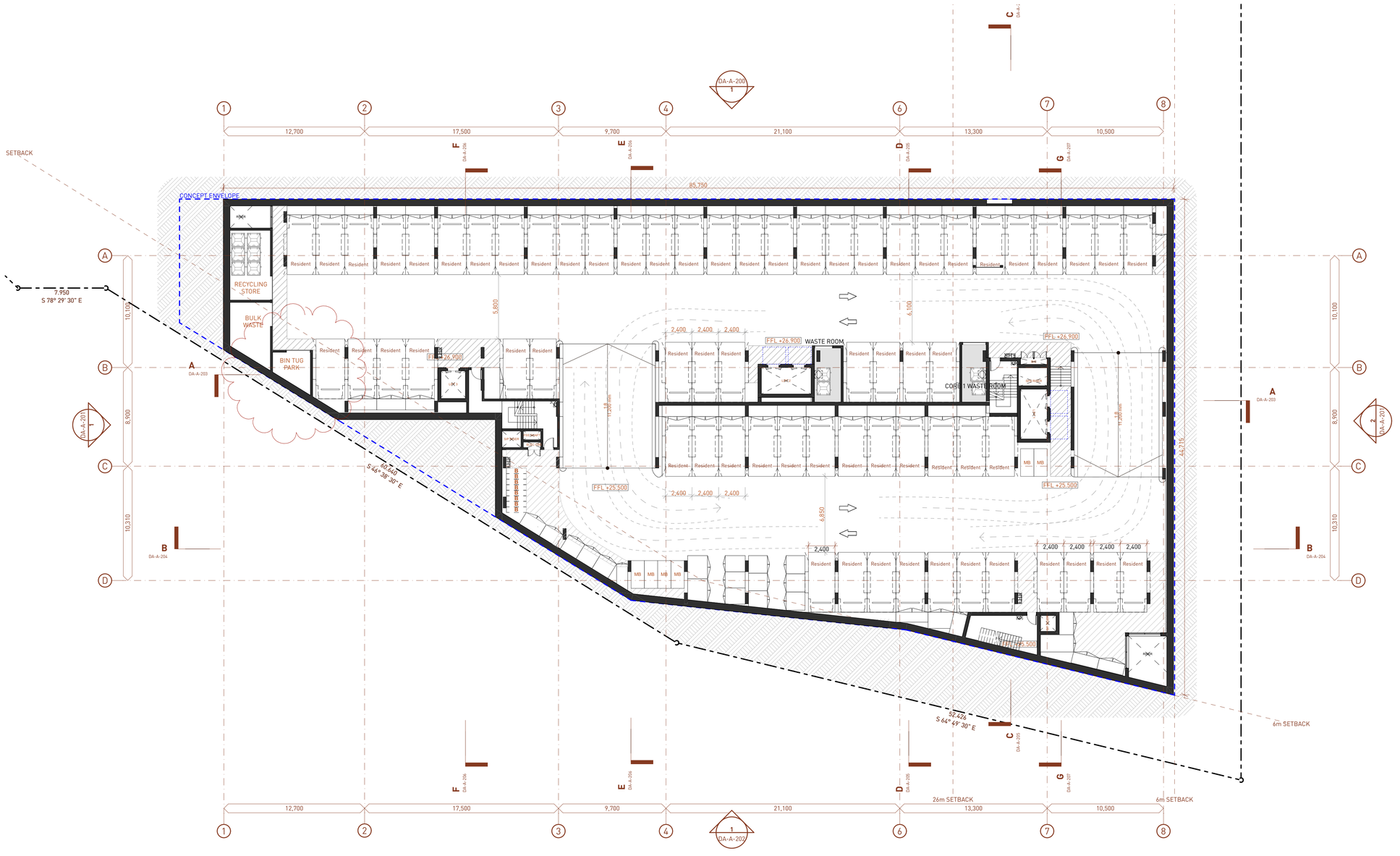
DOCUMENT
LEVEL C3
DOCUMENT
FOR SUBMISSION
REV E 19-08-2025 MODEL *22_038 Regents Park - Building C*
STAGE
DEVELOPMENT APPLICATION

PROJECT
REGENTS PARK - STAGE 3
30-46 AUBURN ROAD REGENTS PARK
CLIENT **30 Auburn Road Pty Ltd**

ARCHITECTURE URBAN PLANNING
M1/147 McEvoy St Alexandria NSW 2015
P 02 9516 2022 **E** email@smithtzannes.com.au
smithtzannes.com.au
Nominated Architect: Peter Smith (Reg 7024)

SMITH & TZANNES

22_038 DA-A-100



1 BASEMENT C2
1:200

PARKING SCHEDULE SUMMARY

Type	Quantity
CCC	27
Resident	143
Visitor Resi.	28
	198

PARKING SCHEDULE PER FLOOR

Type		Quantity
BASEMENT C3		
	Resident	68
BASEMENT C2		
	Resident	65
BASEMENT C1		
	CCC	15
	Resident	10
	Visitor Resi.	28
LEVEL 0		
	CCC	12
		198

MOTORBIKE PARKING

STORY	QUANTITY
Motorbike	
BASEMENT C3	6
BASEMENT C2	6
BASEMENT C1	4
LEVEL 0	4
	20

BICYCLE PARKING

STORY	QUANTITY
Bicycle	
BASEMENT C3	8
BASEMENT C2	8
BASEMENT C1	28
LEVEL 0	9
	53

NOTE

CARPARK DIMENSIONS TYPICAL 2600 WIDE BY 5400 DEEP, UNLESS OTHERWISE DIMENSIONED

NOTES
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The design is not in a form suitable for use in connection with building work.

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DOCUMENT
LEVEL C2

DOCUMENT
FOR SUBMISSION

REV E 19-08-2025 MODEL *22_038 Regents Park - Building C*

STAGE
DEVELOPMENT APPLICATION

PROJECT
REGENTS PARK - STAGE 3

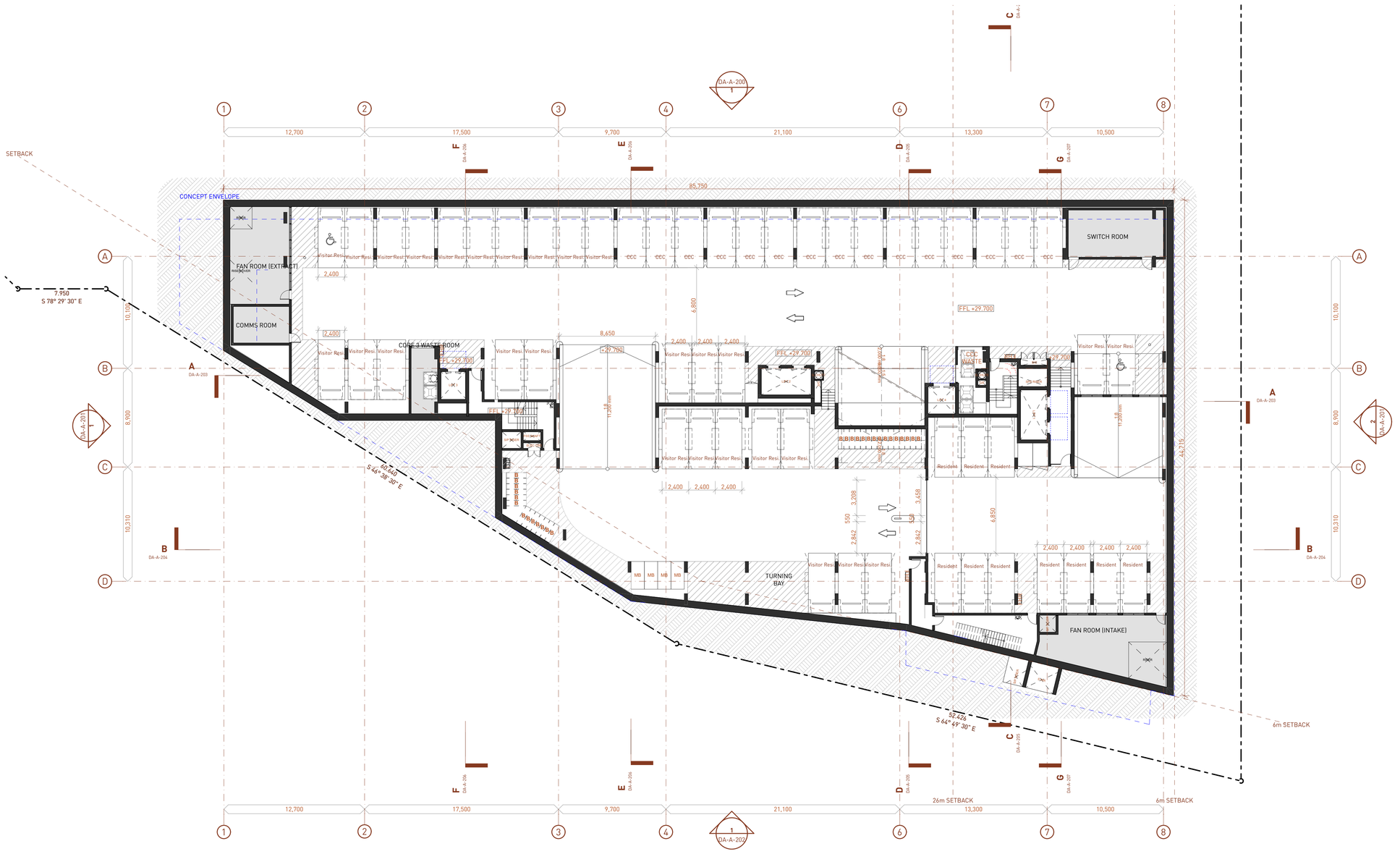
30-46 AUBURN ROAD REGENTS PARK

CLIENT **30 Auburn Road Pty Ltd**

ARCHITECTURE URBAN PLANNING
M1/147 McEvoy St Alexandria NSW 2015
P 02 9516 2022 **E** email@smithtzannes.com.au
smithtzannes.com.au
Nominated Architect: Peter Smith (Reg 7024)

SMITH & TZANNES

22_038 DA-A-101



1 BASEMENT C1
1:200

PARKING SCHEDULE SUMMARY

Type	Quantity
CCC	27
Resident	143
Visitor Resi.	28
	198

PARKING SCHEDULE PER FLOOR

Type		Quantity
BASEMENT C3		
	Resident	68
BASEMENT C2		
	Resident	65
BASEMENT C1		
	CCC	15
	Resident	10
	Visitor Resi.	28
LEVEL 0		
	CCC	12
		198

MOTORBIKE PARKING

STORY	QUANTITY
Motorbike	
BASEMENT C3	6
BASEMENT C2	6
BASEMENT C1	4
LEVEL 0	4
	20

BICYCLE PARKING

STORY	QUANTITY
Bicycle	
BASEMENT C3	8
BASEMENT C2	8
BASEMENT C1	28
LEVEL 0	9
	53

NOTE

CARPARK DIMENSIONS TYPICAL 2600 WIDE BY 5400 DEEP, UNLESS OTHERWISE DIMENSIONED

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DOCUMENT
LEVEL C1

DOCUMENT
FOR SUBMISSION
REV E 19-08-2025 MODEL *22_038 Regents Park - Building C*

STAGE
DEVELOPMENT APPLICATION

PROJECT
REGENTS PARK - STAGE 3

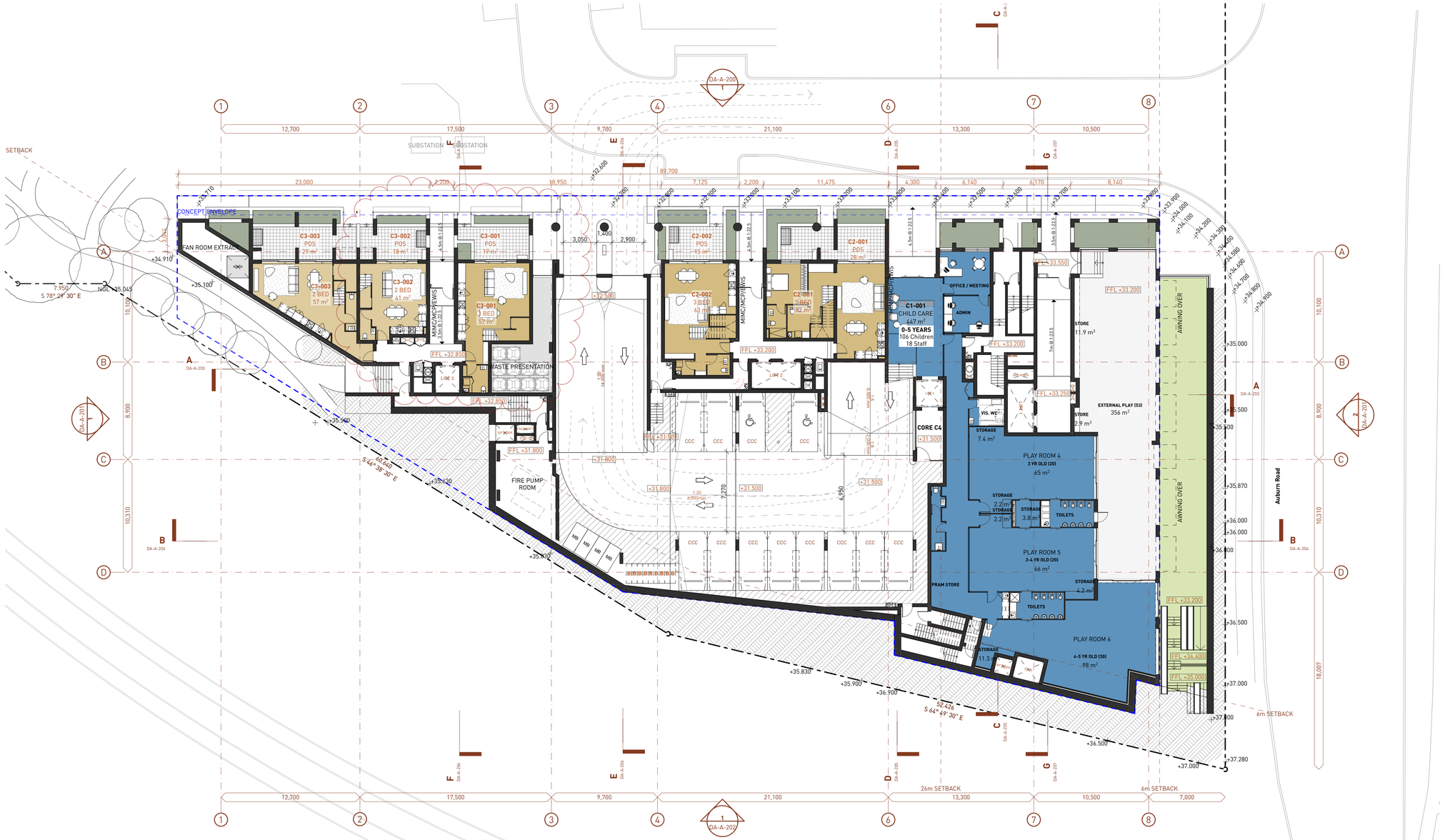
30-46 AUBURN ROAD REGENTS PARK

CLIENT **30 Auburn Road Pty Ltd**

ARCHITECTURE URBAN PLANNING
M1/147 McEvoy St Alexandria NSW 2015
P 02 9516 2022 **E** email@smithtzannes.com.au
smithtzannes.com.au
Nominated Architect: Peter Smith (Reg 7024)

SMITH & TZANNES

22_038 DA-A-102



1 LEVEL 0
1:200

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1:500 | 1:50
20,000 | 1:200

PARKING SCHEDULE SUMMARY

Type	Quantity
CCC	27
Resident	143
Visitor Resi.	28
	198

PARKING SCHEDULE PER FLOOR

	Type	Quantity
BASEMENT C3		
	Resident	68
BASEMENT C2		
	Resident	65
BASEMENT C1		
	CCC	15
	Resident	10
	Visitor Resi.	28
LEVEL 0		
	CCC	12
		198

MOTORBIKE PARKING

	STORY	QUANTITY
Motorbike		
	BASEMENT C3	6
	BASEMENT C2	6
	BASEMENT C1	4
	LEVEL 0	4
		20

BICYCLE PARKING

	STORY	QUANTITY
Bicycle		
	BASEMENT C3	8
	BASEMENT C2	8
	BASEMENT C1	28
	LEVEL 0	9
		53

NOTE
CARPARK DIMENSIONS TYPICAL 2600 WIDE BY 5400 DEEP, UNLESS OTHERWISE DIMENSIONED

CHILD CARE CENTRE

	AGE	#	AREA m2		STORAGE m³	
			MIN.	PROVIDED	MIN.	PROVIDED
PLAY ROOM 1	0	12	39	48	2.4	4.7
PLAY ROOM 2	1	12	39	40	2.4	5.4
PLAY ROOM 3	2	12	39	48	2.4	4.1
PLAY ROOM 4	3	20	65	65	4	9.6
PLAY ROOM 5	3-4	20	65	66	4	6.4
PLAY ROOM 6	4-5	30	97.5	98	6	11.3
TOTAL		**106**				
OUTDOOR AREA			742	772	31.8	32.9
DEDICATED CARPARKS	**27**					

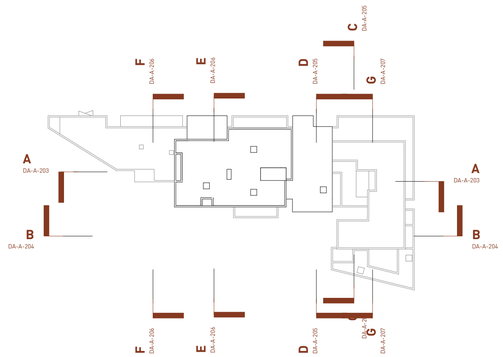
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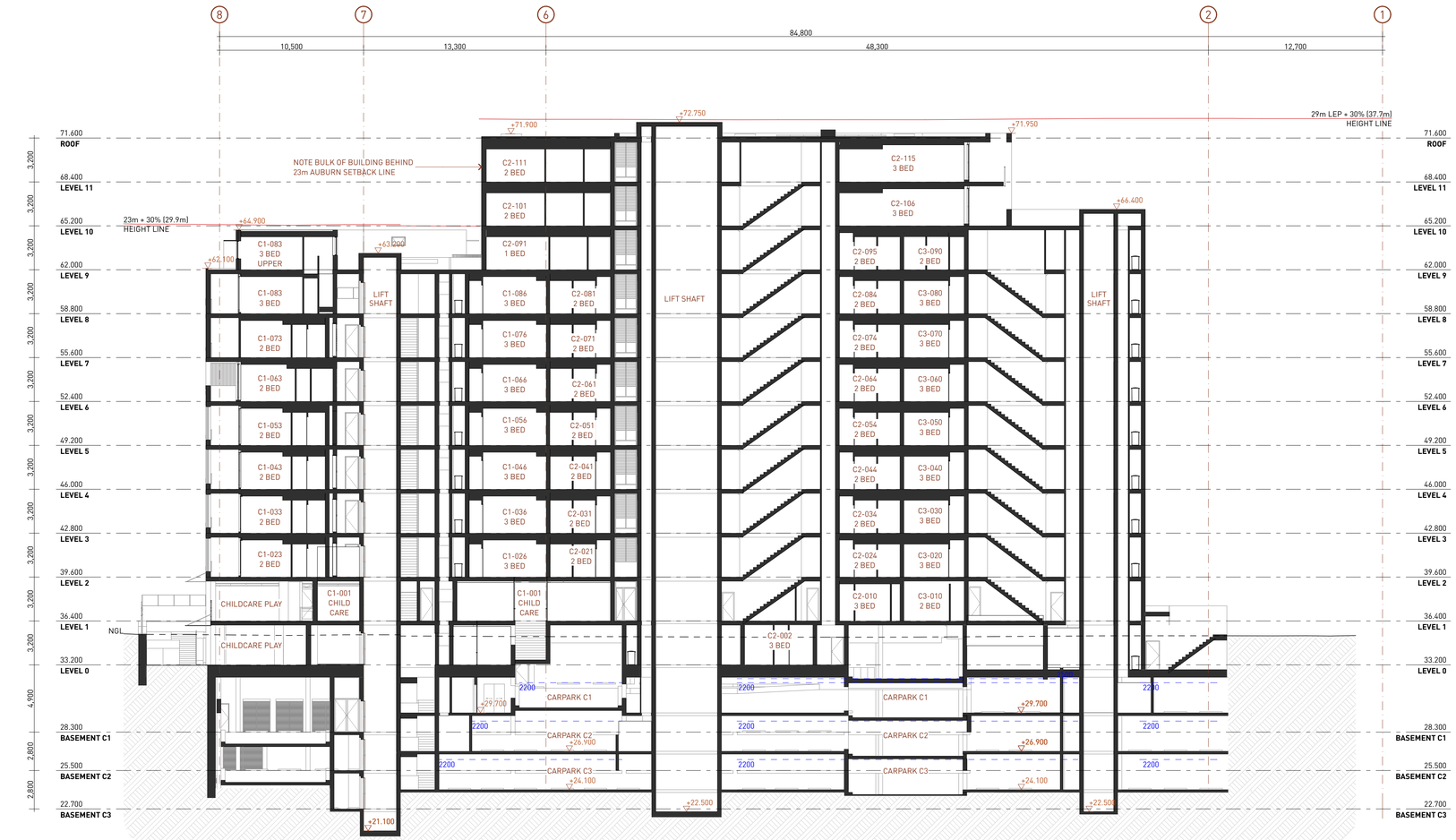
DOCUMENT
LEVEL 0 (GROUND)
DOCUMENT
FOR SUBMISSION
REV E 19-08-2025 MODEL *22_038 Regents Park - Building C*
STAGE
DEVELOPMENT APPLICATION

PROJECT
REGENTS PARK - STAGE 3
30-46 AUBURN ROAD REGENTS PARK
CLIENT **30 Auburn Road Pty Ltd**

ARCHITECTURE URBAN PLANNING
M1/147 McEvoy St Alexandria NSW 2015
P 02 9516 2022 **E** email@smithtzannes.com.au
smithtzannes.com.au
Nominated Architect: Peter Smith (Reg 7024)
SMITH & TZANNES

22_038 DA-A-103





1 SECTION A
1:200

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DOCUMENT
SECTION A

DOCUMENT
FOR SUBMISSION

REV E 19-08-2025 MODEL *22_038 Regents Park - Building C*

STAGE
DEVELOPMENT APPLICATION

PROJECT
REGENTS PARK - STAGE 3

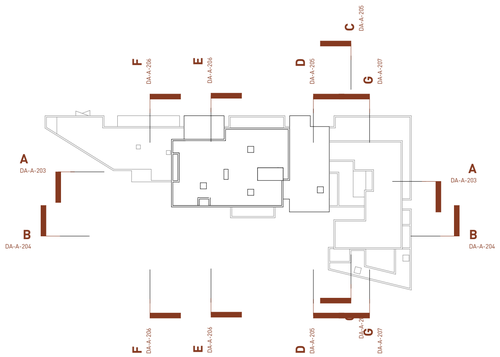
30-46 AUBURN ROAD REGENTS PARK

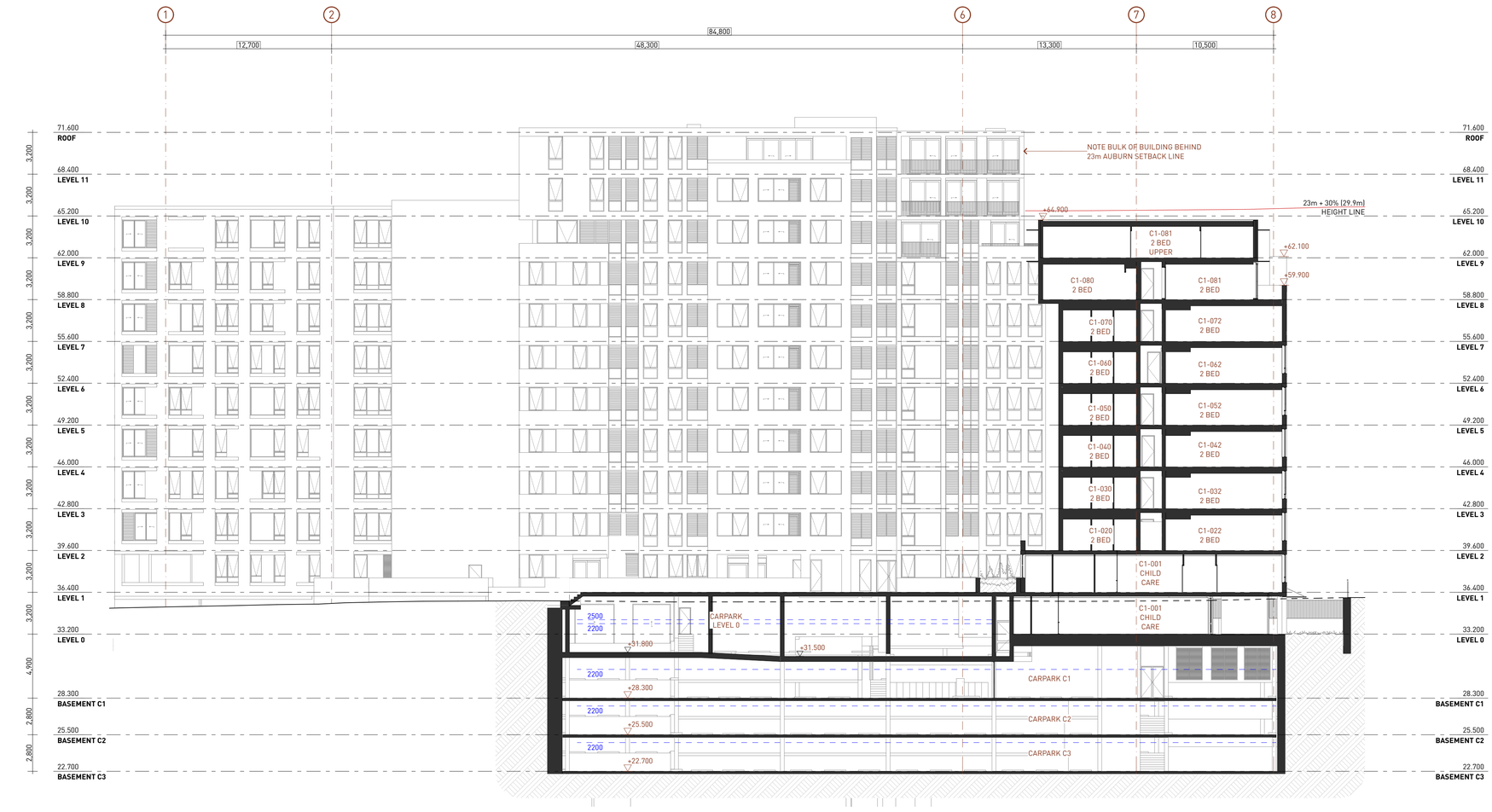
CLIENT **30 Auburn Road Pty Ltd**

ARCHITECTURE URBAN PLANNING
M1/147 McEvoy St Alexandria NSW 2015
P 02 9516 2022 **E** email@smithtzannes.com.au
smithtzannes.com.au
Nominated Architect: Peter Smith (Reg 7024)

SMITH & TZANNES

22_038 DA-A-203





1 SECTION B
1:200

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DOCUMENT
SECTION B

DOCUMENT
FOR SUBMISSION

REV E 19-08-2025 MODEL *22_038 Regents Park - Building C*

STAGE
DEVELOPMENT APPLICATION

PROJECT
REGENTS PARK - STAGE 3

30-46 AUBURN ROAD REGENTS PARK

CLIENT **30 Auburn Road Pty Ltd**

ARCHITECTURE URBAN PLANNING
M1/147 McEvoy St Alexandria NSW 2015
P 02 9516 2022 **E** email@smithtzannes.com.au
smithtzannes.com.au
Nominated Architect: Peter Smith (Reg 7024)

SMITH & TZANNES

22_038 DA-A-204

APPENDIX A

APPENDIX B

Curtis Traffic Surveys

Vehicle & pedestrian count

Job: 230801lm

North bound congestion from 8:00

Day, date: 02/08/23

Location: Auburn Rd

Weather: Fine

Client: Lyle Marshall & Partners

				1 Northbound Auburn Rd				2 Southbound Auburn Rd				3 in transport yard			4 out transport yard			5 centre gate	6 centre gate	stand gate	stand gate
Time Period				Light Vehicles	2 Axle trucks	3+ axle trucks	G bicycles	Light Vehicles	2 Axle trucks	3+ axle trucks	H bicycles	Light Vehicles	2 Axle trucks	3+ axle trucks	Light Vehicles	2 Axle trucks	3+ axle trucks	In	Out	In	Out
07:00	to	07:15		104	4	1	0	65	4	2	0	0	0	0	1	1	0	0	0	0	0
07:15	to	07:30		164	2	1	0	68	5	0	0	0	0	0	0	0	0	0	0	0	0
07:30	to	07:45		267	4	2	0	74	4	1	0	0	0	0	0	0	0	0	0	0	0
07:45	to	08:00		325	4	2	0	93	4	1	0	1	0	0	0	0	0	0	0	0	0
08:00	to	08:15		291	1	1	0	100	2	0	1	1	0	0	0	0	0	0	0	0	0
08:15	to	08:30		340	2	1	0	173	2	1	0	0	0	0	0	0	0	0	0	0	0
08:30	to	08:45		273	3	1	1	180	2	1	0	0	0	0	1	0	1	0	0	0	0
08:45	to	09:00		235	4	2	0	147	4	2	0	0	0	0	1	0	0	0	0	0	0
Totals				1999	24	11	1	900	27	8	1	0	0	0	3	1	1	0	0	0	0

7:00-8:00				860	14	6	0	300	17	4	0	1	0	0	1	1	0	0	0	0	0
7:15-8:15				1047	11	6	0	335	15	2	1	2	0	0	0	0	0	0	0	0	0
7:30-8:30				1223	11	6	0	440	12	3	1	2	0	0	0	0	0	0	0	0	0
7:45-8:45				1229	10	5	1	546	10	3	1	2	0	0	1	0	1	0	0	0	0
8:45-9:00				1139	10	5	1	600	10	4	1	1	0	0	2	0	1	0	0	0	0

denotes peak hour

Curtis Traffic Surveys

Vehicle & pedestrian count

Job: 230801lm *North bo*

Day, date 02/08/23

Location: Auburn Rd

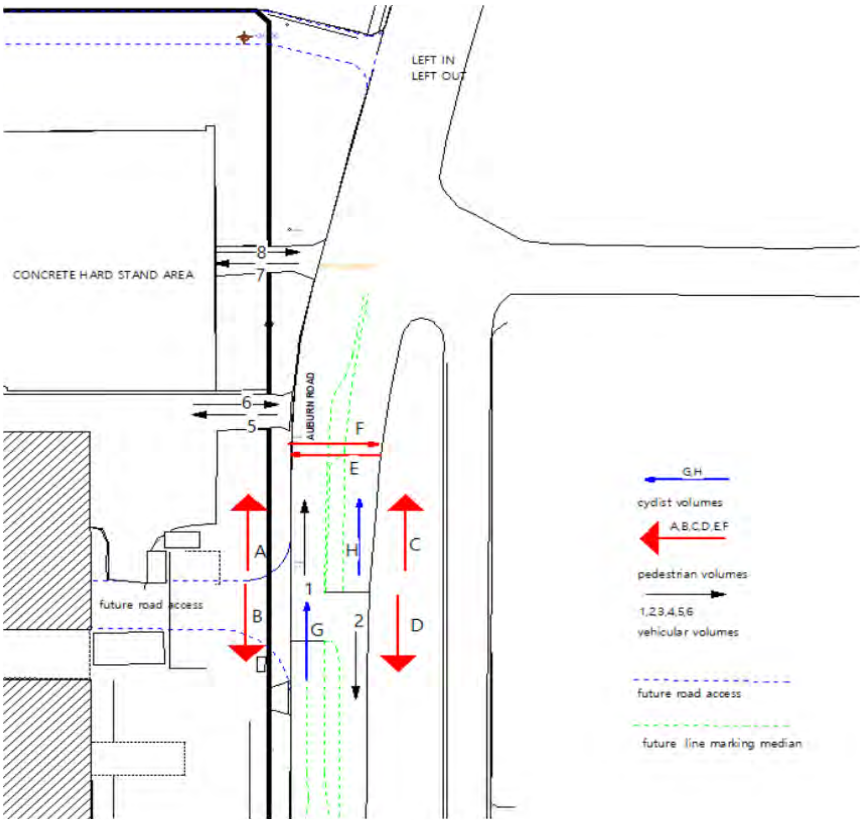
Weather: Fine

Client: Lyle Marshall & Partners

Pedestrians

Time Period			west side		east side		across Auburn Rd	
			A nth	B sth	C nth	D sth	E west	F east
07:00	to	07:15	0	0	2	0	0	0
07:15	to	07:30	0	0	1	1	0	0
07:30	to	07:45	0	0	0	0	0	0
07:45	to	08:00	0	0	0	0	0	0
08:00	to	08:15	0	0	1	1	0	0
08:15	to	08:30	0	0	3	2	0	0
08:30	to	08:45	0	0	0	0	0	0
08:45	to	09:00	0	0	3	0	0	0
Totals			0	0	10	4	0	0

7:00-8:00			0	0	3	1	0	0
7:15-8:15			0	0	2	2	0	0
7:30-8:30			0	0	4	3	0	0
7:45-8:45			0	0	4	3	0	0
8:45-9:00			0	0	7	3	0	0



Curtis Traffic Surveys

Vehicle & pedestrian count

Job: 230801lm
Day, date 01/08/23
Location: Auburn Rd
Weather: Fine
Client: Lyle Marshall & Partners

Time Period			1 Northbound Auburn Rd				2 Southbound Auburn Rd				3 in transport yard			4 out transport yard			5 centre gate	6 centre gate	stand gate	stand gate
			Light Vehicles	2 Axle trucks	3+ axle trucks	G bicycles	Light Vehicles	2 Axle trucks	3+ axle trucks	H bicycles	Light Vehicles	2 Axle trucks	3+ axle trucks	Light Vehicles	2 Axle trucks	3+ axle trucks	In	Out	In	Out
16:00	to	16:15	99	2	0	0	133	2	2	0	0	0	0	0	0	0	0	0	0	0
16:15	to	16:30	143	3	1	0	135	2	1	0	2	0	0	2	0	0	0	0	0	0
16:30	to	16:45	162	2	1	1	141	3	1	2	0	0	0	0	0	1	0	0	0	0
16:45	to	17:00	191	1	0	1	118	2	0	0	0	0	0	0	1	0	0	0	0	0
17:00	to	17:15	201	3	1	0	156	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	to	17:30	253	1	0	1	170	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	to	17:45	210	1	0	0	112	3	0	0	0	0	0	2	0	0	0	0	0	0
17:45	to	18:00	132	0	1	0	95	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals			1391	13	4	3	1060	12	4	2	0	0	0	4	1	1	0	0	0	0
4:00-5:00pm			595	8	2	2	527	9	4	2	2	0	0	2	1	1	0	0	0	0
5:15-4:15pm			697	9	3	2	550	7	2	2	2	0	0	2	1	1	0	0	0	0
4:30-5:30pm			807	7	2	3	585	5	1	2	0	0	0	0	1	1	0	0	0	0
4:45-5:45pm			855	6	1	2	556	5	0	0	0	0	0	2	1	0	0	0	0	0
5:00-6:00pm			796	5	2	1	533	3	0	0	0	0	0	2	0	0	0	0	0	0

denotes peak hour

Curtis Traffic Surveys

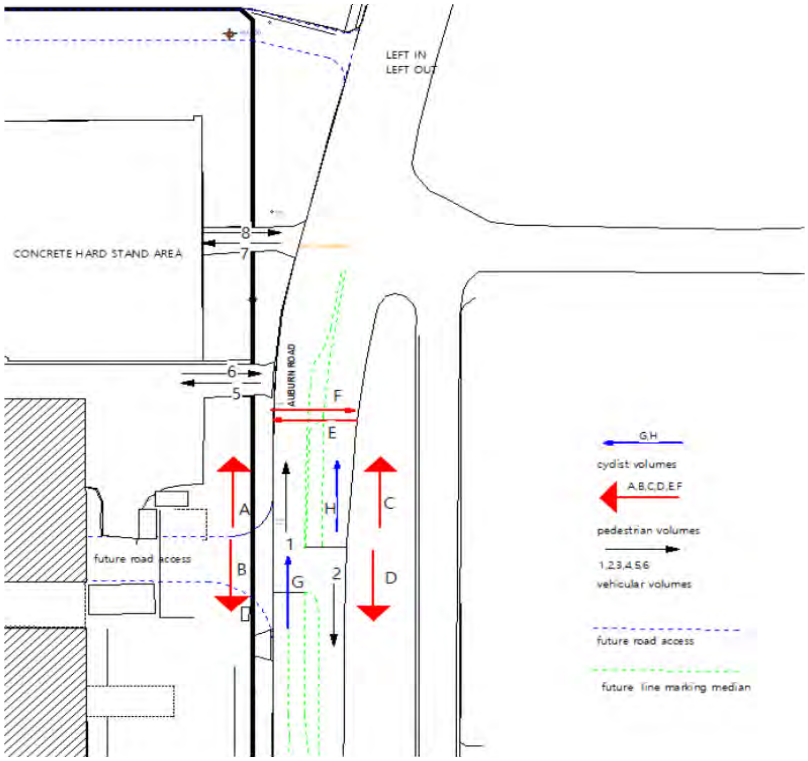
Vehicle & pedestrian count

Job: 230801lm
Day, date 01/08/23
Location: Auburn Rd
Weather: Fine
Client: Lyle Marshall & Partners

Pedestrians — west side — east side — across Auburn Rd

Time Period			A nth	B sth	C nth	D sth	E west	F east
16:00	to	16:15	0	0	0	3	0	1
16:15	to	16:30	0	0	2	2	0	0
16:30	to	16:45	0	0	1	0	0	0
16:45	to	17:00	0	0	3	2	0	1
17:00	to	17:15	1	0	1	1	0	0
17:15	to	17:30	0	0	2	1	0	0
17:30	to	17:45	0	0	3	5	0	0
17:45	to	18:00	0	0	3	5	0	2
Totals			1	0	15	19	0	4

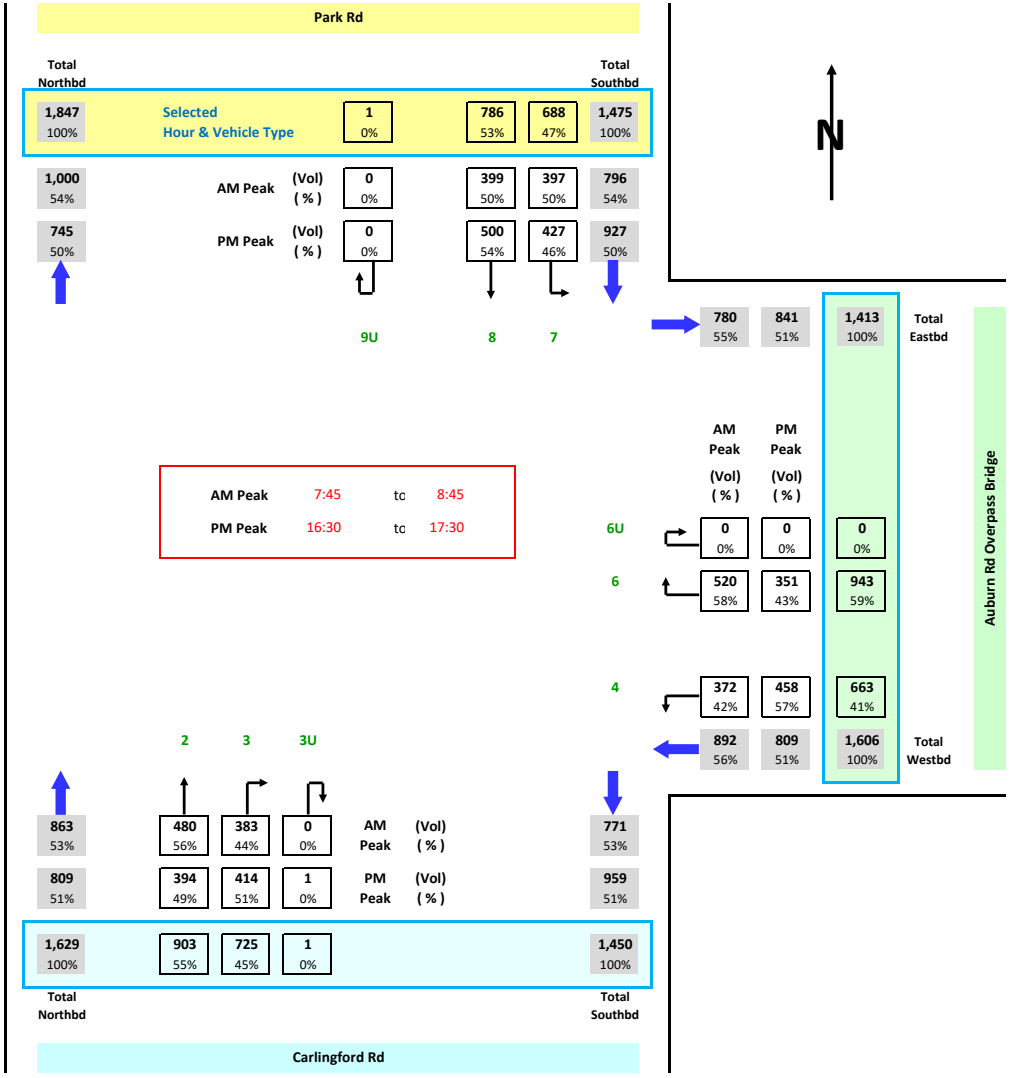
4:00-5:00pm			0	0	6	7	0	2
5:15-4:15pm			1	0	7	5	0	1
4:30-5:30pm			1	0	7	4	0	1
4:45-5:45pm			1	0	9	9	0	1
5:00-6:00pm			1	0	9	12	0	2



Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 1. Carlingford Rd / Park Rd / Auburn Rd Overpass Bridge

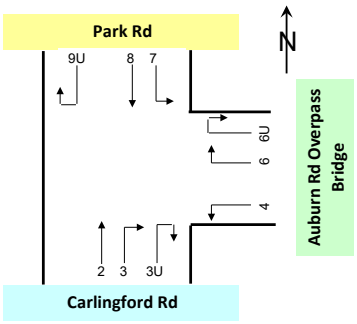
Day/Date : Thu 23rd Feb 2023
Weather : Partly Rain
Description : Classified Intersection Count
: Intersection Diagram

Hour Starting	Vehicle Type
AM Totals	All Vehicles



Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 1. Carlingford Rd / Park Rd / Auburn Rd Overpass Bridge

Day/Date : Thu 23rd Feb 2023
Weather : Partly Rain
Description : Classified Intersection Count
: Peak Hour Summary



	Approach	Carlingford Rd			Auburn Rd Overpass Bridge			Park Rd				Grand Total
	Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		
AM	7:45 to 8:45	813	50	**863**	839	53	**892**	751	45	**796**		2,551
PM	16:30 to 17:30	788	21	**809**	771	38	**809**	899	28	**927**		2,545

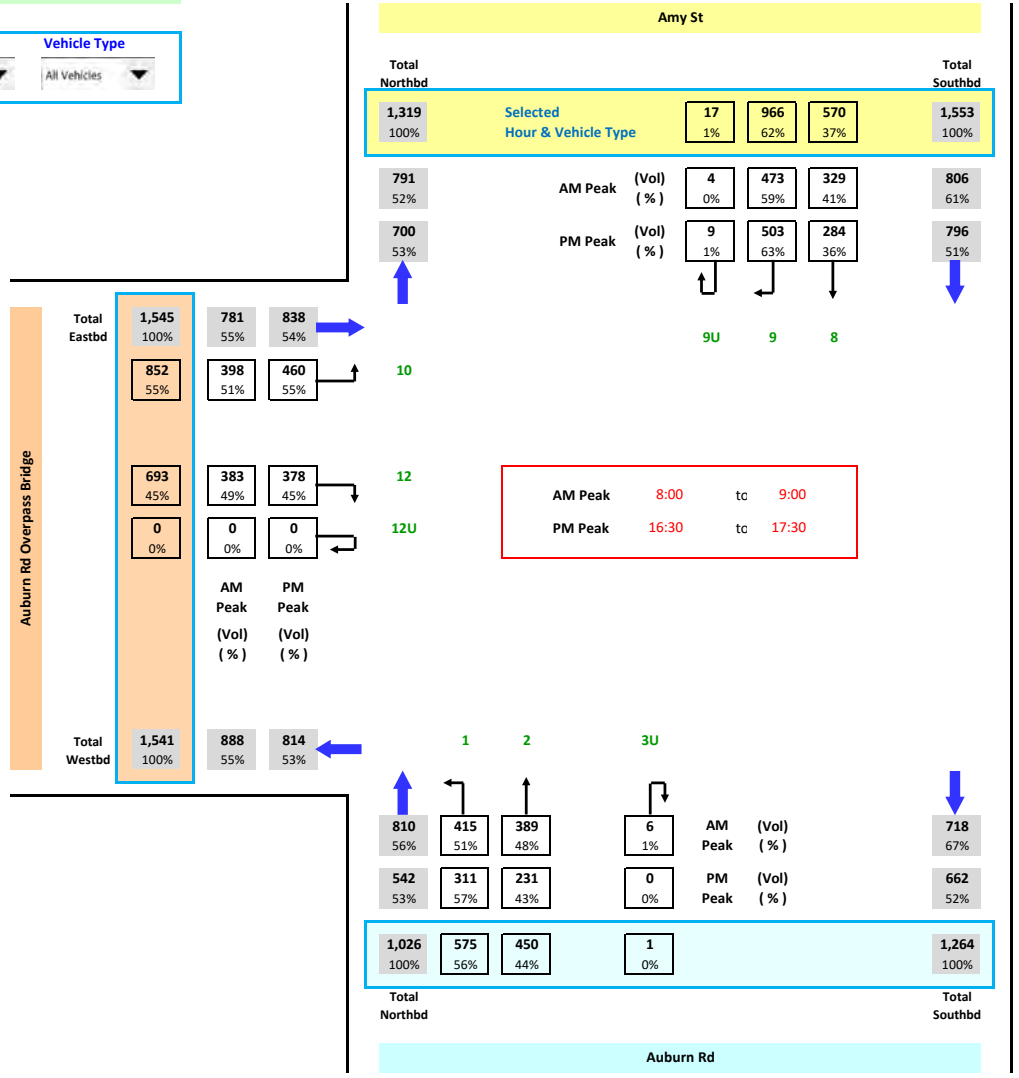
Approach	Carlingford Rd			Auburn Rd Overpass Bridge			Park Rd				Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		
7:00 to 8:00	754	51	**805**	679	49	**728**	580	51	**631**		2,164
7:15 to 8:15	813	49	**862**	744	51	**795**	626	55	**681**		2,338
7:30 to 8:30	804	45	**849**	806	57	**863**	686	52	**738**		2,450
7:45 to 8:45	813	50	**863**	839	53	**892**	751	45	**796**		2,551
8:00 to 9:00	767	57	**824**	824	54	**878**	791	53	**844**		2,546
AM Totals	**1,521**	**108**	**1,629**	**1,503**	**103**	**1,606**	**1,371**	**104**	**1,475**		4,710
16:00 to 17:00	747	25	**772**	739	42	**781**	905	36	**941**		2,494
16:15 to 17:15	758	22	**780**	761	42	**803**	893	33	**926**		2,509
16:30 to 17:30	788	21	**809**	771	38	**809**	899	28	**927**		2,545
16:45 to 17:45	766	17	**783**	765	32	**797**	921	30	**951**		2,531
17:00 to 18:00	794	15	**809**	786	24	**810**	873	22	**895**		2,514
PM Totals	**1,541**	**40**	**1,581**	**1,525**	**66**	**1,591**	**1,778**	**58**	**1,836**		5,008

Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 2. Auburn Rd / Amy St

Day/Date : Thu 23rd Feb 2023
Weather : Partly Rain
Description : Classified Intersection Count
: Intersection Diagram

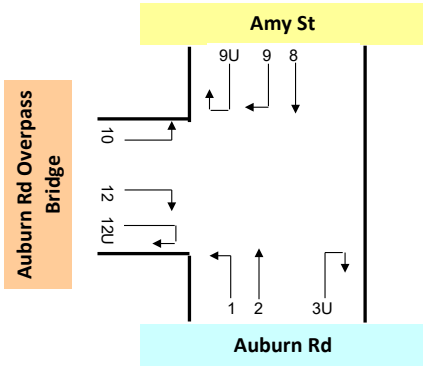
MATRIX Traffic and Transport Data

Hour Starting	Vehicle Type
PM Totals	All Vehicles



Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 2. Auburn Rd / Amy St

Day/Date : Thu 23rd Feb 2023
Weather : Partly Rain
Description : Classified Intersection Count
: Peak Hour Summary



	Approach	Auburn Rd				Amy St			Auburn Rd Overpass Bridge			Grand Total
	Time Period	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
AM	8:00 to 9:00	785	25	**810**		756	50	**806**	715	66	**781**	**2,397**
PM	16:30 to 17:30	528	14	**542**		762	34	**796**	809	29	**838**	**2,176**

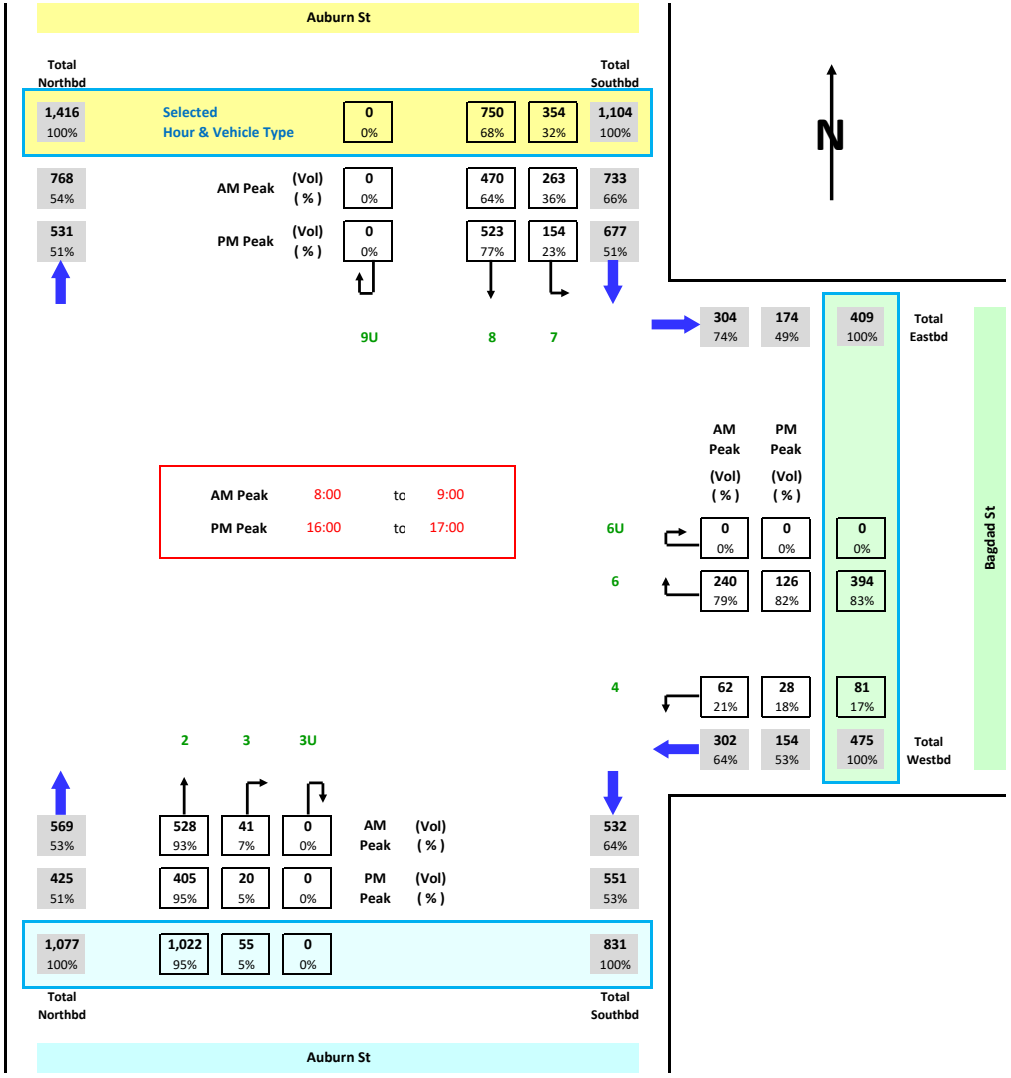
Approach	Auburn Rd				Amy St			Auburn Rd Overpass Bridge			Grand Total
Time Period	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
7:00 to 8:00	617	23	**640**		484	42	**526**	580	63	**643**	**1,809**
7:15 to 8:15	701	23	**724**		559	47	**606**	635	63	**698**	**2,028**
7:30 to 8:30	772	27	**799**		641	52	**693**	671	59	**730**	**2,222**
7:45 to 8:45	799	23	**822**		724	50	**774**	721	59	**780**	**2,376**
8:00 to 9:00	785	25	**810**		756	50	**806**	715	66	**781**	**2,397**
AM Totals	**1,402**	**48**	**1,450**		**1,240**	**92**	**1,332**	**1,295**	**129**	**1,424**	**4,206**
16:00 to 17:00	476	12	**488**		719	39	**758**	717	23	**740**	**1,986**
16:15 to 17:15	525	13	**538**		751	41	**792**	809	31	**840**	**2,170**
16:30 to 17:30	528	14	**542**		762	34	**796**	809	29	**838**	**2,176**
16:45 to 17:45	531	14	**545**		753	27	**780**	814	30	**844**	**2,169**
17:00 to 18:00	529	9	**538**		771	24	**795**	781	24	**805**	**2,138**
PM Totals	**1,005**	**21**	**1,026**		**1,490**	**63**	**1,553**	**1,498**	**47**	**1,545**	**4,124**

Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 3. Bagdad St / Auburn St

Day/Date : Thu 23rd Feb 2023
Weather : Partly rain
Description : Classified Intersection Count
: Intersection Diagram

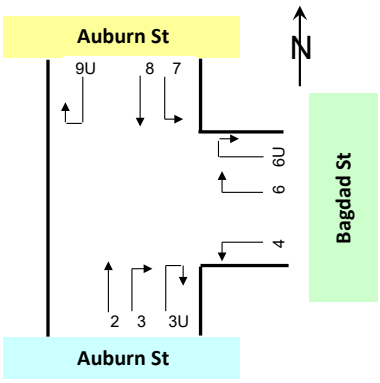
Hour Starting	Vehicle Type
AM Totals	All Vehicles

MATRIX Traffic and Transport Data



Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 3. Bagdad St / Auburn St

Day/Date : Thu 23rd Feb 2023
Weather : Partly rain
Description : Classified Intersection Count
: Peak Hour Summary



	Approach	Auburn St			Bagdad St			Auburn St				Grand Total
	Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		
AM	8:00 to 9:00	549	20	**569**	297	5	**302**	707	26	**733**		**1,604**
PM	16:00 to 17:00	415	10	**425**	152	2	**154**	663	14	**677**		**1,256**

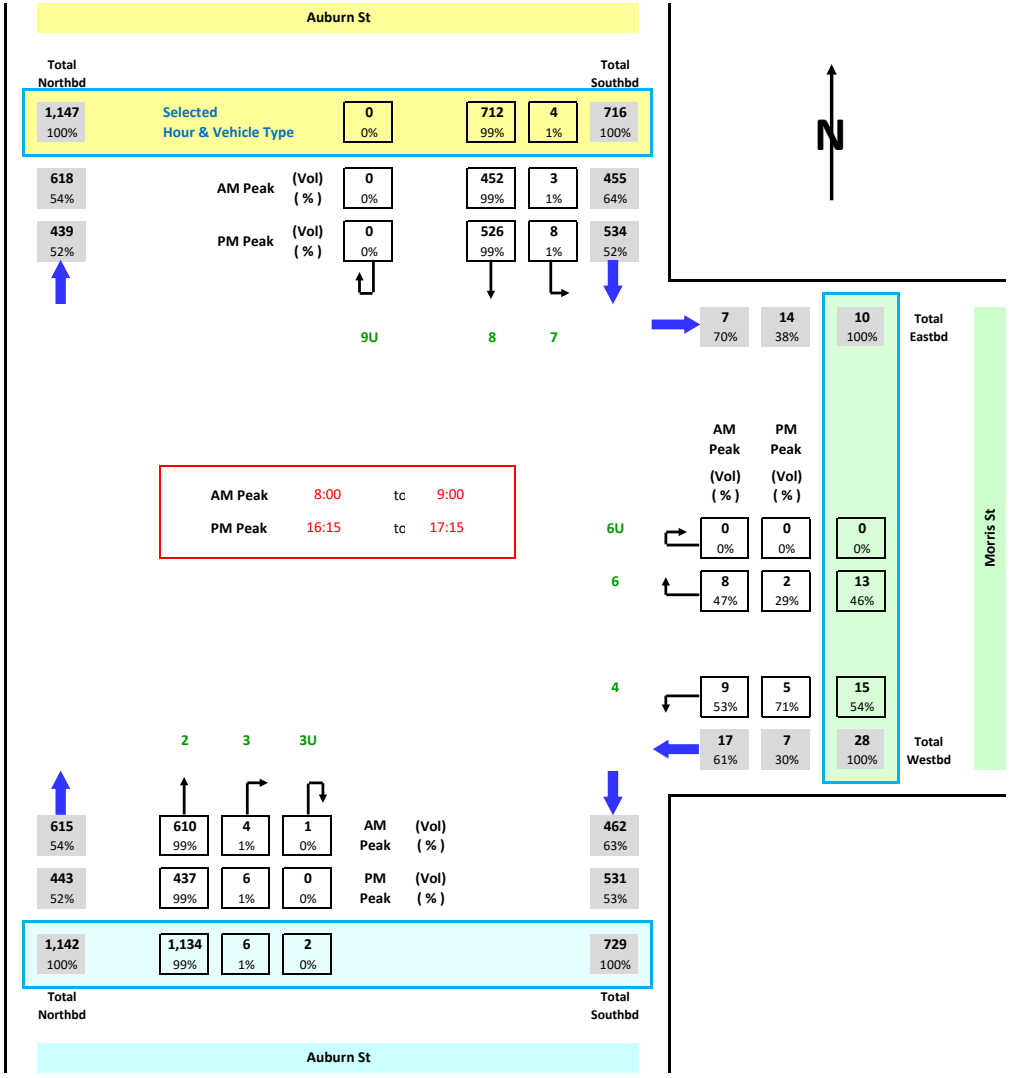
Approach	Auburn St			Bagdad St			Auburn St				Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		
7:00 to 8:00	488	20	**508**	168	5	**173**	355	16	**371**		**1,052**
7:15 to 8:15	542	19	**561**	201	7	**208**	441	19	**460**		**1,229**
7:30 to 8:30	578	19	**597**	256	8	**264**	553	23	**576**		**1,437**
7:45 to 8:45	580	17	**597**	287	6	**293**	639	22	**661**		**1,551**
8:00 to 9:00	549	20	**569**	297	5	**302**	707	26	**733**		**1,604**
AM Totals	**1,037**	**40**	**1,077**	**465**	**10**	**475**	**1,062**	**42**	**1,104**		**2,656**
16:00 to 17:00	415	10	**425**	152	2	**154**	663	14	**677**		**1,256**
16:15 to 17:15	407	12	**419**	146	1	**147**	657	15	**672**		**1,238**
16:30 to 17:30	405	12	**417**	141	1	**142**	655	11	**666**		**1,225**
16:45 to 17:45	410	13	**423**	119	1	**120**	675	11	**686**		**1,229**
17:00 to 18:00	397	9	**406**	138	0	**138**	638	8	**646**		**1,190**
PM Totals	**812**	**19**	**831**	**290**	**2**	**292**	**1,301**	**22**	**1,323**		**2,446**

Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 4. Morris St / Auburn Rd

Day/Date : Thu 23rd Feb 2023
Weather : Partly rain
Description : Classified Intersection Count
: Intersection Diagram

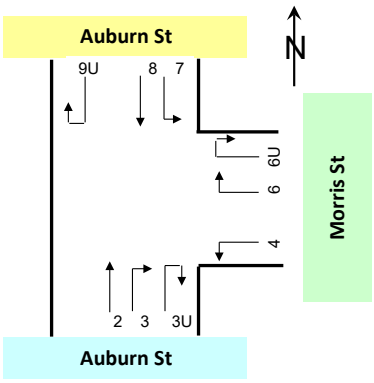
Hour Starting	Vehicle Type
AM Totals	All Vehicles

MATRIX Traffic and Transport Data



Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 4. Morris St / Auburn Rd

Day/Date : Thu 23rd Feb 2023
Weather : Partly rain
Description : Classified Intersection Count
: Peak Hour Summary



	Approach	Auburn St			Morris St			Auburn St				Grand Total
	Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		
AM	8:00 to 9:00	596	19	**615**	17	0	**17**	437	18	**455**		**1,087**
PM	16:15 to 17:15	429	14	**443**	7	0	**7**	520	14	**534**		**984**

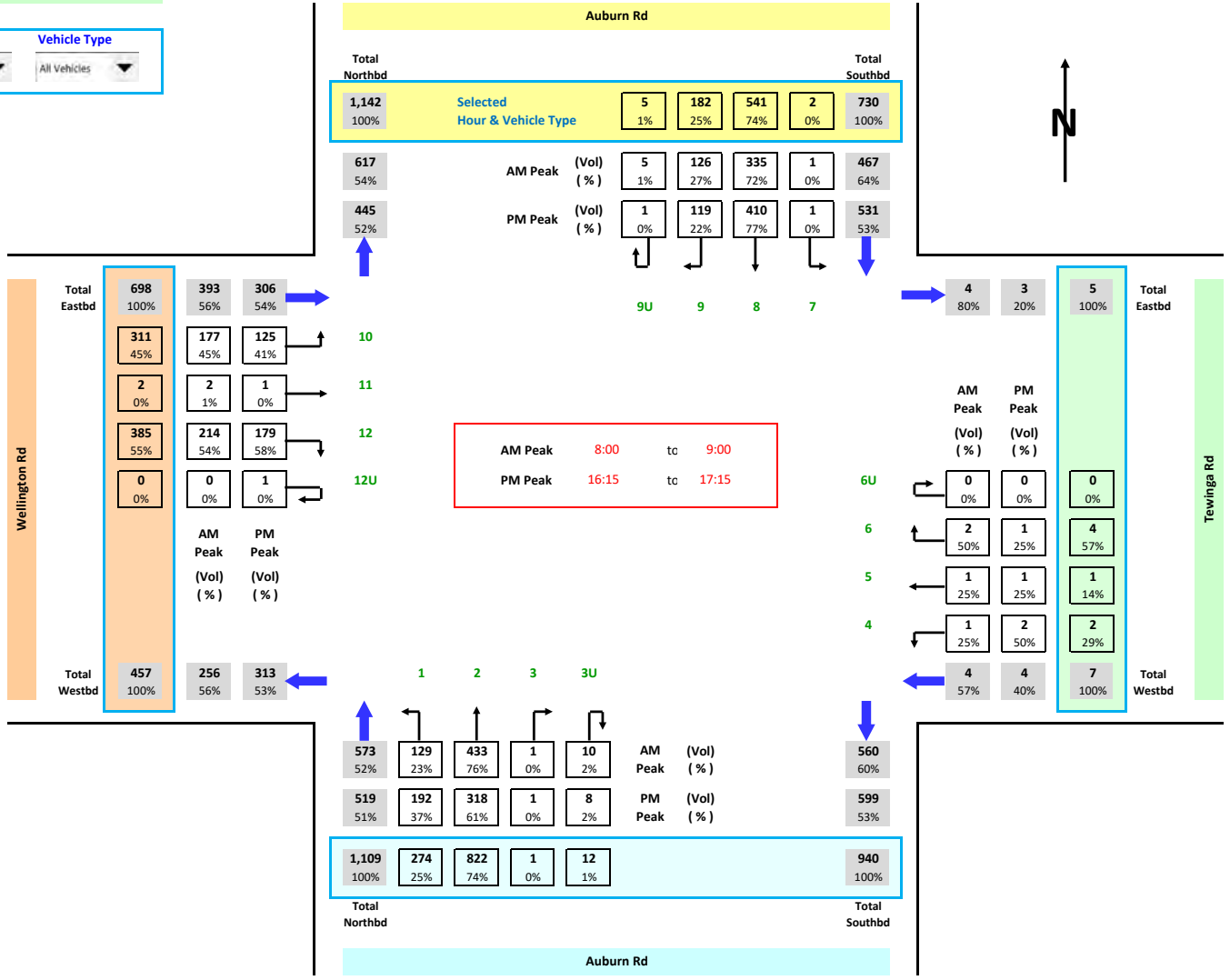
Approach	Auburn St			Morris St			Auburn St				Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		
7:00 to 8:00	507	20	**527**	11	0	**11**	245	16	**261**		**799**
7:15 to 8:15	575	20	**595**	12	0	**12**	288	17	**305**		**912**
7:30 to 8:30	611	18	**629**	18	0	**18**	331	18	**349**		**996**
7:45 to 8:45	624	15	**639**	17	0	**17**	405	16	**421**		**1,077**
8:00 to 9:00	596	19	**615**	17	0	**17**	437	18	**455**		**1,087**
AM Totals	**1,103**	**39**	**1,142**	**28**	**0**	**28**	**682**	**34**	**716**		**1,886**
16:00 to 17:00	420	12	**432**	8	0	**8**	528	11	**539**		**979**
16:15 to 17:15	429	14	**443**	7	0	**7**	520	14	**534**		**984**
16:30 to 17:30	421	14	**435**	11	0	**11**	494	11	**505**		**951**
16:45 to 17:45	426	16	**442**	13	0	**13**	485	11	**496**		**951**
17:00 to 18:00	405	12	**417**	15	0	**15**	470	11	**481**		**913**
PM Totals	**825**	**24**	**849**	**23**	**0**	**23**	**998**	**22**	**1,020**		**1,892**

Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 5. Wellington Rd / Auburn Rd / Tewinga Rd

Day/Date : Thu 23rd Feb 2023
Weather : Partly rain
Description : Classified Intersection Count
: Intersection Diagram

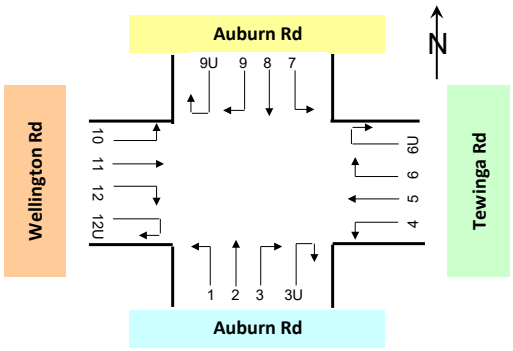
MATRIX Traffic and Transport Data

Hour Starting	Vehicle Type
AM Totals	All Vehicles



Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 5. Wellington Rd / Auburn Rd / Tewinga Rd

Day/Date : Thu 23rd Feb 2023
Weather : Partly rain
Description : Classified Intersection Count
: Peak Hour Summary



	Approach	Auburn Rd			Tewinga Rd			Auburn Rd			Wellington Rd			Grand Total
	Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
AM	8:00 to 9:00	551	22	**573**	4	0	**4**	449	18	**467**	372	21	**393**	**1,437**
PM	16:15 to 17:15	500	19	**519**	4	0	**4**	518	13	**531**	298	8	**306**	**1,360**

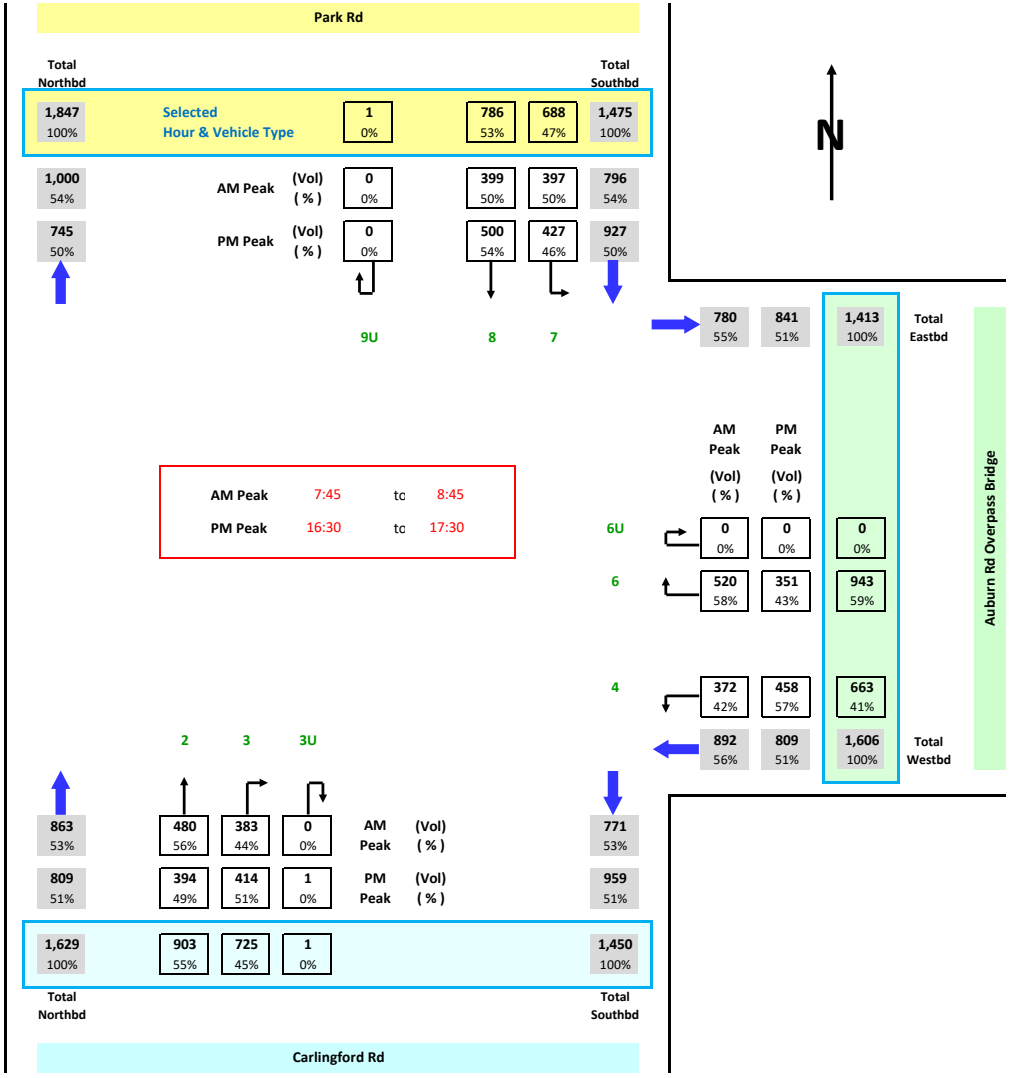
Approach	Auburn Rd			Tewinga Rd			Auburn Rd			Wellington Rd			Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
7:00 to 8:00	512	24	**536**	3	0	**3**	247	16	**263**	279	26	**305**	**1,107**
7:15 to 8:15	558	21	**579**	2	0	**2**	295	17	**312**	339	25	**364**	**1,257**
7:30 to 8:30	567	18	**585**	2	0	**2**	341	17	**358**	377	21	**398**	**1,343**
7:45 to 8:45	584	15	**599**	3	0	**3**	416	16	**432**	375	24	**399**	**1,433**
8:00 to 9:00	551	22	**573**	4	0	**4**	449	18	**467**	372	21	**393**	**1,437**
AM Totals	**1,063**	**46**	**1,109**	**7**	**0**	**7**	**696**	**34**	**730**	**651**	**47**	**698**	**2,544**
16:00 to 17:00	483	17	**500**	4	0	**4**	524	10	**534**	294	9	**303**	**1,341**
16:15 to 17:15	500	19	**519**	4	0	**4**	518	13	**531**	298	8	**306**	**1,360**
16:30 to 17:30	492	19	**511**	6	0	**6**	495	10	**505**	293	6	**299**	**1,321**
16:45 to 17:45	495	21	**516**	7	0	**7**	478	10	**488**	291	5	**296**	**1,307**
17:00 to 18:00	496	13	**509**	6	0	**6**	465	10	**475**	263	5	**268**	**1,258**
PM Totals	**979**	**30**	**1,009**	**10**	**0**	**10**	**989**	**20**	**1,009**	**557**	**14**	**571**	**2,599**

APPENDIX C

Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 1. Carlingford Rd / Park Rd / Auburn Rd Overpass Bridge

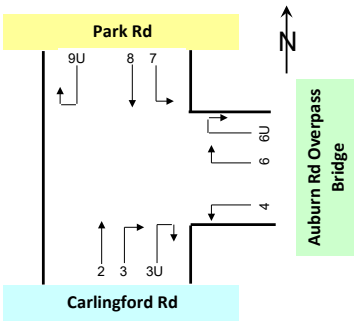
Day/Date : Thu 23rd Feb 2023
Weather : Partly Rain
Description : Classified Intersection Count
: Intersection Diagram

Hour Starting	Vehicle Type
AM Totals	All Vehicles



Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 1. Carlingford Rd / Park Rd / Auburn Rd Overpass Bridge

Day/Date : Thu 23rd Feb 2023
Weather : Partly Rain
Description : Classified Intersection Count
: Peak Hour Summary



	Approach	Carlingford Rd			Auburn Rd Overpass Bridge			Park Rd				Grand Total
	Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		
AM	7:45 to 8:45	813	50	**863**	839	53	**892**	751	45	**796**		2,551
PM	16:30 to 17:30	788	21	**809**	771	38	**809**	899	28	**927**		2,545

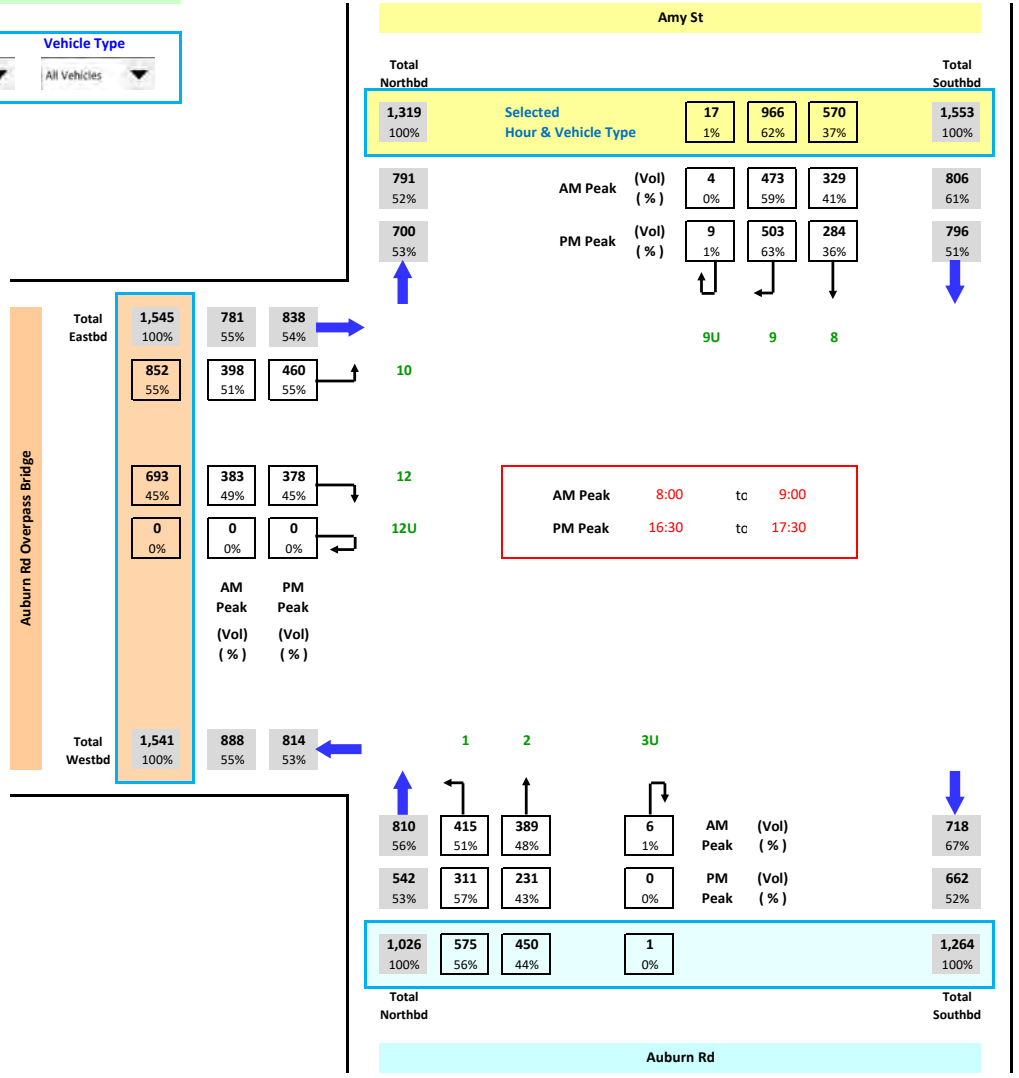
Approach	Carlingford Rd			Auburn Rd Overpass Bridge			Park Rd				Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		
7:00 to 8:00	754	51	**805**	679	49	**728**	580	51	**631**		2,164
7:15 to 8:15	813	49	**862**	744	51	**795**	626	55	**681**		2,338
7:30 to 8:30	804	45	**849**	806	57	**863**	686	52	**738**		2,450
7:45 to 8:45	813	50	**863**	839	53	**892**	751	45	**796**		2,551
8:00 to 9:00	767	57	**824**	824	54	**878**	791	53	**844**		2,546
AM Totals	**1,521**	**108**	**1,629**	**1,503**	**103**	**1,606**	**1,371**	**104**	**1,475**		4,710
16:00 to 17:00	747	25	**772**	739	42	**781**	905	36	**941**		2,494
16:15 to 17:15	758	22	**780**	761	42	**803**	893	33	**926**		2,509
16:30 to 17:30	788	21	**809**	771	38	**809**	899	28	**927**		2,545
16:45 to 17:45	766	17	**783**	765	32	**797**	921	30	**951**		2,531
17:00 to 18:00	794	15	**809**	786	24	**810**	873	22	**895**		2,514
PM Totals	**1,541**	**40**	**1,581**	**1,525**	**66**	**1,591**	**1,778**	**58**	**1,836**		5,008

Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 2. Auburn Rd / Amy St

Day/Date : Thu 23rd Feb 2023
Weather : Partly Rain
Description : Classified Intersection Count
: Intersection Diagram

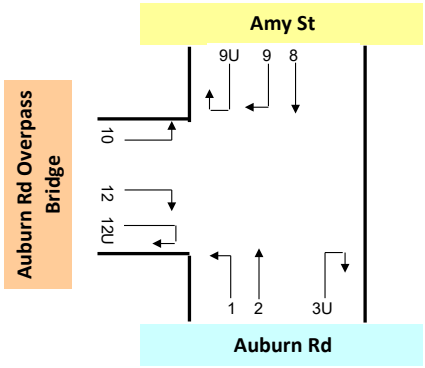
MATRIX Traffic and Transport Data

Hour Starting	Vehicle Type
PM Totals	All Vehicles



Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 2. Auburn Rd / Amy St

Day/Date : Thu 23rd Feb 2023
Weather : Partly Rain
Description : Classified Intersection Count
: Peak Hour Summary



	Approach	Auburn Rd				Amy St			Auburn Rd Overpass Bridge			Grand Total
	Time Period	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
AM	8:00 to 9:00	785	25	**810**		756	50	**806**	715	66	**781**	**2,397**
PM	16:30 to 17:30	528	14	**542**		762	34	**796**	809	29	**838**	**2,176**

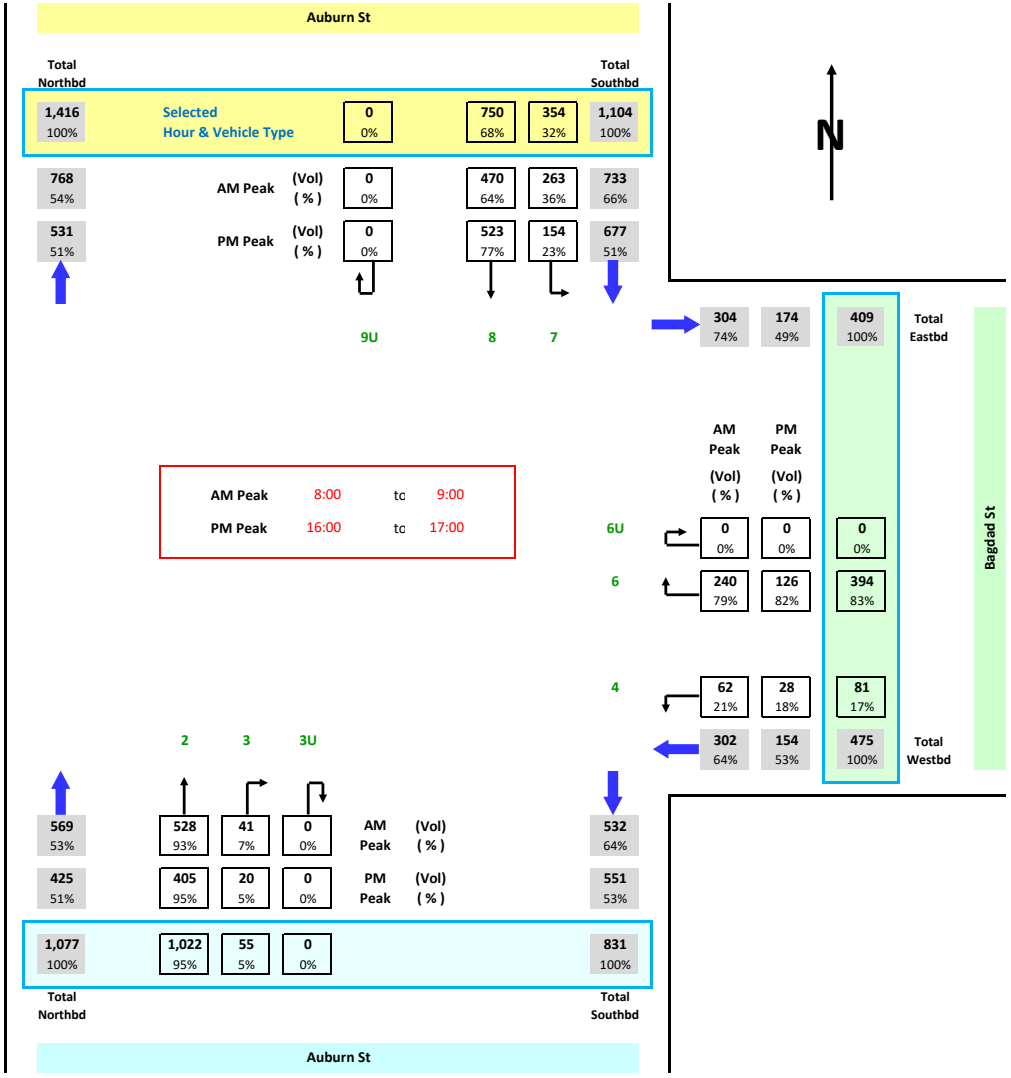
Approach	Auburn Rd				Amy St			Auburn Rd Overpass Bridge			Grand Total
Time Period	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
7:00 to 8:00	617	23	**640**		484	42	**526**	580	63	**643**	**1,809**
7:15 to 8:15	701	23	**724**		559	47	**606**	635	63	**698**	**2,028**
7:30 to 8:30	772	27	**799**		641	52	**693**	671	59	**730**	**2,222**
7:45 to 8:45	799	23	**822**		724	50	**774**	721	59	**780**	**2,376**
8:00 to 9:00	785	25	**810**		756	50	**806**	715	66	**781**	**2,397**
AM Totals	**1,402**	**48**	**1,450**		**1,240**	**92**	**1,332**	**1,295**	**129**	**1,424**	**4,206**
16:00 to 17:00	476	12	**488**		719	39	**758**	717	23	**740**	**1,986**
16:15 to 17:15	525	13	**538**		751	41	**792**	809	31	**840**	**2,170**
16:30 to 17:30	528	14	**542**		762	34	**796**	809	29	**838**	**2,176**
16:45 to 17:45	531	14	**545**		753	27	**780**	814	30	**844**	**2,169**
17:00 to 18:00	529	9	**538**		771	24	**795**	781	24	**805**	**2,138**
PM Totals	**1,005**	**21**	**1,026**		**1,490**	**63**	**1,553**	**1,498**	**47**	**1,545**	**4,124**

Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 3. Bagdad St / Auburn St

Day/Date : Thu 23rd Feb 2023
Weather : Partly rain
Description : Classified Intersection Count
: Intersection Diagram

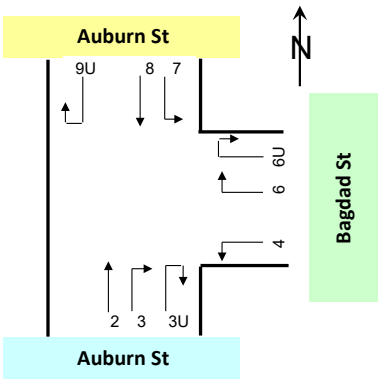
Hour Starting	Vehicle Type
AM Totals	All Vehicles

MATRIX Traffic and Transport Data



Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 3. Bagdad St / Auburn St

Day/Date : Thu 23rd Feb 2023
Weather : Partly rain
Description : Classified Intersection Count
: Peak Hour Summary



	Approach	Auburn St			Bagdad St			Auburn St				Grand Total
	Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		
AM	8:00 to 9:00	549	20	**569**	297	5	**302**	707	26	**733**		**1,604**
PM	16:00 to 17:00	415	10	**425**	152	2	**154**	663	14	**677**		**1,256**

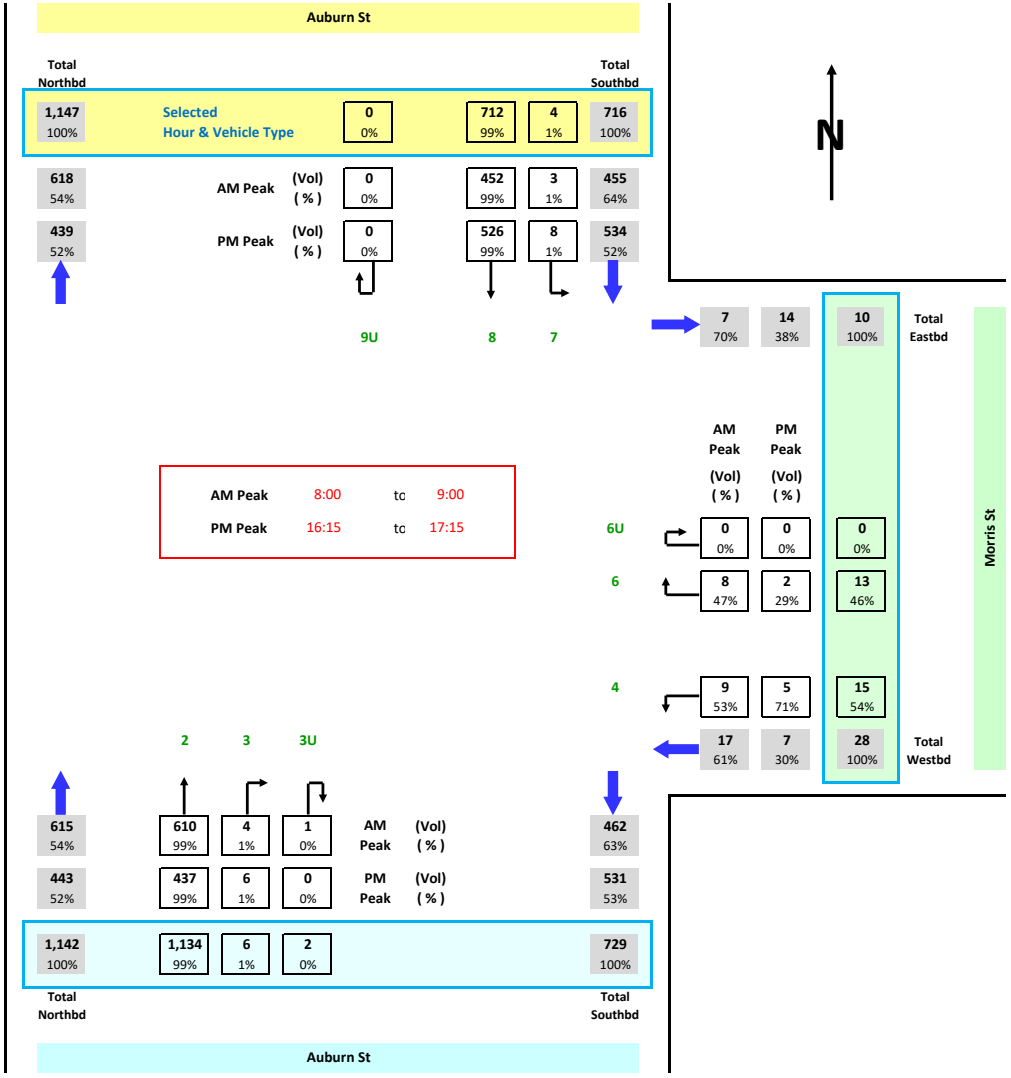
Approach	Auburn St			Bagdad St			Auburn St				Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		
7:00 to 8:00	488	20	**508**	168	5	**173**	355	16	**371**		**1,052**
7:15 to 8:15	542	19	**561**	201	7	**208**	441	19	**460**		**1,229**
7:30 to 8:30	578	19	**597**	256	8	**264**	553	23	**576**		**1,437**
7:45 to 8:45	580	17	**597**	287	6	**293**	639	22	**661**		**1,551**
8:00 to 9:00	549	20	**569**	297	5	**302**	707	26	**733**		**1,604**
AM Totals	**1,037**	**40**	**1,077**	**465**	**10**	**475**	**1,062**	**42**	**1,104**		**2,656**
16:00 to 17:00	415	10	**425**	152	2	**154**	663	14	**677**		**1,256**
16:15 to 17:15	407	12	**419**	146	1	**147**	657	15	**672**		**1,238**
16:30 to 17:30	405	12	**417**	141	1	**142**	655	11	**666**		**1,225**
16:45 to 17:45	410	13	**423**	119	1	**120**	675	11	**686**		**1,229**
17:00 to 18:00	397	9	**406**	138	0	**138**	638	8	**646**		**1,190**
PM Totals	**812**	**19**	**831**	**290**	**2**	**292**	**1,301**	**22**	**1,323**		**2,446**

Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 4. Morris St / Auburn Rd

Day/Date : Thu 23rd Feb 2023
Weather : Partly rain
Description : Classified Intersection Count
: Intersection Diagram

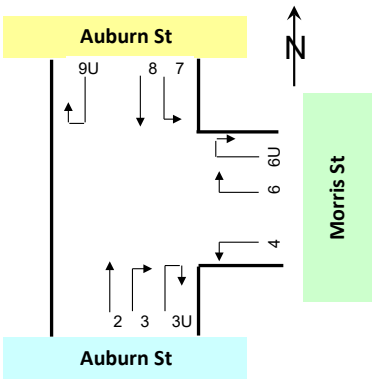
Hour Starting	Vehicle Type
AM Totals	All Vehicles

MATRIX Traffic and Transport Data



Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 4. Morris St / Auburn Rd

Day/Date : Thu 23rd Feb 2023
Weather : Partly rain
Description : Classified Intersection Count
: Peak Hour Summary



	Approach	Auburn St			Morris St			Auburn St				Grand Total
	Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		
AM	8:00 to 9:00	596	19	**615**	17	0	**17**	437	18	**455**		**1,087**
PM	16:15 to 17:15	429	14	**443**	7	0	**7**	520	14	**534**		**984**

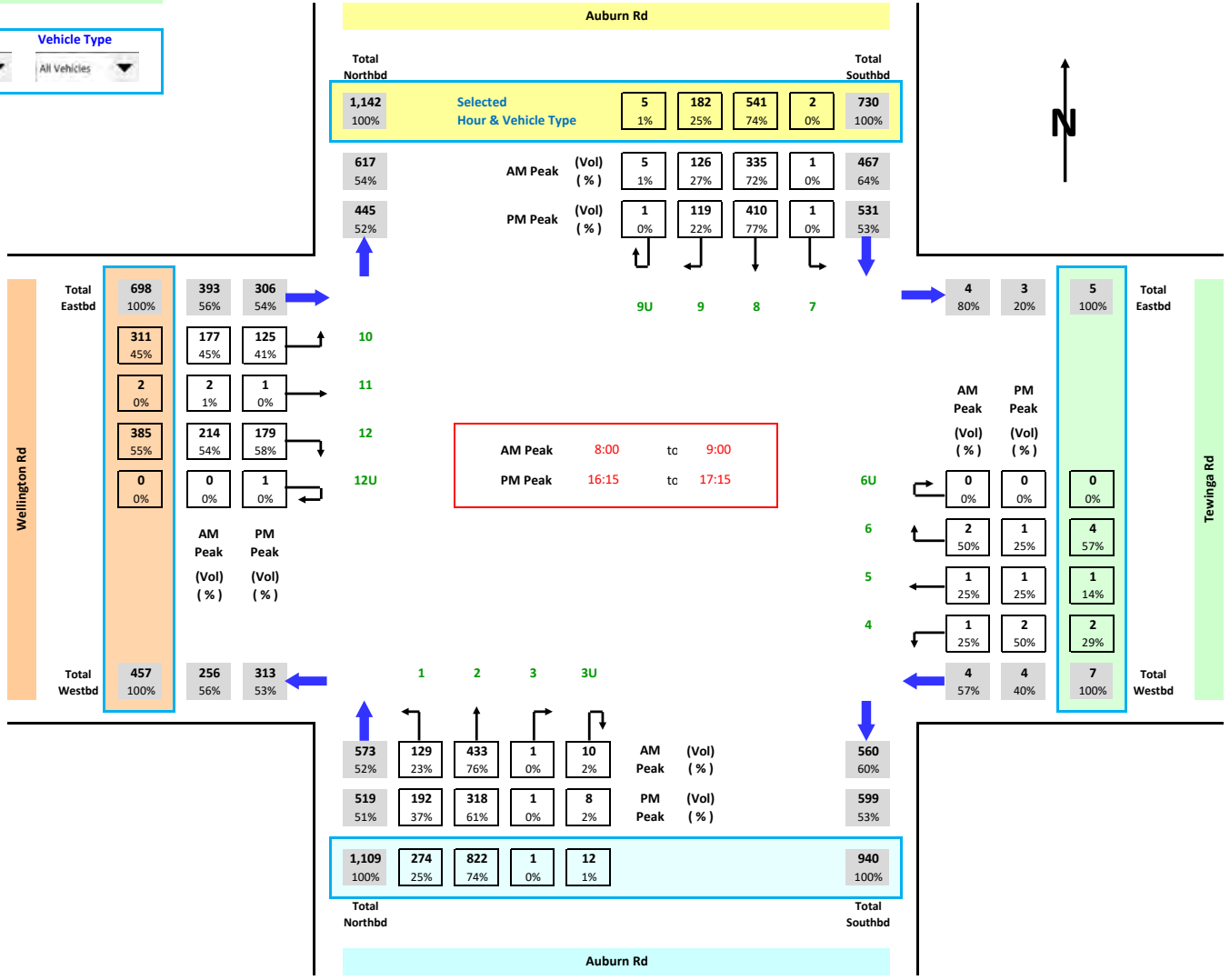
Approach	Auburn St			Morris St			Auburn St				Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total		
7:00 to 8:00	507	20	**527**	11	0	**11**	245	16	**261**		**799**
7:15 to 8:15	575	20	**595**	12	0	**12**	288	17	**305**		**912**
7:30 to 8:30	611	18	**629**	18	0	**18**	331	18	**349**		**996**
7:45 to 8:45	624	15	**639**	17	0	**17**	405	16	**421**		**1,077**
8:00 to 9:00	596	19	**615**	17	0	**17**	437	18	**455**		**1,087**
AM Totals	**1,103**	**39**	**1,142**	**28**	**0**	**28**	**682**	**34**	**716**		**1,886**
16:00 to 17:00	420	12	**432**	8	0	**8**	528	11	**539**		**979**
16:15 to 17:15	429	14	**443**	7	0	**7**	520	14	**534**		**984**
16:30 to 17:30	421	14	**435**	11	0	**11**	494	11	**505**		**951**
16:45 to 17:45	426	16	**442**	13	0	**13**	485	11	**496**		**951**
17:00 to 18:00	405	12	**417**	15	0	**15**	470	11	**481**		**913**
PM Totals	**825**	**24**	**849**	**23**	**0**	**23**	**998**	**22**	**1,020**		**1,892**

Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 5. Wellington Rd / Auburn Rd / Tewinga Rd

Day/Date : Thu 23rd Feb 2023
Weather : Partly rain
Description : Classified Intersection Count
: Intersection Diagram

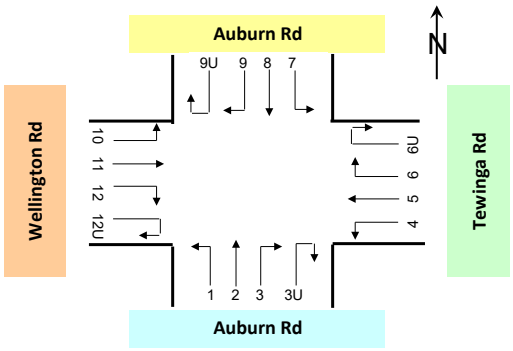
MATRIX Traffic and Transport Data

Hour Starting	Vehicle Type
AM Totals	All Vehicles



Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 5. Wellington Rd / Auburn Rd / Tewinga Rd

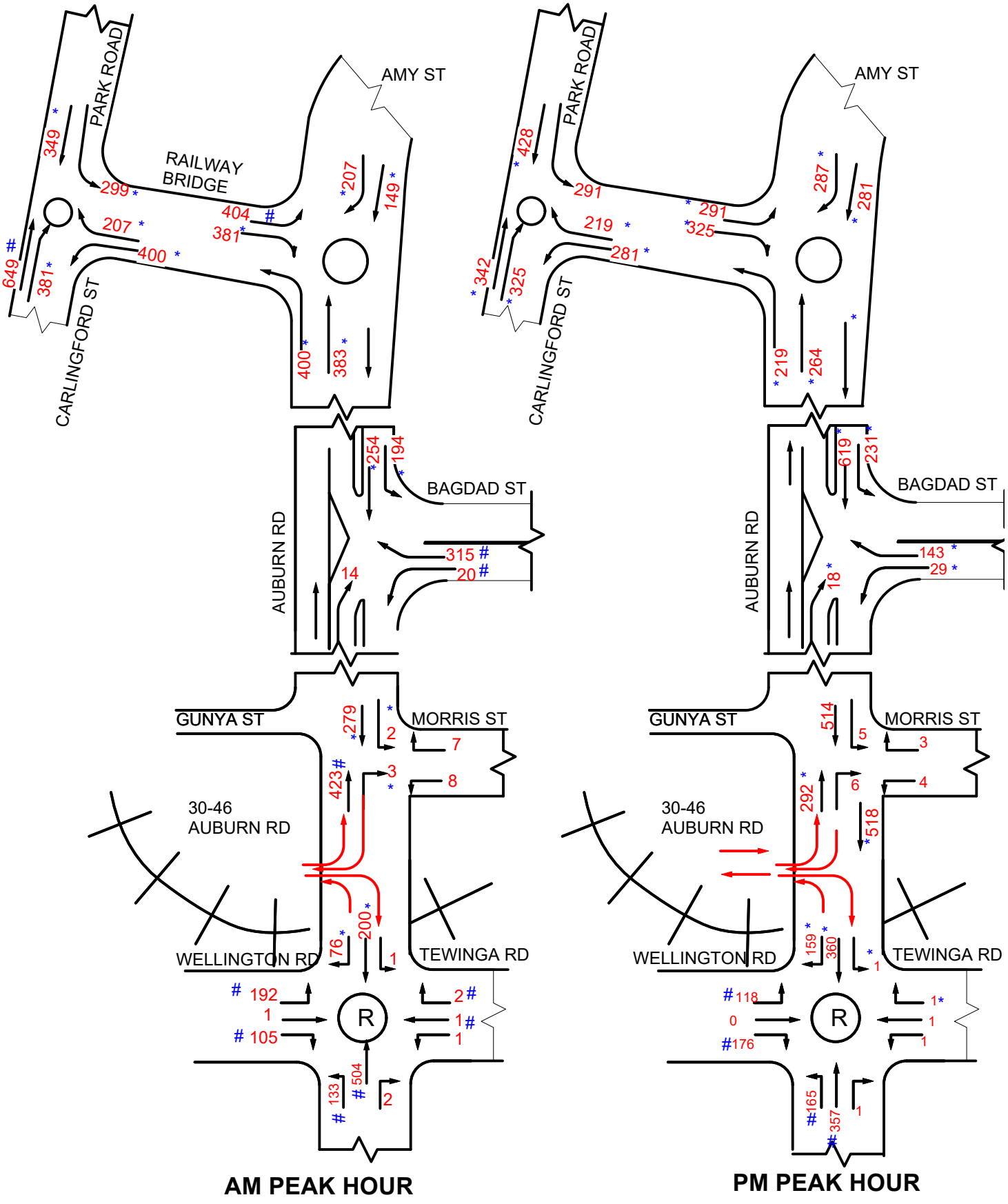
Day/Date : Thu 23rd Feb 2023
Weather : Partly rain
Description : Classified Intersection Count
: Peak Hour Summary



	Approach	Auburn Rd			Tewinga Rd			Auburn Rd			Wellington Rd			Grand Total
	Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
AM	8:00 to 9:00	551	22	**573**	4	0	**4**	449	18	**467**	372	21	**393**	**1,437**
PM	16:15 to 17:15	500	19	**519**	4	0	**4**	518	13	**531**	298	8	**306**	**1,360**

Approach	Auburn Rd			Tewinga Rd			Auburn Rd			Wellington Rd			Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
7:00 to 8:00	512	24	**536**	3	0	**3**	247	16	**263**	279	26	**305**	**1,107**
7:15 to 8:15	558	21	**579**	2	0	**2**	295	17	**312**	339	25	**364**	**1,257**
7:30 to 8:30	567	18	**585**	2	0	**2**	341	17	**358**	377	21	**398**	**1,343**
7:45 to 8:45	584	15	**599**	3	0	**3**	416	16	**432**	375	24	**399**	**1,433**
8:00 to 9:00	551	22	**573**	4	0	**4**	449	18	**467**	372	21	**393**	**1,437**
AM Totals	**1,063**	**46**	**1,109**	**7**	**0**	**7**	**696**	**34**	**730**	**651**	**47**	**698**	**2,544**
16:00 to 17:00	483	17	**500**	4	0	**4**	524	10	**534**	294	9	**303**	**1,341**
16:15 to 17:15	500	19	**519**	4	0	**4**	518	13	**531**	298	8	**306**	**1,360**
16:30 to 17:30	492	19	**511**	6	0	**6**	495	10	**505**	293	6	**299**	**1,321**
16:45 to 17:45	495	21	**516**	7	0	**7**	478	10	**488**	291	5	**296**	**1,307**
17:00 to 18:00	496	13	**509**	6	0	**6**	465	10	**475**	263	5	**268**	**1,258**
PM Totals	**979**	**30**	**1,009**	**10**	**0**	**10**	**989**	**20**	**1,009**	**557**	**14**	**571**	**2,599**

APPENDIX D



LEGEND

8.00 - 9.00AM PEAK HOUR
4.30 -5.30PM PEAK HOUR

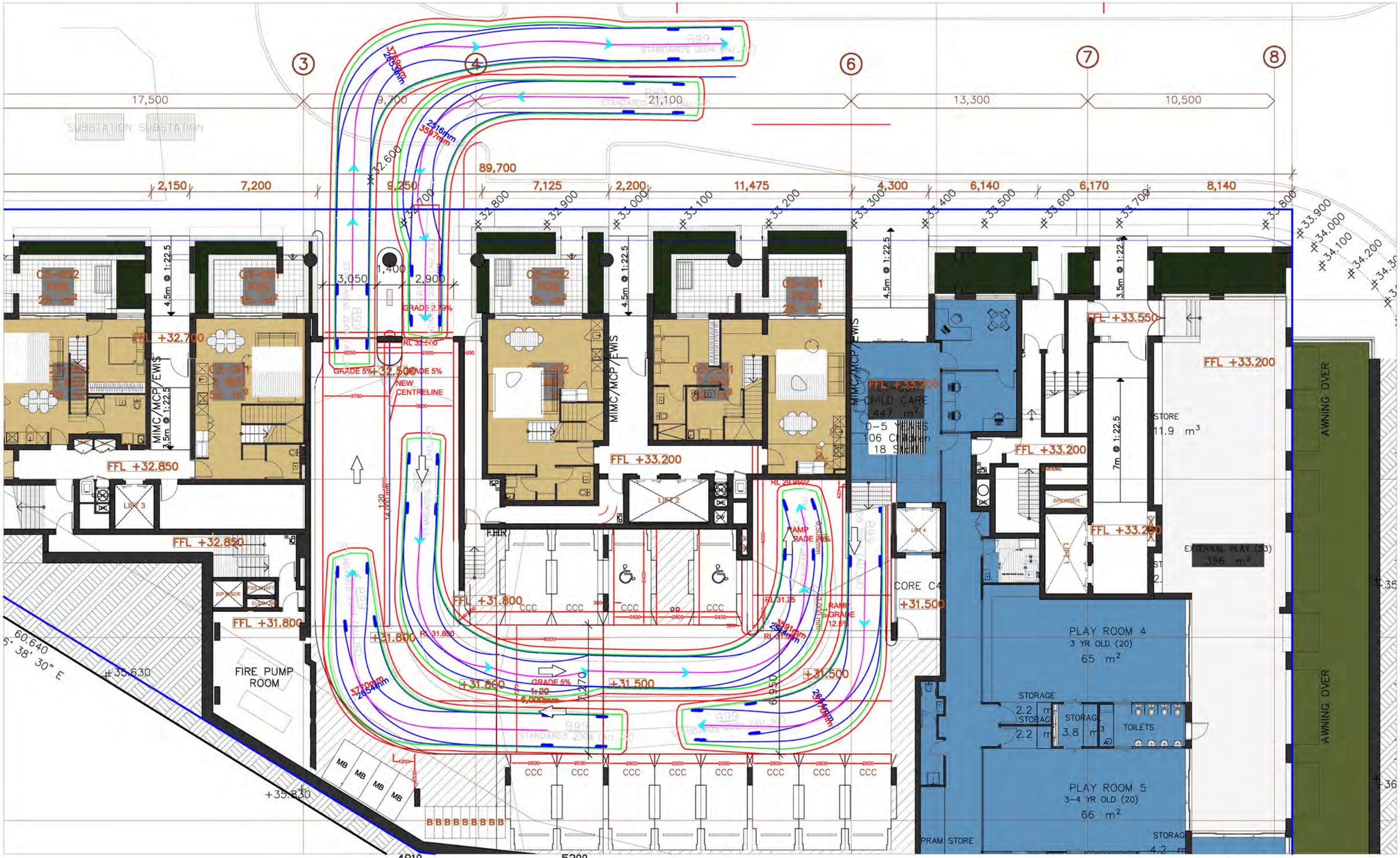
* DECREASE FROM 2017 VOLUME
\# INCREASE

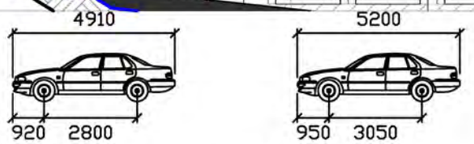
EXISTING PEAK HOUR VOLUMES
2021 EXISTING STFM VOLUMES

N

FIGURES 2C + 2D

APPENDIX E





B85	mm	B99	mm
Width	: 1870	Width	: 1940
Track	: 1770	Track	: 1840
Lock to Lock Time	6.0	Lock to Lock Time	6.0
Steering Angle	: 34.1	Steering Angle	: 33.9

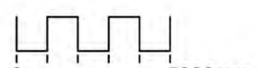


FIGURE 1

DD-A-103 GROUND LEVEL 0
SCALE 1:200(A3)
LMP REVIEW
27-03-2025

SWITCH ROOM

WIDEN AISLE FOR CRITICAL SPACES

CORE 3 WASTE ROOM

CCC WASTE

FFL +29.700

RL 29.700 +29.700

RL 29.700 ABOVE 2.2M CLEARANCE OVER

RAMP GRADE 20%

RAMP GRADE 12.5%

RAMP ABOVE SHOWN DOTTED

13 BIKE SPACES

TURNING BAY

FAN ROOM (INTAKE)

Visitor Resi.

Resident

RL 28.300

RL 31.25

44,715

6,850

3,458

2,842

550

8,650

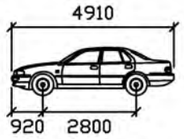
6,800

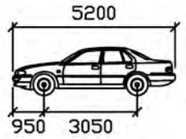
11,200 mm

2,400

2600

VEHICLE PROFILE





B85

	mm
Width	: 1870
Track	: 1770
Lock to Lock Time	6.0
Steering Angle	: 34.1

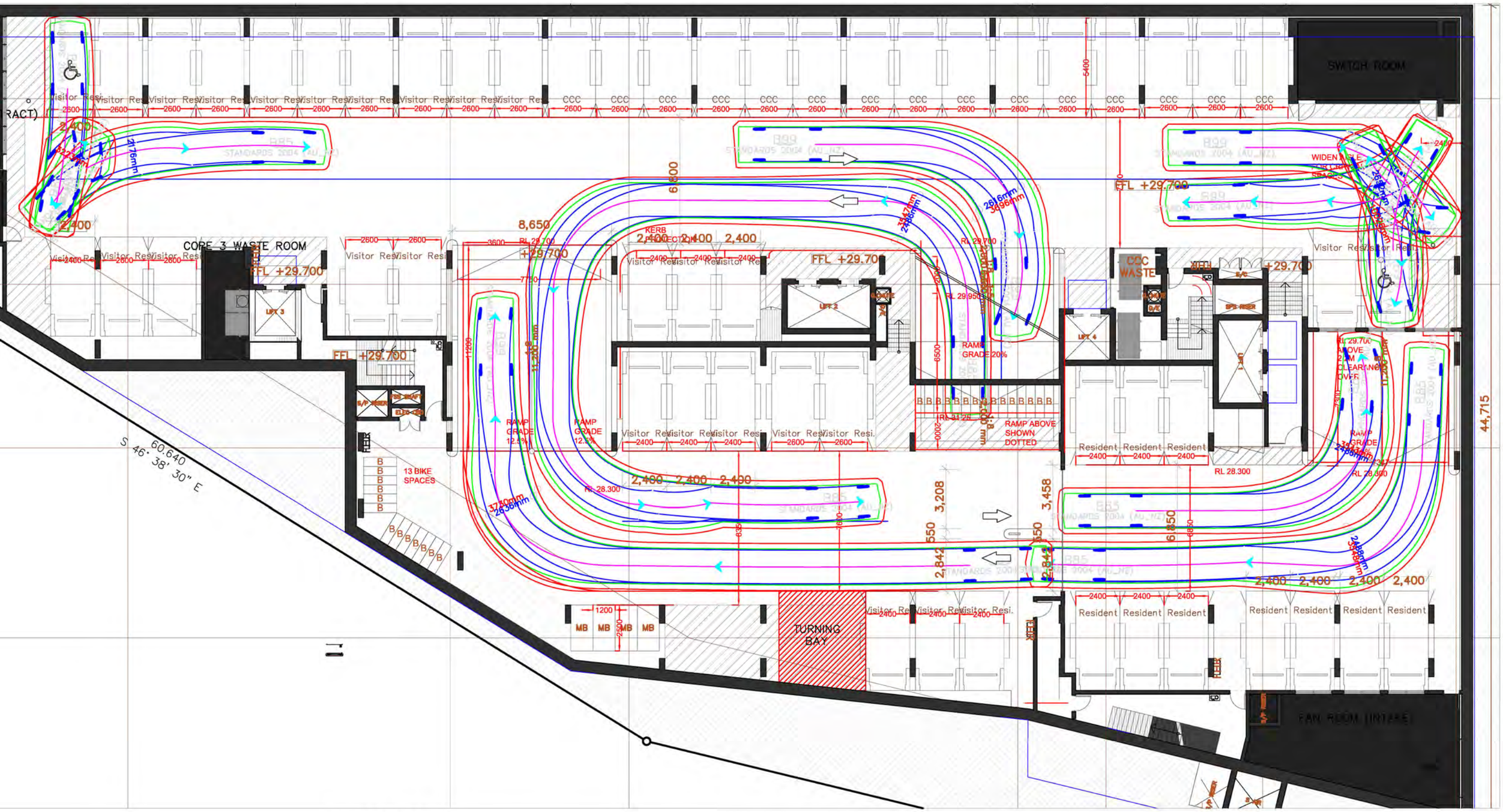
B99

	mm
Width	: 1940
Track	: 1840
Lock to Lock Time	6.0
Steering Angle	: 33.9

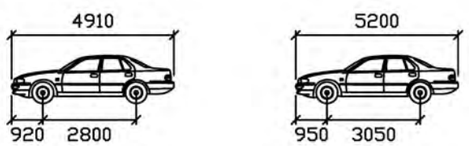
0 5000mm

FIGURE 2B
TURNING BAY CHECK
B85 VEHICLE

DD-A-102
BASEMENT LEVEL C1
SCALE 1:200(A3)
LMP REVIEW-27-03-2025



VEHICLE PROFILE

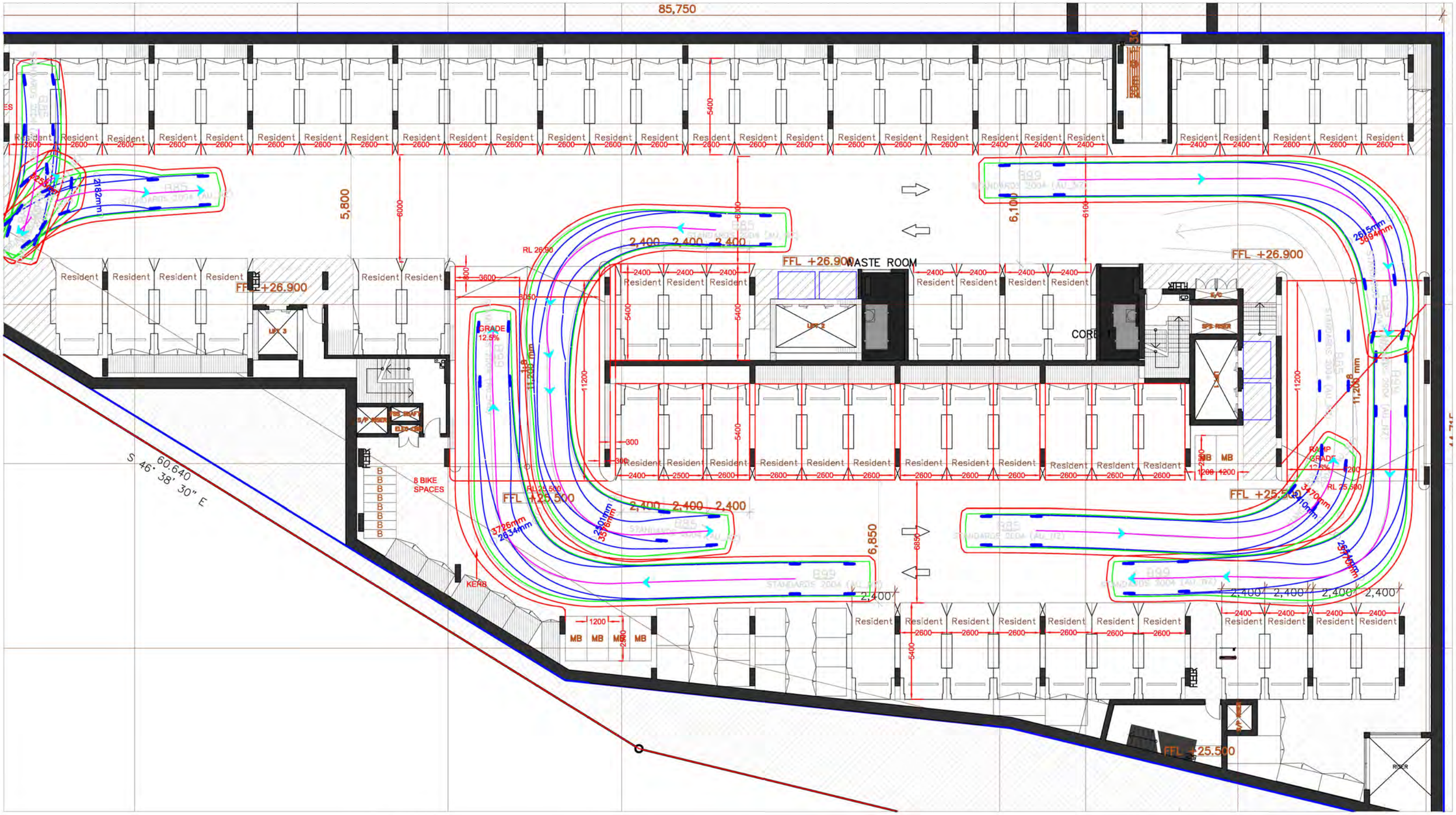


B85	mm	B99	mm
Width	1870	Width	1940
Track	1770	Track	1840
Lock to Lock Time	6.0	Lock to Lock Time	6.0
Steering Angle	34.1	Steering Angle	33.9

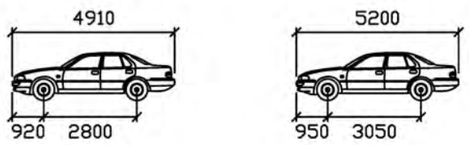


FIGURE 2A

DD-A-102
BASEMENT LEVEL C1
SCALE 1:200(A3)
LMP REVIEW-27-03-2025



VEHICLE PROFILE



B85	mm	B99	mm
Width	: 1870	Width	: 1940
Track	: 1770	Track	: 1840
Lock to Lock Time	6.0	Lock to Lock Time	6.0
Steering Angle	: 34.1	Steering Angle	: 33.9

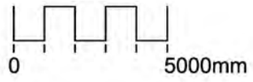
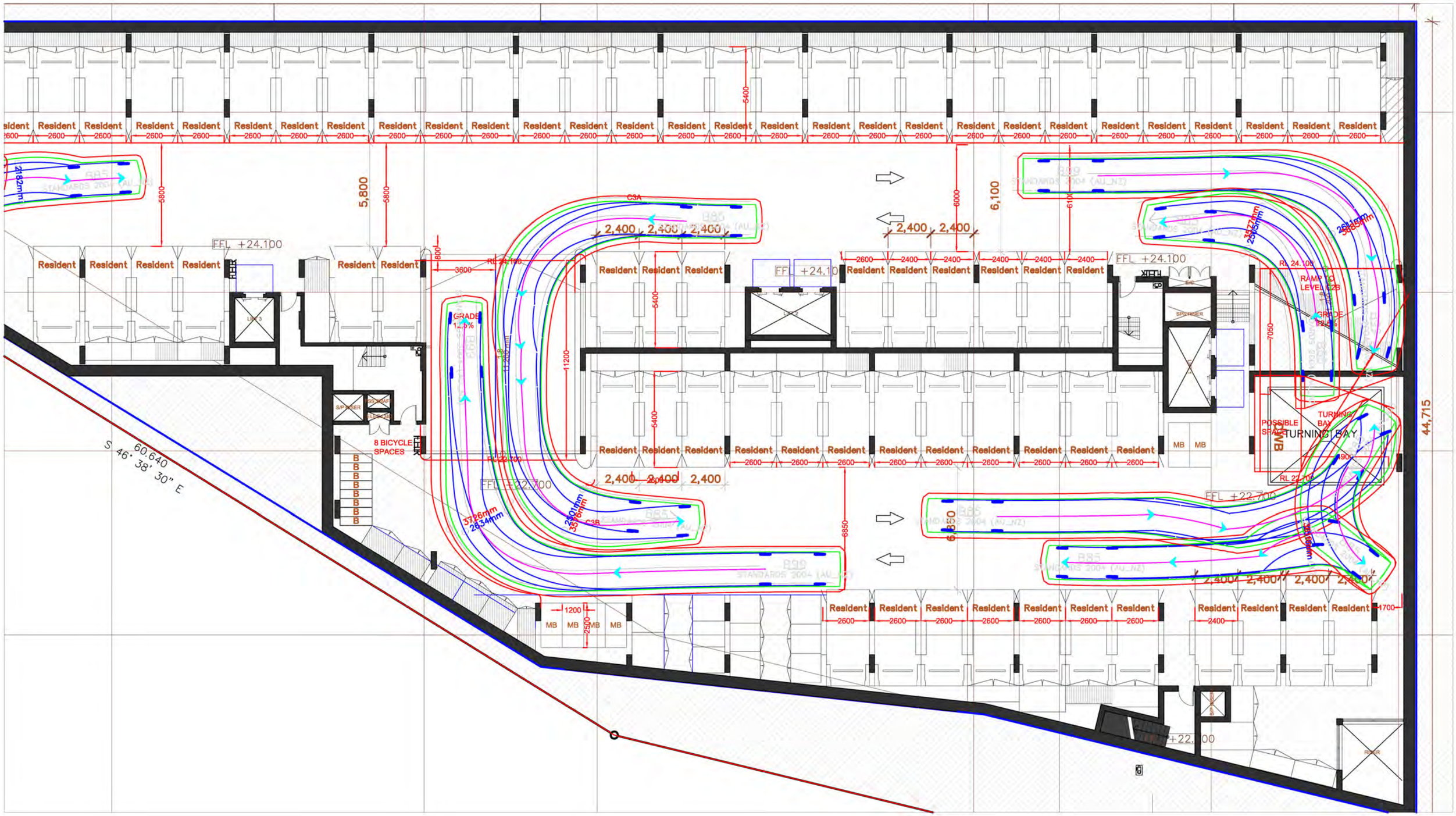


FIGURE 3

DD-A-101 BASEMENT LEVEL C2
SCALE 1:200(A3)
LMP REVIEW
27-03-2025



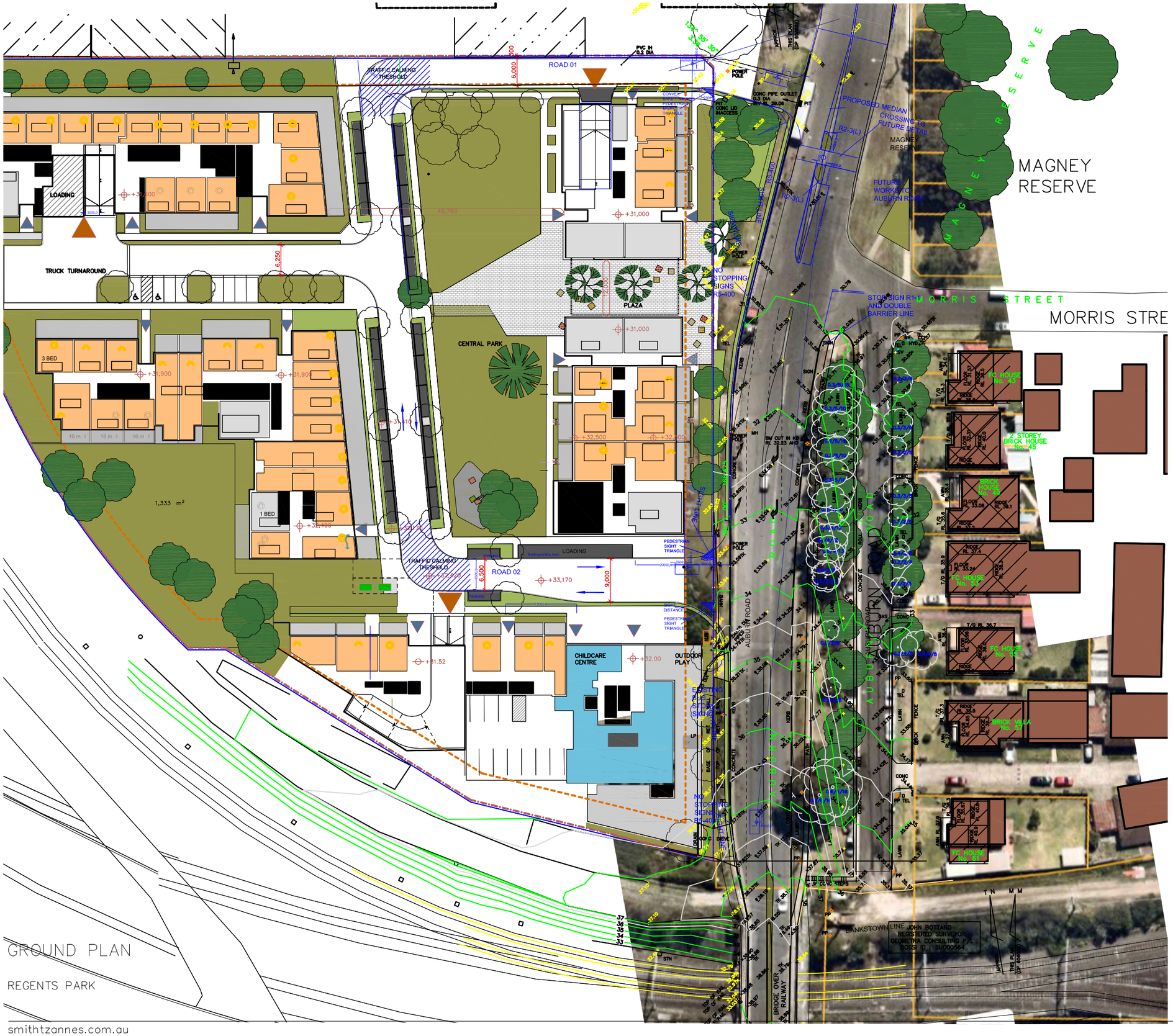
B85	mm	B99	mm
Width	1870	Width	1940
Track	1770	Track	1840
Lock to Lock Time	6.0	Lock to Lock Time	6.0
Steering Angle	34.1	Steering Angle	33.9

0 5000mm

FIGURE 4

DD-A-100
BASEMENT LEVEL C3
SCALE 1:200(A3)
LMP REVIEW
27-03-2025

SMITH & TZANNES



NOTES

1. ACCESS DRIVEWAY CATERS FOR 12.5m HRV TRUCK ACCESS
2. INTERNAL STREET FOR LOW VOLUME ROAD
3. NORTHERN EXTRY/EXIT DRIVEWAY LEFT IN LEFT OUT
4. LOADING DOCK AREA

NORTH

0 5000 10000 20000 30000mm

FIGURE 8A
GEOMETRIC
ALIGNMENT OF ENTRY/EXIT DRIVEWAYS SCALE 1:400
DATE-17-04-2024

GROUND PLAN

REGENTS PARK

SMITH & TZANNES

NORTH

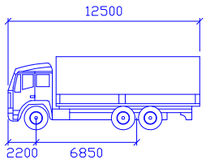
LEGEND

CLEARANCE LINE 300MM OR 600MM (HRV)

EDGE OF VEHICLE

TYRE PATH

VEHICLE PROFILE



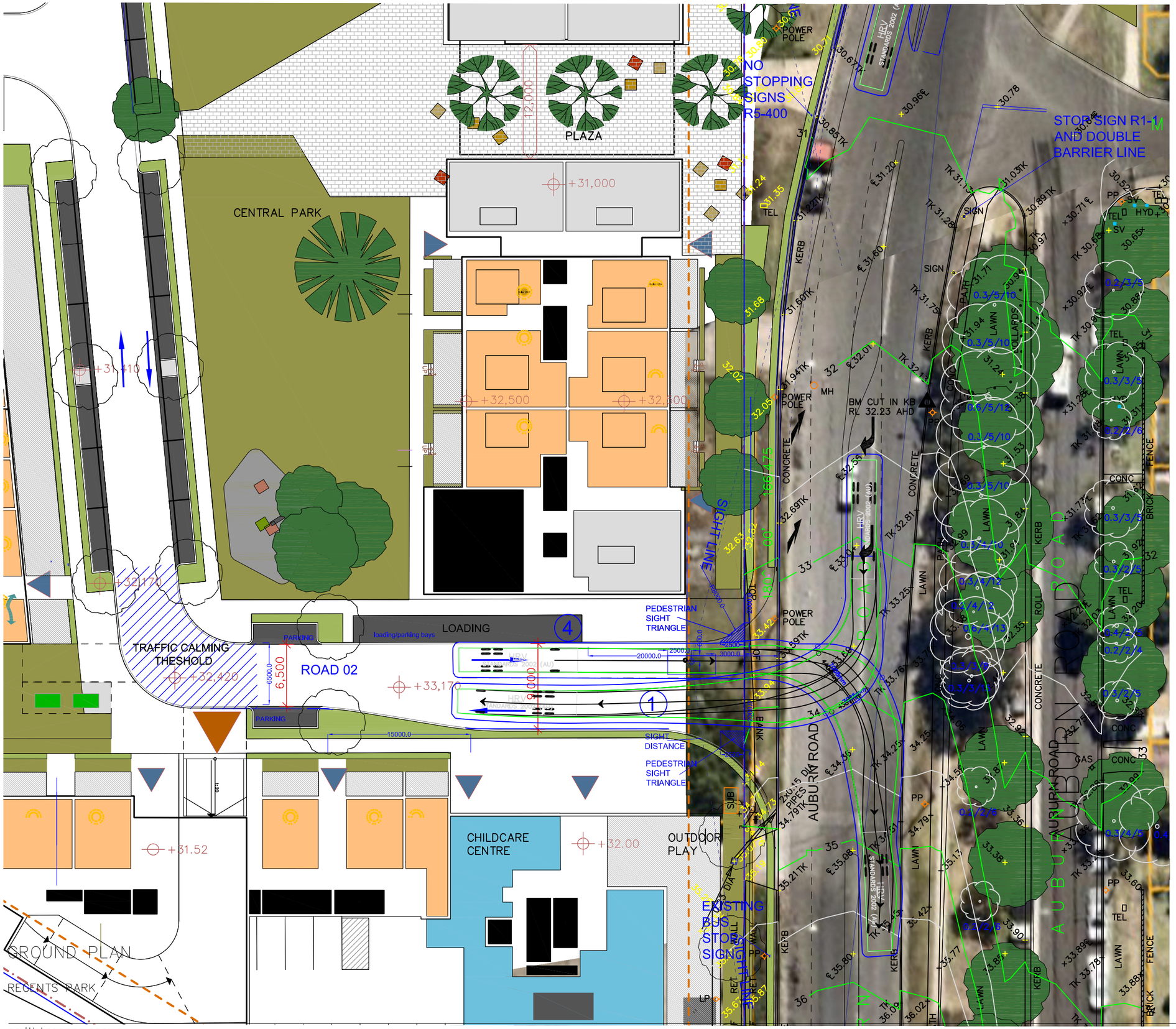
HRV

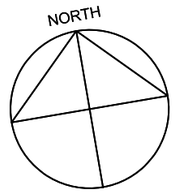
	mm
Width	: 2500
Track	: 2500
Lock to Lock Time	6.0
Steering Angle	: 36.7



FIGURE 8B
SWEPT PATH ANALYSIS
FOR HRV VEHICLES LEFT TURN MOVEMENTS
SOUTHERN DRIVEWAY SCALE 1:200
DATE-17-04-2024

SMITH & TZANNES





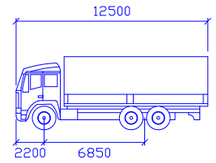
LEGEND

CLEARANCE LINE 300MM OR 600MM (HRV)

EDGE OF VEHICLE

TYRE PATH

VEHICLE PROFILE



	mm
Width	: 2500
Track	: 2500
Lock to Lock Time	6.0
Steering Angle	: 36.7

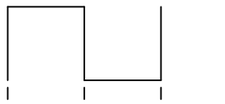
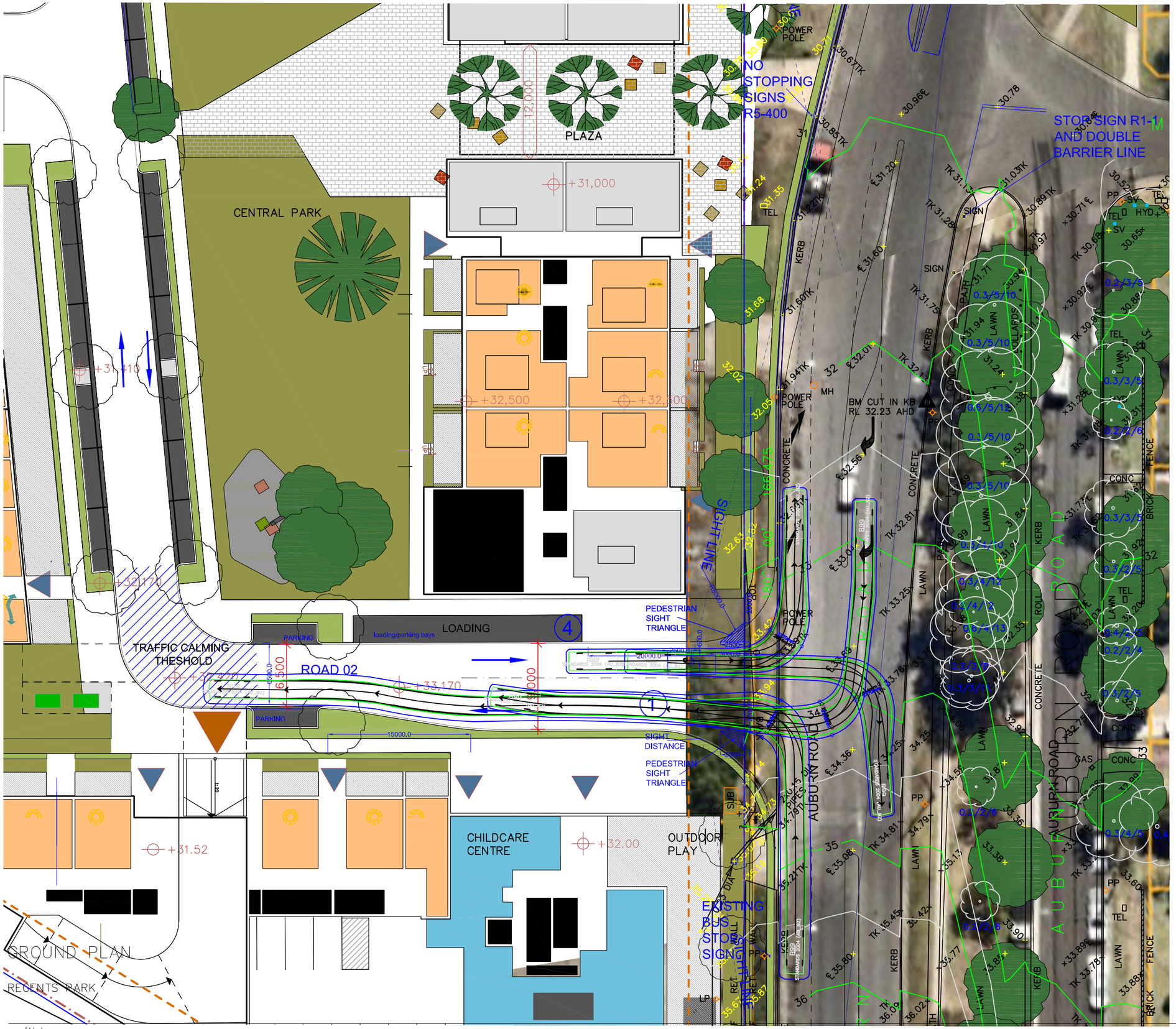


FIGURE 8C
SWEPT PATH ANALYSIS
FOR HRV VEHICLES RIGHT TURN MOVEMENTS
SOUTHERN DRIVEWAY SCALE 1:200
DATE-17-04-2024

SMITH & TZANNES



NORTH

LEGEND

CLEARANCE LINE 300MM OR 600MM (HRV)

EDGE OF VEHICLE

TYRE PATH

VEHICLE PROFILE



B99

	mm
Width	: 1940
Track	: 1840
Lock to Lock Time	6.0
Steering Angle	: 33.9



FIGURE 8D
SWEPT PATH ANALYSIS
FOR B99 VEHICLE AT SOUTHERN DRIVEWAY SCALE 1:200
DATE-17-04-2024

APPENDIX F

INTERSECTION SUMMARY

Site: 1 [2 EX AM - Carlingford/Park - NEW BRIDGE (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [EX AM Bridge (Network Folder: 2023)]

Carlingford Road / Park Road / Auburn Road (NEW BRIDGE)
AM Peak Period
Existing Base Model
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	41.5	41.5 km/h
Travel Distance (Total)	veh-km/h	1875.1	2250.2 pers-km/h
Travel Time (Total)	veh-h/h	45.1	54.2 pers-h/h
Desired Speed	km/h	50.0	
Speed Efficiency		0.83	
Travel Time Index		8.12	
Congestion Coefficient		1.20	
Demand Flows (Total)	veh/h	2685	3222 pers/h
Arrival Flows (Total)	veh/h	2685	3222 pers/h
Percent Heavy Vehicles (Demand)	%	2.9	
Percent Heavy Vehicles (Arrivals)	%	2.9	
Degree of Saturation		0.626	
Practical Spare Capacity	%	35.9	
Effective Intersection Capacity	veh/h	4292	
Control Delay (Total)	veh-h/h	6.63	7.95 pers-h/h
Control Delay (Average)	sec	8.9	8.9 sec
Control Delay (Worst Lane by MC)	sec	12.0	
Control Delay (Worst Movement by MC)	sec	15.9	15.9 sec
Geometric Delay (Average)	sec	4.5	
Stop-Line Delay (Average)	sec	4.4	
Idling Time (Average)	sec	1.3	
Intersection Level of Service (LOS)		LOS A	
Average Back of Queue - Veh (Worst Lane)	veh	2.3	
Average Back of Queue - Dist (Worst Lane)	m	16.3	
Ave. Que Storage Ratio (Worst Lane)		0.49	
Effective Stops (Total)	veh/h	2031	2437 pers/h
Effective Stop Rate		0.76	0.76
Proportion Queued		0.76	0.76
Performance Index		76.6	76.6
Cost (Total)	$/h	1625.05	1625.05 $/h
Fuel Consumption (Total)	L/h	179.3	
Carbon Dioxide (Total)	kg/h	424.7	
Hydrocarbons (Total)	kg/h	0.033	
Carbon Monoxide (Total)	kg/h	0.35	
NOx (Total)	kg/h	0.574	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout 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.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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

Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 2.5 %

Number of Iterations: 7 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.0% 1.1% 0.6%

Intersection Performance - Annual Values

Performance Measure	Vehicles:	All MCs	Persons	
Demand Flows (Total)	veh/y	1,288,926	1,546,712	pers/y
Arrival Flows (Total)	veh/y	1,288,927		
Delay (Total)	veh-h/y	3,180	3,816	pers-h/y
Effective Stops (Total)	veh/y	974,672	1,169,607	pers/y
Travel Distance (Total)	veh-km/y	900,067	1,080,080	pers-km/y
Travel Time (Total)	veh-h/y	21,667	26,000	pers-h/y
Cost (Total)	$/y	780,026	780,026	$/y
Fuel Consumption (Total)	L/y	86,078		
Carbon Dioxide (Total)	kg/y	203,856		
Hydrocarbons (Total)	kg/y	16		
Carbon Monoxide (Total)	kg/y	167		
NOx (Total)	kg/y	276		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 1 [2 EX AM - Carlingford/Park - NEW BRIDGE (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [EX AM Bridge (Network Folder: 2023)]

Carlingford Road / Park Road / Auburn Road (NEW BRIDGE)
AM Peak Period
Existing Base Model
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Carlingford Road															
2	T1	All MCs	505	2.9	505	2.9	0.600	9.9	LOS A	2.1	15.2	0.84	0.82	1.01	43.2
3	R2	All MCs	403	2.9	403	2.9	0.600	12.3	LOS A	2.1	15.2	0.84	0.84	1.01	37.9
Approach			908	2.9	908	2.9	0.600	10.9	LOS A	2.1	15.2	0.84	0.83	1.01	41.5
East: Auburn Road															
4	L2	All MCs	392	3.0	392	3.0	0.491	6.8	LOS A	1.4	9.8	0.70	0.71	0.74	40.4
6	R2	All MCs	547	3.0	547	3.0	0.626	9.6	LOS A	2.3	16.3	0.78	0.78	0.91	38.5
Approach			939	3.0	939	3.0	0.626	8.4	LOS A	2.3	16.3	0.75	0.75	0.84	39.3
North: Park Road															
7	L2	All MCs	418	2.8	418	2.8	0.478	7.7	LOS A	1.3	9.6	0.69	0.70	0.71	41.4
8	T1	All MCs	420	2.8	420	2.8	0.486	6.7	LOS A	1.4	9.8	0.70	0.67	0.72	44.8
Approach			838	2.8	838	2.8	0.486	7.2	LOS A	1.4	9.8	0.70	0.68	0.72	43.6
All Vehicles			2685	2.9	2685	2.9	0.626	8.9	LOS A	2.3	16.3	0.76	0.76	0.86	41.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (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.

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INTERSECTION SUMMARY

Site: 1 [2 EX AM - Auburn/Amy - NEW BRIDGE (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [EX AM Bridge (Network Folder: 2023)]

Auburn Road / Amy Street (NEW BRIDGE)
AM Peak Period
Existing Base Model
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	41.8	41.8 km/h
Travel Distance (Total)	veh-km/h	1699.7	2039.7 pers-km/h
Travel Time (Total)	veh-h/h	40.6	48.8 pers-h/h
Desired Speed	km/h	50.0	
Speed Efficiency		0.84	
Travel Time Index		8.19	
Congestion Coefficient		1.20	
Demand Flows (Total)	veh/h	2513	3015 pers/h
Arrival Flows (Total)	veh/h	2513	3015 pers/h
Percent Heavy Vehicles (Demand)	%	2.9	
Percent Heavy Vehicles (Arrivals)	%	2.9	
Degree of Saturation		0.630	
Practical Spare Capacity	%	34.9	
Effective Intersection Capacity	veh/h	3987	
Control Delay (Total)	veh-h/h	5.79	6.94 pers-h/h
Control Delay (Average)	sec	8.3	8.3 sec
Control Delay (Worst Lane by MC)	sec	11.0	
Control Delay (Worst Movement by MC)	sec	14.0	14.0 sec
Geometric Delay (Average)	sec	4.6	
Stop-Line Delay (Average)	sec	3.7	
Idling Time (Average)	sec	0.8	
Intersection Level of Service (LOS)		LOS A	
Average Back of Queue - Veh (Worst Lane)	veh	2.1	
Average Back of Queue - Dist (Worst Lane)	m	14.8	
Ave. Que Storage Ratio (Worst Lane)		0.29	
Effective Stops (Total)	veh/h	1817	2181 pers/h
Effective Stop Rate		0.72	0.72
Proportion Queued		0.73	0.73
Performance Index		67.8	67.8
Cost (Total)	$/h	1463.38	1463.38 $/h
Fuel Consumption (Total)	L/h	161.8	
Carbon Dioxide (Total)	kg/h	383.2	
Hydrocarbons (Total)	kg/h	0.029	
Carbon Monoxide (Total)	kg/h	0.31	
NOx (Total)	kg/h	0.522	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout 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.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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

Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 2.6 %

Number of Iterations: 6 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 3.0% 1.7% 0.9%

Intersection Performance - Annual Values

Performance Measure	Vehicles:	All MCs	Persons	
Demand Flows (Total)	veh/y	1,206,063	1,447,276	pers/y
Arrival Flows (Total)	veh/y	1,206,063		
Delay (Total)	veh-h/y	2,778	3,334	pers-h/y
Effective Stops (Total)	veh/y	872,378	1,046,853	pers/y
Travel Distance (Total)	veh-km/y	815,868	979,041	pers-km/y
Travel Time (Total)	veh-h/y	19,500	23,400	pers-h/y
Cost (Total)	$/y	702,422	702,422	$/y
Fuel Consumption (Total)	L/y	77,655		
Carbon Dioxide (Total)	kg/y	183,959		
Hydrocarbons (Total)	kg/y	14		
Carbon Monoxide (Total)	kg/y	150		
NOx (Total)	kg/y	251		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 1 [2 EX AM - Auburn/Amy - NEW BRIDGE (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [EX AM Bridge (Network Folder: 2023)]

Auburn Road / Amy Street (NEW BRIDGE)
AM Peak Period
Existing Base Model
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Auburn Road (S)															
1	L2	All MCs	437	1.5	437	1.5	0.537	9.2	LOS A	1.7	12.1	0.78	0.77	0.87	40.0
2	T1	All MCs	409	1.5	409	1.5	0.511	8.0	LOS A	1.5	11.0	0.76	0.73	0.84	44.3
Approach			846	1.5	846	1.5	0.537	8.6	LOS A	1.7	12.1	0.77	0.75	0.85	42.7
North: Amy Street															
8	T1	All MCs	346	3.1	346	3.1	0.428	6.8	LOS A	1.1	7.6	0.66	0.65	0.66	44.9
9	R2	All MCs	498	3.1	498	3.1	0.630	11.0	LOS A	2.1	14.8	0.78	0.77	0.91	38.7
Approach			844	3.1	844	3.1	0.630	9.3	LOS A	2.1	14.8	0.73	0.72	0.81	42.1
West: Auburn Road (W)															
10	L2	All MCs	419	4.2	419	4.2	0.481	6.3	LOS A	1.3	9.7	0.69	0.69	0.71	40.9
12	R2	All MCs	403	4.2	403	4.2	0.463	7.7	LOS A	1.2	9.0	0.68	0.71	0.69	39.9
Approach			822	4.2	822	4.2	0.481	7.0	LOS A	1.3	9.7	0.68	0.70	0.70	40.4
All Vehicles			2513	2.9	2513	2.9	0.630	8.3	LOS A	2.1	14.8	0.73	0.72	0.79	41.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (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.

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INTERSECTION SUMMARY

Site: 1 [2 EX PM - Carlingford/Park - NEW BRIDGE (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [EX PM Bridge (Network Folder: 2023)]

Carlingford Road / Park Road / Auburn Road (NEW BRIDGE)
PM Peak Period
Existing Base Model
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	41.9	41.9 km/h
Travel Distance (Total)	veh-km/h	1875.0	2250.1 pers-km/h
Travel Time (Total)	veh-h/h	44.8	53.7 pers-h/h
Desired Speed	km/h	50.0	
Speed Efficiency		0.84	
Travel Time Index		8.20	
Congestion Coefficient		1.19	
Demand Flows (Total)	veh/h	2678	3213 pers/h
Arrival Flows (Total)	veh/h	2678	3213 pers/h
Percent Heavy Vehicles (Demand)	%	1.7	
Percent Heavy Vehicles (Arrivals)	%	1.7	
Degree of Saturation		0.614	
Practical Spare Capacity	%	38.5	
Effective Intersection Capacity	veh/h	4363	
Control Delay (Total)	veh-h/h	6.25	7.50 pers-h/h
Control Delay (Average)	sec	8.4	8.4 sec
Control Delay (Worst Lane by MC)	sec	9.5	
Control Delay (Worst Movement by MC)	sec	13.1	13.1 sec
Geometric Delay (Average)	sec	4.5	
Stop-Line Delay (Average)	sec	3.9	
Idling Time (Average)	sec	1.1	
Intersection Level of Service (LOS)		LOS A	
Average Back of Queue - Veh (Worst Lane)	veh	2.2	
Average Back of Queue - Dist (Worst Lane)	m	15.9	
Ave. Que Storage Ratio (Worst Lane)		0.48	
Effective Stops (Total)	veh/h	1973	2368 pers/h
Effective Stop Rate		0.74	0.74
Proportion Queued		0.74	0.74
Performance Index		74.5	74.5
Cost (Total)	$/h	1591.47	1591.47 $/h
Fuel Consumption (Total)	L/h	168.5	
Carbon Dioxide (Total)	kg/h	397.9	
Hydrocarbons (Total)	kg/h	0.030	
Carbon Monoxide (Total)	kg/h	0.32	
NOx (Total)	kg/h	0.373	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout 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.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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

Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 2.7 %

Number of Iterations: 6 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 3.2% 1.8% 1.0%

Intersection Performance - Annual Values

Performance Measure	Vehicles:	All MCs	Persons	
Demand Flows (Total)	veh/y	1,285,390	1,542,468	pers/y
Arrival Flows (Total)	veh/y	1,285,390		
Delay (Total)	veh-h/y	2,999	3,599	pers-h/y
Effective Stops (Total)	veh/y	947,236	1,136,684	pers/y
Travel Distance (Total)	veh-km/y	900,021	1,080,025	pers-km/y
Travel Time (Total)	veh-h/y	21,491	25,790	pers-h/y
Cost (Total)	$/y	763,904	763,904	$/y
Fuel Consumption (Total)	L/y	80,874		
Carbon Dioxide (Total)	kg/y	190,970		
Hydrocarbons (Total)	kg/y	15		
Carbon Monoxide (Total)	kg/y	155		
NOx (Total)	kg/y	179		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 1 [2 EX PM - Carlingford/Park - NEW BRIDGE (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [EX PM Bridge (Network Folder: 2023)]

Carlingford Road / Park Road / Auburn Road (NEW BRIDGE)
PM Peak Period
Existing Base Model
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Carlingford Road															
2	T1	All MCs	415	1.3	415	1.3	0.453	6.3	LOS A	1.2	8.5	0.65	0.63	0.65	45.0
3	R2	All MCs	436	1.3	436	1.3	0.476	8.8	LOS A	1.3	9.2	0.66	0.70	0.66	40.5
Approach			851	1.3	851	1.3	0.476	7.6	LOS A	1.3	9.2	0.66	0.66	0.66	43.3
East: Auburn Road															
4	L2	All MCs	482	2.3	482	2.3	0.614	9.0	LOS A	2.2	15.9	0.83	0.81	1.00	38.7
6	R2	All MCs	369	2.3	369	2.3	0.504	9.5	LOS A	1.5	10.6	0.77	0.79	0.86	38.5
Approach			852	2.3	852	2.3	0.614	9.2	LOS A	2.2	15.9	0.81	0.80	0.94	38.6
North: Park Road															
7	L2	All MCs	449	1.5	449	1.5	0.532	8.6	LOS A	1.6	11.4	0.72	0.74	0.79	40.5
8	T1	All MCs	526	1.5	526	1.5	0.601	8.2	LOS A	2.1	14.8	0.77	0.75	0.88	44.1
Approach			976	1.5	976	1.5	0.601	8.4	LOS A	2.1	14.8	0.75	0.74	0.84	42.9
All Vehicles			2678	1.7	2678	1.7	0.614	8.4	LOS A	2.2	15.9	0.74	0.74	0.81	41.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (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.

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INTERSECTION SUMMARY

Site: 1 [2 EX PM - Auburn/Amy - NEW BRIDGE (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [EX PM Bridge (Network Folder: 2023)]

Auburn Road / Amy Street (NEW BRIDGE)
PM Peak Period
Existing Base Model
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	42.2	42.2 km/h
Travel Distance (Total)	veh-km/h	1476.0	1771.3 pers-km/h
Travel Time (Total)	veh-h/h	35.0	42.0 pers-h/h
Desired Speed	km/h	50.0	
Speed Efficiency		0.84	
Travel Time Index		8.26	
Congestion Coefficient		1.19	
Demand Flows (Total)	veh/h	2281	2737 pers/h
Arrival Flows (Total)	veh/h	2281	2737 pers/h
Percent Heavy Vehicles (Demand)	%	1.8	
Percent Heavy Vehicles (Arrivals)	%	1.8	
Degree of Saturation		0.571	
Practical Spare Capacity	%	48.9	
Effective Intersection Capacity	veh/h	3997	
Control Delay (Total)	veh-h/h	4.68	5.61 pers-h/h
Control Delay (Average)	sec	7.4	7.4 sec
Control Delay (Worst Lane by MC)	sec	10.1	
Control Delay (Worst Movement by MC)	sec	12.9	12.9 sec
Geometric Delay (Average)	sec	4.7	
Stop-Line Delay (Average)	sec	2.7	
Idling Time (Average)	sec	0.5	
Intersection Level of Service (LOS)		LOS A	
Average Back of Queue - Veh (Worst Lane)	veh	1.8	
Average Back of Queue - Dist (Worst Lane)	m	12.9	
Ave. Que Storage Ratio (Worst Lane)		0.26	
Effective Stops (Total)	veh/h	1536	1843 pers/h
Effective Stop Rate		0.67	0.67
Proportion Queued		0.63	0.63
Performance Index		56.3	56.3
Cost (Total)	$/h	1250.94	1250.94 $/h
Fuel Consumption (Total)	L/h	135.0	
Carbon Dioxide (Total)	kg/h	318.8	
Hydrocarbons (Total)	kg/h	0.025	
Carbon Monoxide (Total)	kg/h	0.26	
NOx (Total)	kg/h	0.305	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout 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.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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

Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 2.5 %

Number of Iterations: 6 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.9% 1.6% 0.9%

Intersection Performance - Annual Values

Performance Measure	Vehicles:	All MCs	Persons	
Demand Flows (Total)	veh/y	1,094,905	1,313,887	pers/y
Arrival Flows (Total)	veh/y	1,094,905		
Delay (Total)	veh-h/y	2,246	2,695	pers-h/y
Effective Stops (Total)	veh/y	737,397	884,876	pers/y
Travel Distance (Total)	veh-km/y	708,503	850,203	pers-km/y
Travel Time (Total)	veh-h/y	16,794	20,153	pers-h/y
Cost (Total)	$/y	600,453	600,453	$/y
Fuel Consumption (Total)	L/y	64,813		
Carbon Dioxide (Total)	kg/y	153,035		
Hydrocarbons (Total)	kg/y	12		
Carbon Monoxide (Total)	kg/y	124		
NOx (Total)	kg/y	147		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 1 [2 EX PM - Auburn/Amy - NEW BRIDGE (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [EX PM Bridge (Network Folder: 2023)]

Auburn Road / Amy Street (NEW BRIDGE)
PM Peak Period
Existing Base Model
Site Category: (None)
Roundabout

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Auburn Road (S)															
1	L2	All MCs	327	1.3	327	1.3	0.456	8.7	LOS A	1.2	8.2	0.74	0.74	0.80	40.5
2	T1	All MCs	243	1.3	243	1.3	0.329	7.2	LOS A	0.8	5.5	0.68	0.68	0.68	44.7
Approach			571	1.3	571	1.3	0.456	8.1	LOS A	1.2	8.2	0.72	0.72	0.75	42.9
North: Amy Street															
8	T1	All MCs	299	2.1	299	2.1	0.384	6.8	LOS A	0.9	6.2	0.61	0.64	0.61	44.9
9	R2	All MCs	529	2.1	529	2.1	0.571	10.1	LOS A	1.8	12.9	0.71	0.74	0.78	39.4
Approach			828	2.1	828	2.1	0.571	8.9	LOS A	1.8	12.9	0.67	0.70	0.72	42.1
West: Auburn Road (W)															
10	L2	All MCs	484	1.7	484	1.7	0.447	4.8	LOS A	1.2	8.5	0.53	0.60	0.53	42.2
12	R2	All MCs	398	1.7	398	1.7	0.391	6.4	LOS A	1.0	6.9	0.51	0.64	0.51	41.0
Approach			882	1.7	882	1.7	0.447	5.5	LOS A	1.2	8.5	0.52	0.62	0.52	41.7
All Vehicles			2281	1.8	2281	1.8	0.571	7.4	LOS A	1.8	12.9	0.63	0.67	0.65	42.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (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.

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INTERSECTION SUMMARY

Site: 1 [EX-AM-AR-BR-Two-Stage T-Intersection (Priority Merge) NSW (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Three-way intersection with 5-lane major road (Stop control)
Site Category: (None)
Stop (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Travel Speed (Average)	km/h	55.1	55.1	km/h
Travel Distance (Total)	veh-km/h	1775.5	2130.6	pers-km/h
Travel Time (Total)	veh-h/h	32.2	38.7	pers-h/h
Desired Speed	km/h	60.0		
Speed Efficiency		0.92		
Travel Time Index		9.09		
Congestion Coefficient		1.09		
Demand Flows (Total)	veh/h	1752	2102	pers/h
Arrival Flows (Total)	veh/h	1752		
Percent Heavy Vehicles (Demand)	%	3.6		
Percent Heavy Vehicles (Arrivals)	%	3.6		
Degree of Saturation		0.518		
Practical Spare Capacity	%	54.5		
Effective Intersection Capacity	veh/h	3382		
Control Delay (Total)	veh-h/h	2.31	2.77	pers-h/h
Control Delay (Average)	sec	4.7	4.7	sec
Control Delay (Worst Lane by MC)	sec	18.9		
Control Delay (Worst Movement by MC)	sec	31.8	31.8	sec
Geometric Delay (Average)	sec	2.6		
Stop-Line Delay (Average)	sec	2.1		
Idling Time (Average)	sec	1.1		
Intersection Level of Service (LOS)		NA		
95% Back of Queue - Veh (Worst Lane)	veh	2.9		
95% Back of Queue - Dist (Worst Lane)	m	20.8		
Ave. Que Storage Ratio (Worst Lane)		0.02		
Effective Stops (Total)	veh/h	587	705	pers/h
Effective Stop Rate		0.34	0.34	
Proportion Queued		0.16	0.16	
Performance Index		38.1	38.1	
Cost (Total)	$/h	1495.47	1495.47	$/h
Fuel Consumption (Total)	L/h	141.1		
Carbon Dioxide (Total)	kg/h	335.5		
Hydrocarbons (Total)	kg/h	0.026		
Carbon Monoxide (Total)	kg/h	0.38		
NOx (Total)	kg/h	0.572		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 71.9% 67.4% 0.0%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	840,758	1,008,910	pers/y

Delay (Total)	veh-h/y	1,107	1,328	pers-h/y
Effective Stops (Total)	veh/y	281,889	338,267	pers/y
Travel Distance (Total)	veh-km/y	852,244	1,022,693	pers-km/y
Travel Time (Total)	veh-h/y	15,478	18,573	pers-h/y
Cost (Total)	$/y	717,827	717,827	$/y
Fuel Consumption (Total)	L/y	67,746		
Carbon Dioxide (Total)	kg/y	161,018		
Hydrocarbons (Total)	kg/y	12		
Carbon Monoxide (Total)	kg/y	184		
NOx (Total)	kg/y	275		

1 Hours per Year: 480 (Site)

MOVEMENT SUMMARY

Site: 1 [EX-AM-AR-BR-Two-Stage T-Intersection (Priority Merge) NSW (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Three-way intersection with 5-lane major road (Stop control)
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: Auburn Road															
5	T1	All MCs	566	1.9	566	1.9	0.294	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
6	R2	All MCs	54	19.6	54	19.6	0.101	11.9	LOS A	0.4	2.9	0.68	0.86	0.68	47.8
Approach			620	3.4	620	3.4	0.294	1.1	NA	0.4	2.9	0.06	0.07	0.06	58.6
East: Bagdad Road															
1	L2	All MCs	76	13.9	76	13.9	0.107	12.0	LOS A	0.4	3.1	0.53	0.96	0.53	49.0
2	R2	All MCs	263	4.0	263	4.0	0.518	18.9	LOS B	2.9	20.8	0.76	1.13	1.19	45.8
Approach			339	6.2	339	6.2	0.518	17.4	LOS B	2.9	20.8	0.71	1.09	1.05	46.5
North: Auburn Road															
3	L2	All MCs	287	3.7	287	3.7	0.421	5.7	LOS A	0.0	0.0	0.00	0.21	0.00	55.4
4	T1	All MCs	505	2.1	505	2.1	0.421	0.2	LOS A	0.0	0.0	0.00	0.21	0.00	57.8
Approach			793	2.7	793	2.7	0.421	2.2	NA	0.0	0.0	0.00	0.21	0.00	56.9
All Vehicles			1752	3.6	1752	3.6	0.518	4.7	NA	2.9	20.8	0.16	0.34	0.22	55.1

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.

INTERSECTION SUMMARY

Site: 1 [EX-PM-AR-BR-Two-Stage T-Intersection (Priority Merge) NSW (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Three-way intersection with 5-lane major road (Stop control)
Site Category: (None)
Stop (Two-Way)

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	56.5	56.5 km/h
Travel Distance (Total)	veh-km/h	1404.0	1684.8 pers-km/h
Travel Time (Total)	veh-h/h	24.8	29.8 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.94	
Travel Time Index		9.36	
Congestion Coefficient		1.06	
Demand Flows (Total)	veh/h	1385	1662 pers/h
Arrival Flows (Total)	veh/h	1385	
Percent Heavy Vehicles (Demand)	%	4.6	
Percent Heavy Vehicles (Arrivals)	%	4.6	
Degree of Saturation		0.388	
Practical Spare Capacity	%	152.4	
Effective Intersection Capacity	veh/h	3568	
Control Delay (Total)	veh-h/h	1.20	1.44 pers-h/h
Control Delay (Average)	sec	3.1	3.1 sec
Control Delay (Worst Lane by MC)	sec	16.0	
Control Delay (Worst Movement by MC)	sec	26.2	26.2 sec
Geometric Delay (Average)	sec	1.9	
Stop-Line Delay (Average)	sec	1.2	
Idling Time (Average)	sec	0.7	
Intersection Level of Service (LOS)		NA	
95% Back of Queue - Veh (Worst Lane)	veh	1.2	
95% Back of Queue - Dist (Worst Lane)	m	8.7	
Ave. Que Storage Ratio (Worst Lane)		0.01	
Effective Stops (Total)	veh/h	316	379 pers/h
Effective Stop Rate		0.23	0.23
Proportion Queued		0.10	0.10
Performance Index		27.7	27.7
Cost (Total)	$/h	1161.05	1161.05 $/h
Fuel Consumption (Total)	L/h	112.0	
Carbon Dioxide (Total)	kg/h	267.3	
Hydrocarbons (Total)	kg/h	0.020	
Carbon Monoxide (Total)	kg/h	0.30	
NOx (Total)	kg/h	0.551	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 71.5% 65.4% 0.0%

Intersection Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total)	veh/y	664,926	797,912 pers/y

Delay (Total)	veh-h/y	574	689	pers-h/y
Effective Stops (Total)	veh/y	151,561	181,873	pers/y
Travel Distance (Total)	veh-km/y	673,930	808,716	pers-km/y
Travel Time (Total)	veh-h/y	11,924	14,309	pers-h/y
Cost (Total)	$/y	557,305	557,305	$/y
Fuel Consumption (Total)	L/y	53,778		
Carbon Dioxide (Total)	kg/y	128,314		
Hydrocarbons (Total)	kg/y	10		
Carbon Monoxide (Total)	kg/y	145		
NOx (Total)	kg/y	264		

1 Hours per Year: 480 (Site)

MOVEMENT SUMMARY

Site: 1 [EX-PM-AR-BR-Two-Stage T-Intersection (Priority Merge) NSW (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Three-way intersection with 5-lane major road (Stop control)
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: Auburn Road															
5	T1	All MCs	437	2.4	437	2.4	0.228	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	All MCs	32	33.3	32	33.3	0.061	12.0	LOS A	0.2	1.9	0.65	0.82	0.65	47.4
Approach			468	4.5	468	4.5	0.228	0.9	NA	0.2	1.9	0.04	0.06	0.04	58.8
East: Bagdad Road															
1	L2	All MCs	40	26.3	40	26.3	0.070	13.7	LOS A	0.2	2.1	0.56	0.97	0.56	47.8
2	R2	All MCs	143	7.4	143	7.4	0.285	16.0	LOS B	1.2	8.7	0.68	1.04	0.79	47.1
Approach			183	11.5	183	11.5	0.285	15.5	LOS B	1.2	8.7	0.65	1.02	0.74	47.3
North: Auburn Road															
3	L2	All MCs	173	6.1	173	6.1	0.388	5.7	LOS A	0.0	0.0	0.00	0.14	0.00	55.9
4	T1	All MCs	561	1.9	561	1.9	0.388	0.1	LOS A	0.0	0.0	0.00	0.14	0.00	58.5
Approach			734	2.9	734	2.9	0.388	1.5	NA	0.0	0.0	0.00	0.14	0.00	57.9
All Vehicles			1385	4.6	1385	4.6	0.388	3.1	NA	1.2	8.7	0.10	0.23	0.11	56.5

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.

INTERSECTION SUMMARY

Site: 101v [EX AM: Auburn Rd/ Morris St, Regents Park (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	59.5	59.5 km/h
Travel Distance (Total)	veh-km/h	1100.3	1320.4 pers-km/h
Travel Time (Total)	veh-h/h	18.5	22.2 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.99	
Travel Time Index		9.90	
Congestion Coefficient		1.01	
Demand Flows (Total)	veh/h	1086	1303 pers/h
Arrival Flows (Total)	veh/h	1086	
Percent Heavy Vehicles (Demand)	%	3.4	
Percent Heavy Vehicles (Arrivals)	%	3.4	
Degree of Saturation		0.324	
Practical Spare Capacity	%	202.7	
Effective Intersection Capacity	veh/h	3354	
Control Delay (Total)	veh-h/h	0.13	0.16 pers-h/h
Control Delay (Average)	sec	0.4	0.4 sec
Control Delay (Worst Lane by MC)	sec	38.9	
Control Delay (Worst Movement by MC)	sec	38.9	38.9 sec
Geometric Delay (Average)	sec	0.1	
Stop-Line Delay (Average)	sec	0.3	
Idling Time (Average)	sec	0.2	
Intersection Level of Service (LOS)		NA	
95% Back of Queue - Veh (Worst Lane)	veh	0.2	
95% Back of Queue - Dist (Worst Lane)	m	1.6	
Ave. Que Storage Ratio (Worst Lane)		0.00	
Effective Stops (Total)	veh/h	20	24 pers/h
Effective Stop Rate		0.02	0.02
Proportion Queued		0.02	0.02
Performance Index		18.8	18.8
Cost (Total)	$/h	702.15	702.15 $/h
Fuel Consumption (Total)	L/h	71.7	
Carbon Dioxide (Total)	kg/h	170.4	
Hydrocarbons (Total)	kg/h	0.012	
Carbon Monoxide (Total)	kg/h	0.21	
NOx (Total)	kg/h	0.206	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 94.4% 0.8% 0.0%

Intersection Performance - Annual Values

Performance Measure	Vehicles:	All MCs	Persons	
Demand Flows (Total)	veh/y	521,280	625,536	pers/y
Delay (Total)	veh-h/y	62	75	pers-h/y
Effective Stops (Total)	veh/y	9,769	11,722	pers/y
Travel Distance (Total)	veh-km/y	528,165	633,798	pers-km/y
Travel Time (Total)	veh-h/y	8,881	10,657	pers-h/y
Cost (Total)	$/y	337,033	337,033	$/y
Fuel Consumption (Total)	L/y	34,426		
Carbon Dioxide (Total)	kg/y	81,787		
Hydrocarbons (Total)	kg/y	6		
Carbon Monoxide (Total)	kg/y	99		
NOx (Total)	kg/y	99		

1 Hours per Year: 480 (Site)

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MOVEMENT SUMMARY

Site: 101v [EX AM: Auburn Rd/ Morris St, Regents Park (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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: Auburn Road															
2	T1	All MCs	610	3.1	610	3.1	0.324	0.0	LOS A	0.1	0.4	0.01	0.01	0.01	59.9
3	R2	All MCs	4	0.0	4	0.0	0.324	6.6	LOS A	0.1	0.4	0.01	0.01	0.01	57.3
Approach			614	3.1	614	3.1	0.324	0.1	NA	0.1	0.4	0.01	0.01	0.01	59.9
East: Morris Street															
4	L2	All MCs	9	0.0	9	0.0	0.013	8.3	LOS A	0.0	0.3	0.47	0.65	0.47	50.9
6	R2	All MCs	8	0.0	8	0.0	0.077	38.9	LOS C	0.2	1.6	0.89	0.96	0.89	35.5
Approach			17	0.0	17	0.0	0.077	22.7	LOS B	0.2	1.6	0.67	0.79	0.67	42.3
North: Auburn Road															
7	L2	All MCs	3	0.0	3	0.0	0.239	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.4
8	T1	All MCs	452	4.0	452	4.0	0.239	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			455	3.9	455	3.9	0.239	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.8
All Vehicles			1086	3.4	1086	3.4	0.324	0.4	NA	0.2	1.6	0.02	0.02	0.02	59.5

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.

INTERSECTION SUMMARY

Site: 101v [EX PM: Auburn Rd/ Morris St, Regents Park (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	59.6	59.6 km/h
Travel Distance (Total)	veh-km/h	997.0	1196.4 pers-km/h
Travel Time (Total)	veh-h/h	16.7	20.1 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.99	
Travel Time Index		9.93	
Congestion Coefficient		1.01	
Demand Flows (Total)	veh/h	984	1181 pers/h
Arrival Flows (Total)	veh/h	984	
Percent Heavy Vehicles (Demand)	%	2.8	
Percent Heavy Vehicles (Arrivals)	%	2.8	
Degree of Saturation		0.279	
Practical Spare Capacity	%	251.7	
Effective Intersection Capacity	veh/h	3531	
Control Delay (Total)	veh-h/h	0.08	0.09 pers-h/h
Control Delay (Average)	sec	0.3	0.3 sec
Control Delay (Worst Lane by MC)	sec	29.5	
Control Delay (Worst Movement by MC)	sec	29.5	29.5 sec
Geometric Delay (Average)	sec	0.1	
Stop-Line Delay (Average)	sec	0.2	
Idling Time (Average)	sec	0.1	
Intersection Level of Service (LOS)		NA	
95% Back of Queue - Veh (Worst Lane)	veh	0.1	
95% Back of Queue - Dist (Worst Lane)	m	0.6	
Ave. Que Storage Ratio (Worst Lane)		0.00	
Effective Stops (Total)	veh/h	23	27 pers/h
Effective Stop Rate		0.02	0.02
Proportion Queued		0.02	0.02
Performance Index		17.0	17.0
Cost (Total)	$/h	632.24	632.24 $/h
Fuel Consumption (Total)	L/h	63.7	
Carbon Dioxide (Total)	kg/h	151.1	
Hydrocarbons (Total)	kg/h	0.011	
Carbon Monoxide (Total)	kg/h	0.19	
NOx (Total)	kg/h	0.161	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 92.6% 1.9% 0.0%

Intersection Performance - Annual Values

Performance Measure	Vehicles:	All MCs	Persons
Demand Flows (Total)	veh/y	472,320	566,784 pers/y
Delay (Total)	veh-h/y	37	45 pers-h/y
Effective Stops (Total)	veh/y	10,952	13,142 pers/y
Travel Distance (Total)	veh-km/y	478,568	574,281 pers-km/y
Travel Time (Total)	veh-h/y	8,027	9,632 pers-h/y
Cost (Total)	$/y	303,477	303,477 $/y
Fuel Consumption (Total)	L/y	30,584	
Carbon Dioxide (Total)	kg/y	72,538	
Hydrocarbons (Total)	kg/y	5	
Carbon Monoxide (Total)	kg/y	89	
NOx (Total)	kg/y	77	

1 Hours per Year: 480 (Site)

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MOVEMENT SUMMARY

Site: 101v [EX PM: Auburn Rd/ Morris St, Regents Park (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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: Auburn Road															
2	T1	All MCs	437	3.2	437	3.2	0.237	0.1	LOS A	0.1	0.6	0.02	0.03	0.02	59.8
3	R2	All MCs	6	0.0	6	0.0	0.237	8.6	LOS A	0.1	0.6	0.02	0.03	0.02	57.2
Approach			443	3.1	443	3.1	0.237	0.2	NA	0.1	0.6	0.02	0.03	0.02	59.8
East: Morris Street															
4	L2	All MCs	5	0.0	5	0.0	0.008	8.9	LOS A	0.0	0.2	0.51	0.66	0.51	50.4
6	R2	All MCs	2	0.0	2	0.0	0.015	29.5	LOS C	0.0	0.3	0.85	0.94	0.85	39.1
Approach			7	0.0	7	0.0	0.015	14.8	LOS B	0.0	0.3	0.60	0.74	0.60	46.6
North: Auburn Road															
7	L2	All MCs	8	0.0	8	0.0	0.279	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
8	T1	All MCs	526	2.6	526	2.6	0.279	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			534	2.6	534	2.6	0.279	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.7
All Vehicles			984	2.8	984	2.8	0.279	0.3	NA	0.1	0.6	0.02	0.02	0.02	59.6

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.

INTERSECTION SUMMARY

Site: 1 [2 EX AM - Wellington/Auburn (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Auburn Road / Wellington Road / Tewinga Road
AM Peak Period
Existing Base Model
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	44.9	44.9 km/h
Travel Distance (Total)	veh-km/h	1532.1	1838.5 pers-km/h
Travel Time (Total)	veh-h/h	34.1	41.0 pers-h/h
Desired Speed	km/h	50.0	
Speed Efficiency		0.90	
Travel Time Index		8.86	
Congestion Coefficient		1.11	
Demand Flows (Total)	veh/h	1496	1795 pers/h
Arrival Flows (Total)	veh/h	1496	
Percent Heavy Vehicles (Demand)	%	2.1	
Percent Heavy Vehicles (Arrivals)	%	2.1	
Degree of Saturation		0.487	
Practical Spare Capacity	%	74.7	
Effective Intersection Capacity	veh/h	3074	
Control Delay (Total)	veh-h/h	2.60	3.12 pers-h/h
Control Delay (Average)	sec	6.3	6.3 sec
Control Delay (Worst Lane by MC)	sec	9.4	
Control Delay (Worst Movement by MC)	sec	14.8	14.8 sec
Geometric Delay (Average)	sec	4.2	
Stop-Line Delay (Average)	sec	2.1	
Idling Time (Average)	sec	0.3	
Intersection Level of Service (LOS)		LOS A	
95% Back of Queue - Veh (Worst Lane)	veh	3.9	
95% Back of Queue - Dist (Worst Lane)	m	28.1	
Ave. Que Storage Ratio (Worst Lane)		0.02	
Effective Stops (Total)	veh/h	839	1007 pers/h
Effective Stop Rate		0.56	0.56
Proportion Queued		0.59	0.59
Performance Index		60.3	60.3
Cost (Total)	$/h	1209.32	1209.32 $/h
Fuel Consumption (Total)	L/h	126.7	
Carbon Dioxide (Total)	kg/h	299.5	
Hydrocarbons (Total)	kg/h	0.022	
Carbon Monoxide (Total)	kg/h	0.24	
NOx (Total)	kg/h	0.321	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout 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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 2.1 %
Number of Iterations: 6 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.6% 1.4% 0.7%

Intersection Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total)	veh/y	717,979	861,575 pers/y

Delay (Total)	veh-h/y	1,248	1,498	pers-h/y
Effective Stops (Total)	veh/y	402,784	483,341	pers/y
Travel Distance (Total)	veh-km/y	735,389	882,467	pers-km/y
Travel Time (Total)	veh-h/y	16,383	19,659	pers-h/y
Cost (Total)	$/y	580,473	580,473	$/y
Fuel Consumption (Total)	L/y	60,802		
Carbon Dioxide (Total)	kg/y	143,761		
Hydrocarbons (Total)	kg/y	10		
Carbon Monoxide (Total)	kg/y	116		
NOx (Total)	kg/y	154		

1 Hours per Year: 480 (Site)

MOVEMENT SUMMARY

Site: 1 [2 EX AM - Wellington/Auburn (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Auburn Road / Wellington Road / Tewinga Road
AM Peak Period
Existing Base Model
Site Category: (None)
Roundabout

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: Auburn Road (S)															
1	L2	All MCs	136	1.9	136	1.9	0.481	4.3	LOS A	3.9	28.1	0.48	0.45	0.48	45.7
2	T1	All MCs	455	1.9	455	1.9	0.481	4.3	LOS A	3.9	28.1	0.48	0.45	0.48	45.9
3	R2	All MCs	1	0.0	1	0.0	0.481	8.0	LOS A	3.9	28.1	0.48	0.45	0.48	45.4
Approach			592	1.9	592	1.9	0.481	4.3	LOS A	3.9	28.1	0.48	0.45	0.48	45.9
East: Tewinga Road															
4	L2	All MCs	1	0.0	1	0.0	0.004	5.7	LOS A	0.0	0.2	0.62	0.49	0.62	45.3
5	T1	All MCs	1	0.0	1	0.0	0.004	6.4	LOS A	0.0	0.2	0.69	0.57	0.69	44.2
6	R2	All MCs	2	0.0	2	0.0	0.004	10.2	LOS A	0.0	0.2	0.69	0.57	0.69	43.7
Approach			4	0.0	4	0.0	0.004	8.1	LOS A	0.0	0.2	0.67	0.55	0.67	44.2
North: Auburn Road (N)															
7	L2	All MCs	1	0.0	1	0.0	0.455	4.9	LOS A	3.5	25.0	0.60	0.55	0.60	44.9
8	T1	All MCs	353	1.9	353	1.9	0.455	5.0	LOS A	3.5	25.0	0.60	0.55	0.60	45.1
9	R2	All MCs	133	1.9	133	1.9	0.455	8.8	LOS A	3.5	25.0	0.60	0.55	0.60	44.6
Approach			486	1.9	486	1.9	0.455	6.0	LOS A	3.5	25.0	0.60	0.55	0.60	45.0
West: Wellington Road															
10	L2	All MCs	186	2.7	186	2.7	0.487	7.3	LOS A	3.7	26.2	0.75	0.72	0.79	43.6
11	T1	All MCs	2	0.0	2	0.0	0.487	7.2	LOS A	3.7	26.2	0.75	0.72	0.79	43.9
12	R2	All MCs	225	2.7	225	2.7	0.487	11.1	LOS A	3.7	26.2	0.75	0.72	0.79	43.4
Approach			414	2.7	414	2.7	0.487	9.4	LOS A	3.7	26.2	0.75	0.72	0.79	43.5
All Vehicles			1496	2.1	1496	2.1	0.487	6.3	LOS A	3.9	28.1	0.59	0.56	0.60	44.9

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

INTERSECTION SUMMARY

Site: 1 [2 EX PM - Wellington/Auburn (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Auburn Road / Wellington Road / Tewinga Road
PM Peak Period
Existing Base Model
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Travel Speed (Average)	km/h	45.3	45.3	km/h
Travel Distance (Total)	veh-km/h	1454.8	1745.7	pers-km/h
Travel Time (Total)	veh-h/h	32.1	38.6	pers-h/h
Desired Speed	km/h	50.0		
Speed Efficiency		0.91		
Travel Time Index		8.95		
Congestion Coefficient		1.10		
Demand Flows (Total)	veh/h	1421	1705	pers/h
Arrival Flows (Total)	veh/h	1421		
Percent Heavy Vehicles (Demand)	%	1.5		
Percent Heavy Vehicles (Arrivals)	%	1.5		
Degree of Saturation		0.487		
Practical Spare Capacity	%	74.6		
Effective Intersection Capacity	veh/h	2918		
Control Delay (Total)	veh-h/h	2.19	2.62	pers-h/h
Control Delay (Average)	sec	5.5	5.5	sec
Control Delay (Worst Lane by MC)	sec	9.0		
Control Delay (Worst Movement by MC)	sec	11.9	11.9	sec
Geometric Delay (Average)	sec	4.1		
Stop-Line Delay (Average)	sec	1.5		
Idling Time (Average)	sec	0.0		
Intersection Level of Service (LOS)		LOS A		
95% Back of Queue - Veh (Worst Lane)	veh	3.9		
95% Back of Queue - Dist (Worst Lane)	m	27.5		
Ave. Que Storage Ratio (Worst Lane)		0.02		
Effective Stops (Total)	veh/h	741	889	pers/h
Effective Stop Rate		0.52	0.52	
Proportion Queued		0.52	0.52	
Performance Index		54.3	54.3	
Cost (Total)	$/h	1131.04	1131.04	$/h
Fuel Consumption (Total)	L/h	115.9		
Carbon Dioxide (Total)	kg/h	273.5		
Hydrocarbons (Total)	kg/h	0.020		
Carbon Monoxide (Total)	kg/h	0.22		
NOx (Total)	kg/h	0.227		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout 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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 2.4 %
Number of Iterations: 6 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.8% 1.5% 0.8%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	682,105	818,526	pers/y

Delay (Total)	veh-h/y	1,049	1,259	pers-h/y
Effective Stops (Total)	veh/y	355,709	426,851	pers/y
Travel Distance (Total)	veh-km/y	698,298	837,957	pers-km/y
Travel Time (Total)	veh-h/y	15,421	18,506	pers-h/y
Cost (Total)	$/y	542,900	542,900	$/y
Fuel Consumption (Total)	L/y	55,619		
Carbon Dioxide (Total)	kg/y	131,271		
Hydrocarbons (Total)	kg/y	9		
Carbon Monoxide (Total)	kg/y	106		
NOx (Total)	kg/y	109		

1 Hours per Year: 480 (Site)

MOVEMENT SUMMARY

Site: 1 [2 EX PM - Wellington/Auburn (Site Folder: 2023)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Auburn Road / Wellington Road / Tewinga Road
PM Peak Period
Existing Base Model
Site Category: (None)
Roundabout

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: Auburn Road (S)															
1	L2	All MCs	202	1.8	202	1.8	0.434	4.2	LOS A	3.3	23.8	0.44	0.45	0.44	45.8
2	T1	All MCs	335	1.8	335	1.8	0.434	4.2	LOS A	3.3	23.8	0.44	0.45	0.44	46.1
3	R2	All MCs	1	0.0	1	0.0	0.434	7.9	LOS A	3.3	23.8	0.44	0.45	0.44	45.5
Approach			538	1.8	538	1.8	0.434	4.2	LOS A	3.3	23.8	0.44	0.45	0.44	46.0
East: Tewinga Road															
4	L2	All MCs	1	0.0	1	0.0	0.004	5.9	LOS A	0.0	0.2	0.65	0.49	0.65	45.1
5	T1	All MCs	1	0.0	1	0.0	0.004	6.7	LOS A	0.0	0.2	0.71	0.57	0.71	44.1
6	R2	All MCs	2	0.0	2	0.0	0.004	10.5	LOS A	0.0	0.2	0.71	0.57	0.71	43.6
Approach			4	0.0	4	0.0	0.004	8.4	LOS A	0.0	0.2	0.69	0.55	0.69	44.1
North: Auburn Road (N)															
7	L2	All MCs	1	0.0	1	0.0	0.487	4.7	LOS A	3.9	27.5	0.56	0.52	0.56	45.1
8	T1	All MCs	432	1.2	432	1.2	0.487	4.7	LOS A	3.9	27.5	0.56	0.52	0.56	45.3
9	R2	All MCs	125	1.2	125	1.2	0.487	8.5	LOS A	3.9	27.5	0.56	0.52	0.56	44.8
Approach			558	1.2	558	1.2	0.487	5.6	LOS A	3.9	27.5	0.56	0.52	0.56	45.2
West: Wellington Road															
10	L2	All MCs	132	1.3	132	1.3	0.335	5.5	LOS A	2.1	15.1	0.59	0.64	0.59	44.5
11	T1	All MCs	1	0.0	1	0.0	0.335	5.5	LOS A	2.1	15.1	0.59	0.64	0.59	44.7
12	R2	All MCs	188	1.3	188	1.3	0.335	9.3	LOS A	2.1	15.1	0.59	0.64	0.59	44.2
Approach			321	1.3	321	1.3	0.335	7.8	LOS A	2.1	15.1	0.59	0.64	0.59	44.3
All Vehicles			1421	1.5	1421	1.5	0.487	5.5	LOS A	3.9	27.5	0.52	0.52	0.52	45.3

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

INTERSECTION SUMMARY

Site: 1 [2 EX AM - Carlingford/Park - NEW BRIDGE - Copy (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [2023-BTG-AM (Network Folder: 2023+BTG 10 years)]

Carlingford Road / Park Road / Auburn Road (NEW BRIDGE)
AM Peak Period
Existing + Background Traffic Growth 2033
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Travel Speed (Average)	km/h	38.3	38.3	km/h
Travel Distance (Total)	veh-km/h	2192.2	2630.6	pers-km/h
Travel Time (Total)	veh-h/h	57.2	68.6	pers-h/h
Desired Speed	km/h	50.0		
Speed Efficiency		0.77		
Travel Time Index		7.40		
Congestion Coefficient		1.30		
Demand Flows (Total)	veh/h	3169	3802	pers/h
Arrival Flows (Total)	veh/h	3131	3758	pers/h
Percent Heavy Vehicles (Demand)	%	2.9		
Percent Heavy Vehicles (Arrivals)	%	2.9		
Degree of Saturation		0.853		
Practical Spare Capacity	%	-0.4		
Effective Intersection Capacity	veh/h	3669		
Control Delay (Total)	veh-h/h	12.25	14.70	pers-h/h
Control Delay (Average)	sec	14.1	14.1	sec
Control Delay (Worst Lane by MC)	sec	22.1		
Control Delay (Worst Movement by MC)	sec	27.2	27.2	sec
Geometric Delay (Average)	sec	4.5		
Stop-Line Delay (Average)	sec	9.5		
Idling Time (Average)	sec	4.5		
Intersection Level of Service (LOS)		LOS B		
Average Back of Queue - Veh (Worst Lane)	veh	5.2		
Average Back of Queue - Dist (Worst Lane)	m	37.2		
Ave. Que Storage Ratio (Worst Lane)		0.81		
Effective Stops (Total)	veh/h	2951	3541	pers/h
Effective Stop Rate		0.94	0.94	
Proportion Queued		0.89	0.89	
Performance Index		111.8	111.8	
Cost (Total)	$/h	2040.06	2040.06	$/h
Fuel Consumption (Total)	L/h	218.4		
Carbon Dioxide (Total)	kg/h	517.0		
Hydrocarbons (Total)	kg/h	0.041		
Carbon Monoxide (Total)	kg/h	0.42		
NOx (Total)	kg/h	0.693		

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout 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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 3.4 %
Number of Iterations: 8 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 1.9% 1.1% 0.6%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	1,520,933	1,825,120	pers/y
Arrival Flows (Total)	veh/y	1,503,001		
Delay (Total)	veh-h/y	5,880	7,056	pers-h/y
Effective Stops (Total)	veh/y	1,416,350	1,699,620	pers/y
Travel Distance (Total)	veh-km/y	1,052,241	1,262,689	pers-km/y
Travel Time (Total)	veh-h/y	27,459	32,950	pers-h/y
Cost (Total)	$/y	979,230	979,230	$/y
Fuel Consumption (Total)	L/y	104,811		
Carbon Dioxide (Total)	kg/y	248,168		
Hydrocarbons (Total)	kg/y	20		
Carbon Monoxide (Total)	kg/y	203		
NOx (Total)	kg/y	333		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 1 [2 EX AM - Carlingford/Park - NEW BRIDGE - Copy (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [2023-BTG-AM (Network Folder: 2023+BTG 10 years)]

Carlingford Road / Park Road / Auburn Road (NEW BRIDGE)
AM Peak Period
Existing + Background Traffic Growth 2033
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Carlingford Road															
2	T1	All MCs	596	2.9	596	2.9	0.853	20.2	LOS C	5.2	37.2	1.00	1.21	1.72	38.6
3	R2	All MCs	476	2.9	476	2.9	0.853	22.2	LOS C	4.5	32.0	1.00	1.15	1.70	31.5
Approach			1072	2.9	1072	2.9	0.853	21.1	LOS C	5.2	37.2	1.00	1.18	1.71	36.2
East: Auburn Road															
4	L2	All MCs	462	3.0	446	3.0	0.602	9.1	LOS A	2.0	14.6	0.80	0.81	0.97	38.6
6	R2	All MCs	646	3.0	624	3.0	0.764	13.6	LOS B	3.7	26.8	0.92	0.92	1.28	35.8
Approach			1108	3.0	1071	3.0	0.764	11.7	LOS B	3.7	26.8	0.87	0.87	1.15	36.9
North: Park Road															
7	L2	All MCs	493	2.8	493	2.8	0.712	11.5	LOS B	2.7	19.6	0.92	0.85	1.16	38.1
8	T1	All MCs	496	2.8	496	2.8	0.323	6.6	LOS A	1.5	11.0	0.66	0.67	0.66	44.9
Approach			989	2.8	989	2.8	0.712	9.1	LOS A	2.7	19.6	0.79	0.76	0.91	42.4
All Vehicles			3169	2.9	3131	2.9	0.853	14.1	LOS B	5.2	37.2	0.89	0.94	1.27	38.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (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.

INTERSECTION SUMMARY

Site: 1 [2 EX AM - Auburn/Amy - NEW BRIDGE (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [2023-BTG-AM (Network Folder: 2023+BTG 10 years)]

Auburn Road / Amy Street (NEW BRIDGE)
AM Peak Period
Existing + Background Traffic Growth 2033
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Travel Speed (Average)	km/h	32.4	32.4	km/h
Travel Distance (Total)	veh-km/h	2005.7	2406.8	pers-km/h
Travel Time (Total)	veh-h/h	61.9	74.3	pers-h/h
Desired Speed	km/h	50.0		
Speed Efficiency		0.65		
Travel Time Index		6.09		
Congestion Coefficient		1.54		
Demand Flows (Total)	veh/h	2965	3558	pers/h
Arrival Flows (Total)	veh/h	2965	3558	pers/h
Percent Heavy Vehicles (Demand)	%	2.9		
Percent Heavy Vehicles (Arrivals)	%	2.9		
Degree of Saturation		1.067		
Practical Spare Capacity	%	-20.3		
Effective Intersection Capacity	veh/h	2780		
Control Delay (Total)	veh-h/h	20.85	25.02	pers-h/h
Control Delay (Average)	sec	25.3	25.3	sec
Control Delay (Worst Lane by MC)	sec	84.4		
Control Delay (Worst Movement by MC)	sec	89.5	89.5	sec
Geometric Delay (Average)	sec	4.6		
Stop-Line Delay (Average)	sec	20.7		
Idling Time (Average)	sec	13.2		
Intersection Level of Service (LOS)		LOS C		
Average Back of Queue - Veh (Worst Lane)	veh	15.1		
Average Back of Queue - Dist (Worst Lane)	m	108.4		
Ave. Que Storage Ratio (Worst Lane)		0.51		
Effective Stops (Total)	veh/h	3464	4156	pers/h
Effective Stop Rate		1.17	1.17	
Proportion Queued		0.90	0.90	
Performance Index		135.2	135.2	
Cost (Total)	$/h	2167.36	2167.36	$/h
Fuel Consumption (Total)	L/h	217.4		
Carbon Dioxide (Total)	kg/h	514.8		
Hydrocarbons (Total)	kg/h	0.043		
Carbon Monoxide (Total)	kg/h	0.42		
NOx (Total)	kg/h	0.681		

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout 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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 3.5 %
Number of Iterations: 7 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.1% 1.1% 0.5%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	1,423,155	1,707,785	pers/y
Arrival Flows (Total)	veh/y	1,423,154		
Delay (Total)	veh-h/y	10,007	12,008	pers-h/y
Effective Stops (Total)	veh/y	1,662,530	1,995,036	pers/y
Travel Distance (Total)	veh-km/y	962,724	1,155,268	pers-km/y
Travel Time (Total)	veh-h/y	29,727	35,672	pers-h/y
Cost (Total)	$/y	1,040,331	1,040,331	$/y
Fuel Consumption (Total)	L/y	104,369		
Carbon Dioxide (Total)	kg/y	247,111		
Hydrocarbons (Total)	kg/y	21		
Carbon Monoxide (Total)	kg/y	201		
NOx (Total)	kg/y	327		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 1 [2 EX AM - Auburn/Amy - NEW BRIDGE (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [2023-BTG-AM (Network Folder: 2023+BTG 10 years)]

Auburn Road / Amy Street (NEW BRIDGE)
AM Peak Period
Existing + Background Traffic Growth 2033
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Auburn Road (S)															
1	L2	All MCs	515	1.5	515	1.5	0.768	14.2	LOS B	3.4	24.3	0.99	0.94	1.36	36.1
2	T1	All MCs	483	1.5	483	1.5	0.678	11.2	LOS B	2.7	19.4	0.92	0.89	1.17	42.7
Approach			999	1.5	999	1.5	0.768	12.7	LOS B	3.4	24.3	0.96	0.91	1.27	40.1
North: Amy Street															
8	T1	All MCs	409	3.1	409	3.1	0.556	8.9	LOS A	1.8	12.7	0.79	0.77	0.90	43.8
9	R2	All MCs	588	3.1	588	3.1	1.067	84.4	LOS F[11]	15.1	108.4	1.00	2.48	4.87	15.4
Approach			996	3.1	996	3.1	1.067	53.4	LOS E[11]	15.1	108.4	0.91	1.78	3.24	24.6
West: Auburn Road (W)															
10	L2	All MCs	494	4.2	494	4.2	0.624	8.8	LOS A	2.3	16.7	0.84	0.80	1.00	38.9
12	R2	All MCs	476	4.2	476	4.2	0.605	10.1	LOS B	2.2	15.7	0.83	0.81	0.97	38.1
Approach			970	4.2	970	4.2	0.624	9.4	LOS A	2.3	16.7	0.83	0.80	0.98	38.5
All Vehicles			2965	2.9	2965	2.9	1.067	25.3	LOS C	15.1	108.4	0.90	1.17	1.84	32.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (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.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

INTERSECTION SUMMARY

Site: 1 [2 EX PM - Carlingford/Park - NEW BRIDGE - Copy (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [2023-BTG-PM (Network Folder: 2023+BTG 10 years)]

Carlingford Road / Park Road / Auburn Road (NEW BRIDGE)
PM Peak Period
Existing + Background Traffic Growth 2033
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Travel Speed (Average)	km/h	38.3	38.3	km/h
Travel Distance (Total)	veh-km/h	2250.1	2700.1	pers-km/h
Travel Time (Total)	veh-h/h	58.7	70.4	pers-h/h
Desired Speed	km/h	50.0		
Speed Efficiency		0.77		
Travel Time Index		7.41		
Congestion Coefficient		1.30		
Demand Flows (Total)	veh/h	3213	3856	pers/h
Arrival Flows (Total)	veh/h	3213	3856	pers/h
Percent Heavy Vehicles (Demand)	%	1.7		
Percent Heavy Vehicles (Arrivals)	%	1.7		
Degree of Saturation		0.870		
Practical Spare Capacity	%	-2.3		
Effective Intersection Capacity	veh/h	3693		
Control Delay (Total)	veh-h/h	12.51	15.01	pers-h/h
Control Delay (Average)	sec	14.0	14.0	sec
Control Delay (Worst Lane by MC)	sec	20.7		
Control Delay (Worst Movement by MC)	sec	25.5	25.5	sec
Geometric Delay (Average)	sec	4.5		
Stop-Line Delay (Average)	sec	9.5		
Idling Time (Average)	sec	4.4		
Intersection Level of Service (LOS)		LOS B		
Average Back of Queue - Veh (Worst Lane)	veh	4.6		
Average Back of Queue - Dist (Worst Lane)	m	33.0		
Ave. Que Storage Ratio (Worst Lane)		1.00		
Effective Stops (Total)	veh/h	3048	3657	pers/h
Effective Stop Rate		0.95	0.95	
Proportion Queued		0.92	0.92	
Performance Index		114.2	114.2	
Cost (Total)	$/h	2067.28	2067.28	$/h
Fuel Consumption (Total)	L/h	212.4		
Carbon Dioxide (Total)	kg/h	501.5		
Hydrocarbons (Total)	kg/h	0.040		
Carbon Monoxide (Total)	kg/h	0.41		
NOx (Total)	kg/h	0.468		

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout 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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 3.3 %
Number of Iterations: 8 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 1.9% 1.1% 0.6%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	1,542,468	1,850,961	pers/y
Arrival Flows (Total)	veh/y	1,542,468		
Delay (Total)	veh-h/y	6,003	7,203	pers-h/y
Effective Stops (Total)	veh/y	1,462,837	1,755,404	pers/y
Travel Distance (Total)	veh-km/y	1,080,025	1,296,030	pers-km/y
Travel Time (Total)	veh-h/y	28,162	33,795	pers-h/y
Cost (Total)	$/y	992,292	992,292	$/y
Fuel Consumption (Total)	L/y	101,962		
Carbon Dioxide (Total)	kg/y	240,734		
Hydrocarbons (Total)	kg/y	19		
Carbon Monoxide (Total)	kg/y	195		
NOx (Total)	kg/y	225		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 1 [2 EX PM - Carlingford/Park - NEW BRIDGE - Copy (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [2023-BTG-PM (Network Folder: 2023+BTG 10 years)]

Carlingford Road / Park Road / Auburn Road (NEW BRIDGE)
PM Peak Period
Existing + Background Traffic Growth 2033
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Carlingford Road															
2	T1	All MCs	498	1.3	498	1.3	0.602	8.4	LOS A	2.2	15.2	0.81	0.76	0.93	44.0
3	R2	All MCs	523	1.3	523	1.3	0.629	11.2	LOS B	2.4	16.7	0.83	0.79	0.97	38.5
Approach			1021	1.3	1021	1.3	0.629	9.9	LOS A	2.4	16.7	0.82	0.78	0.95	41.9
East: Auburn Road															
4	L2	All MCs	579	2.3	579	2.3	0.870	20.7	LOS C	4.6	33.0	1.00	1.19	1.80	31.4
6	R2	All MCs	443	2.3	443	2.3	0.721	15.2	LOS B	3.1	21.8	0.96	0.96	1.33	34.7
Approach			1022	2.3	1022	2.3	0.870	18.3	LOS B	4.6	33.0	0.98	1.09	1.59	32.8
North: Park Road															
7	L2	All MCs	539	1.5	539	1.5	0.748	13.5	LOS B	3.3	23.5	0.94	0.91	1.28	36.6
8	T1	All MCs	632	1.5	632	1.5	0.805	14.2	LOS B	4.4	31.1	0.99	1.02	1.44	41.1
Approach			1171	1.5	1171	1.5	0.805	13.9	LOS B	4.4	31.1	0.96	0.97	1.37	39.6
All Vehicles			3213	1.7	3213	1.7	0.870	14.0	LOS B	4.6	33.0	0.92	0.95	1.31	38.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (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.

INTERSECTION SUMMARY

Site: 1 [2 EX PM - Auburn/Amy - NEW BRIDGE (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [2023-BTG-PM (Network Folder: 2023+BTG 10 years)]

Auburn Road / Amy Street (NEW BRIDGE)
PM Peak Period
Existing + Background Traffic Growth 2033
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	38.7	38.7 km/h
Travel Distance (Total)	veh-km/h	1771.3	2125.5 pers-km/h
Travel Time (Total)	veh-h/h	45.8	54.9 pers-h/h
Desired Speed	km/h	50.0	
Speed Efficiency		0.77	
Travel Time Index		7.49	
Congestion Coefficient		1.29	
Demand Flows (Total)	veh/h	2737	3285 pers/h
Arrival Flows (Total)	veh/h	2737	3285 pers/h
Percent Heavy Vehicles (Demand)	%	1.8	
Percent Heavy Vehicles (Arrivals)	%	1.8	
Degree of Saturation		0.959	
Practical Spare Capacity	%	-11.4	
Effective Intersection Capacity	veh/h	2853	
Control Delay (Total)	veh-h/h	9.42	11.31 pers-h/h
Control Delay (Average)	sec	12.4	12.4 sec
Control Delay (Worst Lane by MC)	sec	29.4	
Control Delay (Worst Movement by MC)	sec	34.5	34.5 sec
Geometric Delay (Average)	sec	4.7	
Stop-Line Delay (Average)	sec	7.7	
Idling Time (Average)	sec	3.7	
Intersection Level of Service (LOS)		LOS B	
Average Back of Queue - Veh (Worst Lane)	veh	7.6	
Average Back of Queue - Dist (Worst Lane)	m	54.2	
Ave. Que Storage Ratio (Worst Lane)		0.39	
Effective Stops (Total)	veh/h	2363	2835 pers/h
Effective Stop Rate		0.86	0.86
Proportion Queued		0.76	0.76
Performance Index		87.5	87.5
Cost (Total)	$/h	1623.35	1623.35 $/h
Fuel Consumption (Total)	L/h	170.5	
Carbon Dioxide (Total)	kg/h	402.5	
Hydrocarbons (Total)	kg/h	0.032	
Carbon Monoxide (Total)	kg/h	0.33	
NOx (Total)	kg/h	0.384	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout 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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 4.1 %
Number of Iterations: 7 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.9% 1.5% 0.8%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	1,313,886	1,576,664	pers/y
Arrival Flows (Total)	veh/y	1,313,886		
Delay (Total)	veh-h/y	4,524	5,428	pers-h/y
Effective Stops (Total)	veh/y	1,134,176	1,361,012	pers/y
Travel Distance (Total)	veh-km/y	850,203	1,020,244	pers-km/y
Travel Time (Total)	veh-h/y	21,975	26,370	pers-h/y
Cost (Total)	$/y	779,209	779,209	$/y
Fuel Consumption (Total)	L/y	81,826		
Carbon Dioxide (Total)	kg/y	193,183		
Hydrocarbons (Total)	kg/y	15		
Carbon Monoxide (Total)	kg/y	156		
NOx (Total)	kg/y	184		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 1 [2 EX PM - Auburn/Amy - NEW BRIDGE (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Network: N101 [2023-BTG-PM (Network Folder: 2023+BTG 10 years)]

Auburn Road / Amy Street (NEW BRIDGE)
PM Peak Period
Existing + Background Traffic Growth 2033
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Auburn Road (S)															
1	L2	All MCs	393	1.3	393	1.3	0.301	8.6	LOS A	1.5	10.6	0.76	0.76	0.76	40.5
2	T1	All MCs	292	1.3	292	1.3	0.478	9.4	LOS A	1.4	10.0	0.84	0.80	0.93	43.6
Approach			685	1.3	685	1.3	0.478	9.0	LOS A	1.5	10.6	0.79	0.77	0.83	42.3
North: Amy Street															
8	T1	All MCs	359	2.1	359	2.1	0.259	7.1	LOS A	1.1	7.5	0.61	0.66	0.61	44.8
9	R2	All MCs	635	2.1	635	2.1	0.959	29.4	LOS C	7.6	54.2	1.00	1.42	2.27	28.0
Approach			994	2.1	994	2.1	0.959	21.4	LOS C	7.6	54.2	0.86	1.15	1.67	34.9
West: Auburn Road (W)															
10	L2	All MCs	581	1.7	581	1.7	0.565	5.5	LOS A	1.8	12.8	0.66	0.64	0.68	41.6
12	R2	All MCs	477	1.7	477	1.7	0.497	7.0	LOS A	1.4	9.9	0.63	0.67	0.63	40.6
Approach			1059	1.7	1059	1.7	0.565	6.2	LOS A	1.8	12.8	0.65	0.65	0.66	41.1
All Vehicles			2737	1.8	2737	1.8	0.959	12.4	LOS B	7.6	54.2	0.76	0.86	1.07	38.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (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.

INTERSECTION SUMMARY

Site: 1 [EX-AM-AR-BR-Two-Stage T-Intersection (Priority Merge) NSW (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Three-way intersection with 5-lane major road (Stop control)
Existing + Background Traffic Growth 2033
Site Category: (None)
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	54.0	54.0 km/h
Travel Distance (Total)	veh-km/h	2091.1	2509.4 pers-km/h
Travel Time (Total)	veh-h/h	38.7	46.5 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.90	
Travel Time Index		8.89	
Congestion Coefficient		1.11	
Demand Flows (Total)	veh/h	2063	2476 pers/h
Arrival Flows (Total)	veh/h	2063	
Percent Heavy Vehicles (Demand)	%	3.6	
Percent Heavy Vehicles (Arrivals)	%	3.6	
Degree of Saturation		0.745	
Practical Spare Capacity	%	7.4	
Effective Intersection Capacity	veh/h	2770	
Control Delay (Total)	veh-h/h	3.53	4.23 pers-h/h
Control Delay (Average)	sec	6.2	6.2 sec
Control Delay (Worst Lane by MC)	sec	28.8	
Control Delay (Worst Movement by MC)	sec	50.7	50.7 sec
Geometric Delay (Average)	sec	2.6	
Stop-Line Delay (Average)	sec	3.6	
Idling Time (Average)	sec	2.0	
Intersection Level of Service (LOS)		NA	
95% Back of Queue - Veh (Worst Lane)	veh	5.0	
95% Back of Queue - Dist (Worst Lane)	m	36.5	
Ave. Que Storage Ratio (Worst Lane)		0.03	
Effective Stops (Total)	veh/h	726	871 pers/h
Effective Stop Rate		0.35	0.35
Proportion Queued		0.17	0.17
Performance Index		47.3	47.3
Cost (Total)	$/h	1788.20	1788.20 $/h
Fuel Consumption (Total)	L/h	166.5	
Carbon Dioxide (Total)	kg/h	395.7	
Hydrocarbons (Total)	kg/h	0.030	
Carbon Monoxide (Total)	kg/h	0.45	
NOx (Total)	kg/h	0.667	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 78.4% 77.5% 0.0%

Intersection Performance - Annual Values

Performance Measure	Vehicles:	All MCs	Persons	
Demand Flows (Total)	veh/y	990,207	1,188,248	pers/y
Delay (Total)	veh-h/y	1,692	2,031	pers-h/y
Effective Stops (Total)	veh/y	348,556	418,267	pers/y
Travel Distance (Total)	veh-km/y	1,003,741	1,204,490	pers-km/y
Travel Time (Total)	veh-h/y	18,593	22,311	pers-h/y
Cost (Total)	$/y	858,336	858,336	$/y
Fuel Consumption (Total)	L/y	79,914		
Carbon Dioxide (Total)	kg/y	189,920		
Hydrocarbons (Total)	kg/y	15		
Carbon Monoxide (Total)	kg/y	217		
NOx (Total)	kg/y	320		

1 Hours per Year: 480 (Site)

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MOVEMENT SUMMARY

Site: 1 [EX-AM-AR-BR-Two-Stage T-Intersection (Priority Merge) NSW (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Three-way intersection with 5-lane major road (Stop control)
Existing + Background Traffic Growth 2033
Site Category: (None)
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

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: Auburn Road															
5	T1	All MCs	677	1.9	677	1.9	0.351	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
6	R2	All MCs	64	19.6	64	19.6	0.175	15.7	LOS B	0.6	4.7	0.78	0.91	0.79	45.6
Approach			741	3.4	741	3.4	0.351	1.5	NA	0.6	4.7	0.07	0.08	0.07	58.2
East: Bagdad Road															
1	L2	All MCs	84	13.9	84	13.9	0.140	13.3	LOS A	0.5	3.9	0.59	1.00	0.59	48.2
2	R2	All MCs	291	4.0	291	4.0	0.745	28.8	LOS C	5.0	36.5	0.90	1.31	1.99	41.1
Approach			374	6.2	374	6.2	0.745	25.4	LOS B	5.0	36.5	0.83	1.24	1.68	42.5
North: Auburn Road															
3	L2	All MCs	343	3.7	343	3.7	0.504	5.8	LOS A	0.0	0.0	0.00	0.21	0.00	55.3
4	T1	All MCs	604	2.1	604	2.1	0.504	0.2	LOS A	0.0	0.0	0.00	0.21	0.00	57.7
Approach			947	2.7	947	2.7	0.504	2.2	NA	0.0	0.0	0.00	0.21	0.00	56.8
All Vehicles			2063	3.6	2063	3.6	0.745	6.2	NA	5.0	36.5	0.17	0.35	0.33	54.0

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.

INTERSECTION SUMMARY

Site: 1 [EX-PM-AR-BR-Two-Stage T-Intersection (Priority Merge) NSW (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Three-way intersection with 5-lane major road (Stop control)
Existing + Background Traffic Growth 2033
Site Category: (None)
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values

Performance Measure	Vehicles:	All MCs	Persons
Travel Speed (Average)	km/h	56.1	56.1 km/h
Travel Distance (Total)	veh-km/h	1690.3	2028.3 pers-km/h
Travel Time (Total)	veh-h/h	30.1	36.2 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.93	
Travel Time Index		9.27	
Congestion Coefficient		1.07	
Demand Flows (Total)	veh/h	1668	2001 pers/h
Arrival Flows (Total)	veh/h	1668	
Percent Heavy Vehicles (Demand)	%	4.5	
Percent Heavy Vehicles (Arrivals)	%	4.5	
Degree of Saturation		0.473	
Practical Spare Capacity	%	88.3	
Effective Intersection Capacity	veh/h	3524	
Control Delay (Total)	veh-h/h	1.69	2.03 pers-h/h
Control Delay (Average)	sec	3.6	3.6 sec
Control Delay (Worst Lane by MC)	sec	21.4	
Control Delay (Worst Movement by MC)	sec	39.4	39.4 sec
Geometric Delay (Average)	sec	1.8	
Stop-Line Delay (Average)	sec	1.8	
Idling Time (Average)	sec	1.2	
Intersection Level of Service (LOS)		NA	
95% Back of Queue - Veh (Worst Lane)	veh	1.8	
95% Back of Queue - Dist (Worst Lane)	m	13.7	
Ave. Que Storage Ratio (Worst Lane)		0.01	
Effective Stops (Total)	veh/h	376	452 pers/h
Effective Stop Rate		0.23	0.23
Proportion Queued		0.11	0.11
Performance Index		34.0	34.0
Cost (Total)	$/h	1404.07	1404.07 $/h
Fuel Consumption (Total)	L/h	134.2	
Carbon Dioxide (Total)	kg/h	320.1	
Hydrocarbons (Total)	kg/h	0.024	
Carbon Monoxide (Total)	kg/h	0.36	
NOx (Total)	kg/h	0.649	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 78.9% 76.5% 0.0%

Intersection Performance - Annual Values

Performance Measure	Vehicles:	All MCs	Persons
Demand Flows (Total)	veh/y	800,486	960,584 pers/y
Delay (Total)	veh-h/y	811	973 pers-h/y
Effective Stops (Total)	veh/y	180,622	216,746 pers/y
Travel Distance (Total)	veh-km/y	811,329	973,594 pers-km/y
Travel Time (Total)	veh-h/y	14,469	17,363 pers-h/y
Cost (Total)	$/y	673,955	673,955 $/y
Fuel Consumption (Total)	L/y	64,408	
Carbon Dioxide (Total)	kg/y	153,645	
Hydrocarbons (Total)	kg/y	11	
Carbon Monoxide (Total)	kg/y	174	
NOx (Total)	kg/y	312	

1 Hours per Year: 480 (Site)

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MOVEMENT SUMMARY

Site: 1 [EX-PM-AR-BR-Two-Stage T-Intersection (Priority Merge) NSW (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Three-way intersection with 5-lane major road (Stop control)
Existing + Background Traffic Growth 2033
Site Category: (None)
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

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: Auburn Road															
5	T1	All MCs	533	2.4	533	2.4	0.277	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
6	R2	All MCs	38	33.3	38	33.3	0.109	16.0	LOS B	0.3	3.1	0.76	0.90	0.76	45.1
Approach			571	4.5	571	4.5	0.277	1.2	NA	0.3	3.1	0.05	0.06	0.05	58.6
East: Bagdad Road															
1	L2	All MCs	44	26.3	44	26.3	0.099	15.9	LOS B	0.3	2.8	0.65	1.01	0.65	46.6
2	R2	All MCs	158	7.4	158	7.4	0.425	21.4	LOS B	1.8	13.7	0.80	1.09	1.10	44.3
Approach			202	11.5	202	11.5	0.425	20.2	LOS B	1.8	13.7	0.77	1.07	1.00	44.8
North: Auburn Road															
3	L2	All MCs	210	6.1	210	6.1	0.473	5.8	LOS A	0.0	0.0	0.00	0.14	0.00	55.8
4	T1	All MCs	684	1.9	684	1.9	0.473	0.2	LOS A	0.0	0.0	0.00	0.14	0.00	58.4
Approach			894	2.9	894	2.9	0.473	1.5	NA	0.0	0.0	0.00	0.14	0.00	57.8
All Vehicles			1668	4.5	1668	4.5	0.473	3.6	NA	1.8	13.7	0.11	0.23	0.14	56.1

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.

INTERSECTION SUMMARY

Site: 101v [EX AM: Auburn Rd/ Morris St, Regents Park (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Existing + Background Traffic Growth 2033

Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	59.3	59.3 km/h
Travel Distance (Total)	veh-km/h	1297.0	1556.4 pers-km/h
Travel Time (Total)	veh-h/h	21.9	26.2 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.99	
Travel Time Index		9.87	
Congestion Coefficient		1.01	
Demand Flows (Total)	veh/h	1280	1536 pers/h
Arrival Flows (Total)	veh/h	1280	
Percent Heavy Vehicles (Demand)	%	3.4	
Percent Heavy Vehicles (Arrivals)	%	3.4	
Degree of Saturation		0.383	
Practical Spare Capacity	%	156.1	
Effective Intersection Capacity	veh/h	3345	
Control Delay (Total)	veh-h/h	0.22	0.26 pers-h/h
Control Delay (Average)	sec	0.6	0.6 sec
Control Delay (Worst Lane by MC)	sec	66.0	
Control Delay (Worst Movement by MC)	sec	66.0	66.0 sec
Geometric Delay (Average)	sec	0.1	
Stop-Line Delay (Average)	sec	0.5	
Idling Time (Average)	sec	0.4	
Intersection Level of Service (LOS)		NA	
95% Back of Queue - Veh (Worst Lane)	veh	0.4	
95% Back of Queue - Dist (Worst Lane)	m	3.0	
Ave. Que Storage Ratio (Worst Lane)		0.00	
Effective Stops (Total)	veh/h	26	31 pers/h
Effective Stop Rate		0.02	0.02
Proportion Queued		0.02	0.02
Performance Index		22.3	22.3
Cost (Total)	$/h	829.77	829.77 $/h
Fuel Consumption (Total)	L/h	84.6	
Carbon Dioxide (Total)	kg/h	201.1	
Hydrocarbons (Total)	kg/h	0.015	
Carbon Monoxide (Total)	kg/h	0.24	
NOx (Total)	kg/h	0.243	

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

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.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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

Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %

Number of Iterations: 3 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 96.9% 1.0% 0.0%

Intersection Performance - Annual Values

Performance Measure	Vehicles:	All MCs	Persons	
Demand Flows (Total)	veh/y	614,458	737,349	pers/y
Delay (Total)	veh-h/y	105	126	pers-h/y
Effective Stops (Total)	veh/y	12,328	14,793	pers/y
Travel Distance (Total)	veh-km/y	622,573	747,087	pers-km/y
Travel Time (Total)	veh-h/y	10,499	12,599	pers-h/y
Cost (Total)	$/y	398,291	398,291	$/y
Fuel Consumption (Total)	L/y	40,622		
Carbon Dioxide (Total)	kg/y	96,505		
Hydrocarbons (Total)	kg/y	7		
Carbon Monoxide (Total)	kg/y	117		
NOx (Total)	kg/y	117		

1 Hours per Year: 480 (Site)

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MOVEMENT SUMMARY

Site: 101v [EX AM: Auburn Rd/ Morris St, Regents Park (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Existing + Background Traffic Growth 2033

Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

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: Auburn Road															
2	T1	All MCs	720	3.1	720	3.1	0.383	0.0	LOS A	0.1	0.5	0.01	0.01	0.01	59.9
3	R2	All MCs	5	0.0	5	0.0	0.383	7.3	LOS A	0.1	0.5	0.01	0.01	0.01	57.3
Approach			725	3.1	725	3.1	0.383	0.1	NA	0.1	0.5	0.01	0.01	0.01	59.9
East: Morris Street															
4	L2	All MCs	10	0.0	10	0.0	0.016	9.1	LOS A	0.1	0.4	0.51	0.69	0.51	50.3
6	R2	All MCs	9	0.0	9	0.0	0.151	66.0	LOS E[11]	0.4	3.0	0.94	0.98	0.95	28.1
Approach			19	0.0	19	0.0	0.151	35.9	LOS C	0.4	3.0	0.72	0.83	0.72	36.7
North: Auburn Road															
7	L2	All MCs	4	0.0	4	0.0	0.282	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.3
8	T1	All MCs	533	4.0	533	4.0	0.282	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			537	3.9	537	3.9	0.282	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.8
All Vehicles			1280	3.4	1280	3.4	0.383	0.6	NA	0.4	3.0	0.02	0.02	0.02	59.3

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.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 101v [EX PM: Auburn Rd/ Morris St, Regents Park (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Existing + Background Traffic Growth 2033

Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

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: Auburn Road															
2	T1	All MCs	533	3.2	533	3.2	0.290	0.1	LOS A	0.1	1.0	0.03	0.04	0.03	59.7
3	R2	All MCs	7	0.0	7	0.0	0.290	10.3	LOS A	0.1	1.0	0.03	0.04	0.03	57.1
Approach			540	3.1	540	3.1	0.290	0.3	NA	0.1	1.0	0.03	0.04	0.03	59.7
East: Morris Street															
4	L2	All MCs	6	0.0	6	0.0	0.011	10.3	LOS A	0.0	0.2	0.58	0.72	0.58	49.5
6	R2	All MCs	2	0.0	2	0.0	0.029	49.6	LOS D	0.1	0.6	0.92	0.97	0.92	32.1
Approach			8	0.0	8	0.0	0.029	21.5	LOS B	0.1	0.6	0.68	0.79	0.68	42.9
North: Auburn Road															
7	L2	All MCs	10	0.0	10	0.0	0.340	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.2
8	T1	All MCs	641	2.6	641	2.6	0.340	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
Approach			651	2.6	651	2.6	0.340	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.7
All Vehicles			1199	2.8	1199	2.8	0.340	0.4	NA	0.1	1.0	0.02	0.03	0.02	59.5

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.

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INTERSECTION SUMMARY

Site: 101v [EX PM: Auburn Rd/ Morris St, Regents Park (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Existing + Background Traffic Growth 2033

Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	59.5	59.5 km/h
Travel Distance (Total)	veh-km/h	1214.5	1457.5 pers-km/h
Travel Time (Total)	veh-h/h	20.4	24.5 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.99	
Travel Time Index		9.91	
Congestion Coefficient		1.01	
Demand Flows (Total)	veh/h	1199	1438 pers/h
Arrival Flows (Total)	veh/h	1199	
Percent Heavy Vehicles (Demand)	%	2.8	
Percent Heavy Vehicles (Arrivals)	%	2.8	
Degree of Saturation		0.340	
Practical Spare Capacity	%	188.5	
Effective Intersection Capacity	veh/h	3529	
Control Delay (Total)	veh-h/h	0.12	0.15 pers-h/h
Control Delay (Average)	sec	0.4	0.4 sec
Control Delay (Worst Lane by MC)	sec	49.6	
Control Delay (Worst Movement by MC)	sec	49.6	49.6 sec
Geometric Delay (Average)	sec	0.1	
Stop-Line Delay (Average)	sec	0.3	
Idling Time (Average)	sec	0.1	
Intersection Level of Service (LOS)		NA	
95% Back of Queue - Veh (Worst Lane)	veh	0.1	
95% Back of Queue - Dist (Worst Lane)	m	1.0	
Ave. Que Storage Ratio (Worst Lane)		0.00	
Effective Stops (Total)	veh/h	31	37 pers/h
Effective Stop Rate		0.03	0.03
Proportion Queued		0.02	0.02
Performance Index		20.7	20.7
Cost (Total)	$/h	771.34	771.34 $/h
Fuel Consumption (Total)	L/h	77.7	
Carbon Dioxide (Total)	kg/h	184.3	
Hydrocarbons (Total)	kg/h	0.013	
Carbon Monoxide (Total)	kg/h	0.23	
NOx (Total)	kg/h	0.196	

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

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.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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

Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %

Number of Iterations: 3 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 95.9% 2.6% 0.0%

Intersection Performance - Annual Values

Performance Measure	Vehicles:	All MCs	Persons	
Demand Flows (Total)	veh/y	575,371	690,445	pers/y
Delay (Total)	veh-h/y	59	71	pers-h/y
Effective Stops (Total)	veh/y	14,872	17,846	pers/y
Travel Distance (Total)	veh-km/y	582,982	699,578	pers-km/y
Travel Time (Total)	veh-h/y	9,794	11,753	pers-h/y
Cost (Total)	$/y	370,245	370,245	$/y
Fuel Consumption (Total)	L/y	37,299		
Carbon Dioxide (Total)	kg/y	88,463		
Hydrocarbons (Total)	kg/y	6		
Carbon Monoxide (Total)	kg/y	108		
NOx (Total)	kg/y	94		

1 Hours per Year: 480 (Site)

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MOVEMENT SUMMARY

Site: 1 [2 EX PM - Wellington/Auburn (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Auburn Road / Wellington Road / Tewinga Road
PM Peak Period
Existing + Background Traffic Growth 2033
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

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: Auburn Road (S)															
1	L2	All MCs	246	1.8	246	1.8	0.547	4.5	LOS A	4.9	35.0	0.56	0.49	0.56	45.5
2	T1	All MCs	408	1.8	408	1.8	0.547	4.5	LOS A	4.9	35.0	0.56	0.49	0.56	45.7
3	R2	All MCs	1	0.0	1	0.0	0.547	8.3	LOS A	4.9	35.0	0.56	0.49	0.56	45.2
Approach			656	1.8	656	1.8	0.547	4.6	LOS A	4.9	35.0	0.56	0.49	0.56	45.6
East: Tewinga Road															
4	L2	All MCs	1	0.0	1	0.0	0.006	7.0	LOS A	0.0	0.3	0.75	0.52	0.75	44.6
5	T1	All MCs	1	0.0	1	0.0	0.006	8.3	LOS A	0.0	0.3	0.82	0.61	0.82	43.3
6	R2	All MCs	3	0.0	3	0.0	0.006	12.0	LOS A	0.0	0.3	0.82	0.61	0.82	42.8
Approach			5	0.0	5	0.0	0.006	9.8	LOS A	0.0	0.3	0.80	0.59	0.80	43.4
North: Auburn Road (N)															
7	L2	All MCs	1	0.0	1	0.0	0.622	5.4	LOS A	5.9	41.9	0.71	0.58	0.72	44.6
8	T1	All MCs	526	1.2	526	1.2	0.622	5.5	LOS A	5.9	41.9	0.71	0.58	0.72	44.9
9	R2	All MCs	153	1.2	153	1.2	0.622	9.3	LOS A	5.9	41.9	0.71	0.58	0.72	44.3
Approach			680	1.2	680	1.2	0.622	6.3	LOS A	5.9	41.9	0.71	0.58	0.72	44.8
West: Wellington Road															
10	L2	All MCs	160	1.3	160	1.3	0.442	6.3	LOS A	3.1	22.0	0.71	0.68	0.71	44.1
11	T1	All MCs	1	0.0	1	0.0	0.442	6.3	LOS A	3.1	22.0	0.71	0.68	0.71	44.3
12	R2	All MCs	230	1.3	230	1.3	0.442	10.1	LOS A	3.1	22.0	0.71	0.68	0.71	43.8
Approach			391	1.3	391	1.3	0.442	8.6	LOS A	3.1	22.0	0.71	0.68	0.71	43.9
All Vehicles			1732	1.5	1732	1.5	0.622	6.2	LOS A	5.9	41.9	0.65	0.57	0.66	44.9

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

INTERSECTION SUMMARY

Site: 1 [2 EX AM - Wellington/Auburn (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Auburn Road / Wellington Road / Tewinga Road
AM Peak Period
Existing + Background Traffic Growth 2033
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Travel Speed (Average)	km/h	44.1	44.1	km/h
Travel Distance (Total)	veh-km/h	1831.3	2197.5	pers-km/h
Travel Time (Total)	veh-h/h	41.6	49.9	pers-h/h
Desired Speed	km/h	50.0		
Speed Efficiency		0.88		
Travel Time Index		8.68		
Congestion Coefficient		1.14		
Demand Flows (Total)	veh/h	1788	2146	pers/h
Arrival Flows (Total)	veh/h	1788		
Percent Heavy Vehicles (Demand)	%	2.1		
Percent Heavy Vehicles (Arrivals)	%	2.1		
Degree of Saturation		0.647		
Practical Spare Capacity	%	31.5		
Effective Intersection Capacity	veh/h	2765		
Control Delay (Total)	veh-h/h	3.84	4.61	pers-h/h
Control Delay (Average)	sec	7.7	7.7	sec
Control Delay (Worst Lane by MC)	sec	13.2		
Control Delay (Worst Movement by MC)	sec	19.8	19.8	sec
Geometric Delay (Average)	sec	4.2		
Stop-Line Delay (Average)	sec	3.6		
Idling Time (Average)	sec	0.9		
Intersection Level of Service (LOS)		LOS A		
95% Back of Queue - Veh (Worst Lane)	veh	6.7		
95% Back of Queue - Dist (Worst Lane)	m	48.1		
Ave. Que Storage Ratio (Worst Lane)		0.04		
Effective Stops (Total)	veh/h	1149	1379	pers/h
Effective Stop Rate		0.64	0.64	
Proportion Queued		0.73	0.73	
Performance Index		82.2	82.2	
Cost (Total)	$/h	1472.67	1472.67	$/h
Fuel Consumption (Total)	L/h	154.2		
Carbon Dioxide (Total)	kg/h	364.5		
Hydrocarbons (Total)	kg/h	0.027		
Carbon Monoxide (Total)	kg/h	0.30		
NOx (Total)	kg/h	0.393		

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

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout 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.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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

Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 2.9 %

Number of Iterations: 7 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.4% 1.3% 0.7%

Intersection Performance - Annual Values

Performance Measure	Vehicles:	All MCs	Persons	
Demand Flows (Total)	veh/y	858,202	1,029,842	pers/y
Delay (Total)	veh-h/y	1,845	2,214	pers-h/y
Effective Stops (Total)	veh/y	551,617	661,941	pers/y
Travel Distance (Total)	veh-km/y	879,012	1,054,815	pers-km/y
Travel Time (Total)	veh-h/y	19,954	23,945	pers-h/y
Cost (Total)	$/y	706,881	706,881	$/y
Fuel Consumption (Total)	L/y	73,996		
Carbon Dioxide (Total)	kg/y	174,945		
Hydrocarbons (Total)	kg/y	13		
Carbon Monoxide (Total)	kg/y	142		
NOx (Total)	kg/y	189		

1 Hours per Year: 480 (Site)

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MOVEMENT SUMMARY

Site: 1 [2 EX AM - Wellington/Auburn (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Auburn Road / Wellington Road / Tewinga Road
AM Peak Period
Existing + Background Traffic Growth 2033
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

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: Auburn Road (S)															
1	L2	All MCs	162	1.9	162	1.9	0.593	4.7	LOS A	5.7	40.5	0.61	0.50	0.61	45.3
2	T1	All MCs	544	1.9	544	1.9	0.593	4.7	LOS A	5.7	40.5	0.61	0.50	0.61	45.6
3	R2	All MCs	1	0.0	1	0.0	0.593	8.4	LOS A	5.7	40.5	0.61	0.50	0.61	45.0
Approach			707	1.9	707	1.9	0.593	4.7	LOS A	5.7	40.5	0.61	0.50	0.61	45.5
East: Tewinga Road															
4	L2	All MCs	1	0.0	1	0.0	0.006	6.5	LOS A	0.0	0.3	0.70	0.51	0.70	44.9
5	T1	All MCs	1	0.0	1	0.0	0.006	7.7	LOS A	0.0	0.3	0.78	0.60	0.78	43.6
6	R2	All MCs	3	0.0	3	0.0	0.006	11.4	LOS A	0.0	0.3	0.78	0.60	0.78	43.1
Approach			5	0.0	5	0.0	0.006	9.3	LOS A	0.0	0.3	0.76	0.57	0.76	43.6
North: Auburn Road (N)															
7	L2	All MCs	1	0.0	1	0.0	0.575	5.7	LOS A	5.2	36.8	0.73	0.61	0.74	44.5
8	T1	All MCs	422	1.9	422	1.9	0.575	5.7	LOS A	5.2	36.8	0.73	0.61	0.74	44.7
9	R2	All MCs	159	1.9	159	1.9	0.575	9.5	LOS A	5.2	36.8	0.73	0.61	0.74	44.2
Approach			581	1.9	581	1.9	0.575	6.8	LOS A	5.2	36.8	0.73	0.61	0.74	44.6
West: Wellington Road															
10	L2	All MCs	223	2.7	223	2.7	0.647	11.2	LOS A	6.7	48.1	0.90	0.89	1.16	41.7
11	T1	All MCs	3	0.0	3	0.0	0.647	11.0	LOS A	6.7	48.1	0.90	0.89	1.16	42.0
12	R2	All MCs	269	2.7	269	2.7	0.647	14.9	LOS B	6.7	48.1	0.90	0.89	1.16	41.5
Approach			494	2.7	494	2.7	0.647	13.2	LOS A	6.7	48.1	0.90	0.89	1.16	41.6
All Vehicles			1788	2.1	1788	2.1	0.647	7.7	LOS A	6.7	48.1	0.73	0.64	0.80	44.1

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

INTERSECTION SUMMARY

Site: 1 [2 EX PM - Wellington/Auburn (Site Folder: 2033 - BTG 10 years)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Auburn Road / Wellington Road / Tewinga Road
PM Peak Period
Existing + Background Traffic Growth 2033
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Travel Speed (Average)	km/h	44.9	44.9	km/h
Travel Distance (Total)	veh-km/h	1773.4	2128.1	pers-km/h
Travel Time (Total)	veh-h/h	39.5	47.4	pers-h/h
Desired Speed	km/h	50.0		
Speed Efficiency		0.90		
Travel Time Index		8.86		
Congestion Coefficient		1.11		
Demand Flows (Total)	veh/h	1732	2079	pers/h
Arrival Flows (Total)	veh/h	1732		
Percent Heavy Vehicles (Demand)	%	1.5		
Percent Heavy Vehicles (Arrivals)	%	1.5		
Degree of Saturation		0.622		
Practical Spare Capacity	%	36.7		
Effective Intersection Capacity	veh/h	2786		
Control Delay (Total)	veh-h/h	2.97	3.56	pers-h/h
Control Delay (Average)	sec	6.2	6.2	sec
Control Delay (Worst Lane by MC)	sec	10.6		
Control Delay (Worst Movement by MC)	sec	13.4	13.4	sec
Geometric Delay (Average)	sec	4.1		
Stop-Line Delay (Average)	sec	2.1		
Idling Time (Average)	sec	0.2		
Intersection Level of Service (LOS)		LOS A		
95% Back of Queue - Veh (Worst Lane)	veh	5.9		
95% Back of Queue - Dist (Worst Lane)	m	41.9		
Ave. Que Storage Ratio (Worst Lane)		0.03		
Effective Stops (Total)	veh/h	986	1183	pers/h
Effective Stop Rate		0.57	0.57	
Proportion Queued		0.65	0.65	
Performance Index		72.0	72.0	
Cost (Total)	$/h	1392.06	1392.06	$/h
Fuel Consumption (Total)	L/h	143.0		
Carbon Dioxide (Total)	kg/h	337.5		
Hydrocarbons (Total)	kg/h	0.024		
Carbon Monoxide (Total)	kg/h	0.27		
NOx (Total)	kg/h	0.282		

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

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout 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.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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

Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 3.5 %

Number of Iterations: 7 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.8% 1.5% 0.8%

Intersection Performance - Annual Values

Performance Measure	Vehicles:	All MCs	Persons	
Demand Flows (Total)	veh/y	831,482	997,779	pers/y
Delay (Total)	veh-h/y	1,425	1,710	pers-h/y
Effective Stops (Total)	veh/y	473,380	568,056	pers/y
Travel Distance (Total)	veh-km/y	851,221	1,021,465	pers-km/y
Travel Time (Total)	veh-h/y	18,965	22,758	pers-h/y
Cost (Total)	$/y	668,191	668,191	$/y
Fuel Consumption (Total)	L/y	68,647		
Carbon Dioxide (Total)	kg/y	162,014		
Hydrocarbons (Total)	kg/y	12		
Carbon Monoxide (Total)	kg/y	131		
NOx (Total)	kg/y	135		

1 Hours per Year: 480 (Site)

SIDRA INTERSECTION 9.1 | Copyright © 2000-2023 Akcelik and Associates Pty Ltd | sidrasolutions.com

APPENDIX G

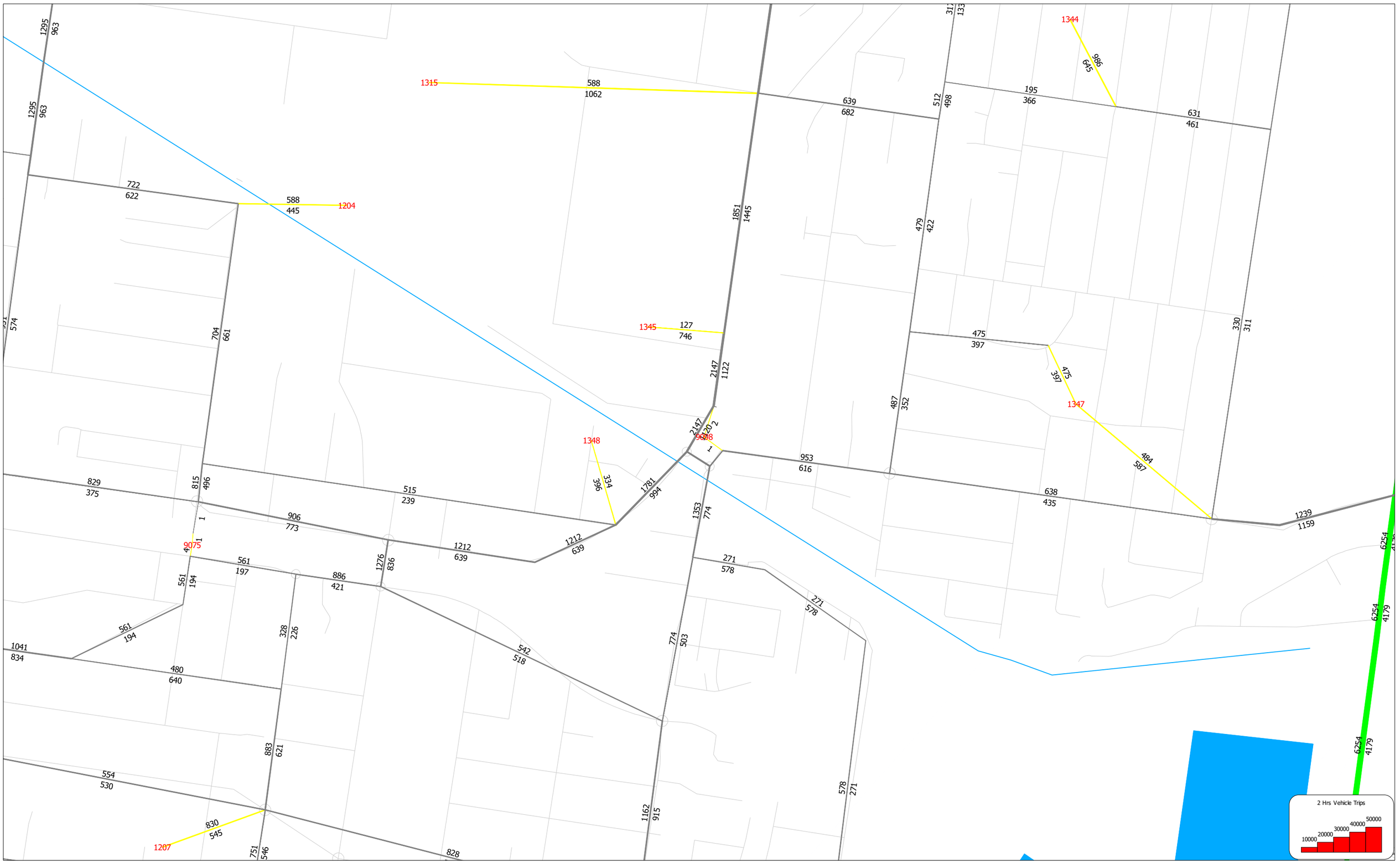
APPENDIX G

TRAVEL TIME SURVEYS WEDNESDAY 23/07/2014

DIRECTION	AM PEAK PERIOD			
	ROUTE	Distance	Time	Start
INBOUND	Centenary Drive	00	00	7:18am
Run 1	Hume Highway			
	Brunker Road			to
(Potts Hill)	Rodd St (Jones St.)	7.4Km	11 mins.	
	Site 30/46 Auburn Road	8.5Km	13 mins.	7:31am
* **OUTBOUND**	Rodd Street (Potts Hill)	00	00	7:31am to
Run 2	Site 30/46	1.1 Km	2 mins.	to
	Rookwood Road	3.1 Km	9 mins.	
	Centenary Drive	8.2 Km	17 mins.	7:48am
INBOUND	Centenary Drive	00	00	7:56am
Run 3	Rookwood Road / Amy St.	5.0 Km	9 mins.	To
	Site Access	7.0 Km	13 mins.	
	Rodd Street.	8.2 Km	16 mins.	8:12am
* **OUTBOUND**	Site 30/46	00	00	8:09am
Run 4	Rodd Street	1.2 Km	3 mins.	
	Rookwood Road	2.7 Km	10 mins.	to
	Hume Highway	3.5 Km	12 mins.	
	Arthur Street	8.4 Km	25 mins.	8:34am
INBOUND	Arthur / Centenary Drive	00	00	8:42am
Run 5	Rookwood Road	5.8 Km	11 mins.	to
	Rodd Avenue	7.4 Km	13 mins.	8:57am
	Site Access	8.5 Km	15 mins.	
* **OUTBOUND**	Rodd Street	00	00	8:55am
Run 6	Site Access	1.1 Km	2 mins.	
	Amy Street	2.2 Km	10 mins.	to
	Rookwood Road	3.6 Km	13 mins.	
	Georges Avenue	5.1 Km	16 mins.	9:16am
	Centenary Drive	8.0 Km	21 mins.	
INBOUND	Centenary Drive	00	00	9:19am
Run 7	Rookwood Road	2.8 Km	6 mins.	
	Amy Street	4.2 Km	8 mins.	to
	Site Access	6.2 Km	11 mins.	9:33am
	Rodd Street	7.4 Km	14 mins.	
* **OUTBOUND**	Site Access	00	00	9:30am
Run 8	Rodd Street	1.2 Km	3 mins.	
	Rookwood Road	2.7 Km	7 mins.	to
	Centenary Drive	6.3 Km	12 mins.	
	Arthur Street	8.4 Km	20 mins.	9:54am
	Homebush Road	10.8 Km	24 mins.	
INBOUND	Arthur Street / Homebush Road	00	00	9:55am
	Hume Highway	2.4 Km	4 mins.	To
	Centenary Drive	4.0 Km	8 mins.	10:03am
* **OUTBOUND**	Centenary Drive	00	00	10:06am
	Homebush Road	1.6 Km	3 mins	to
	Arthur Street	4.0 Km	6 mins.	10:12am

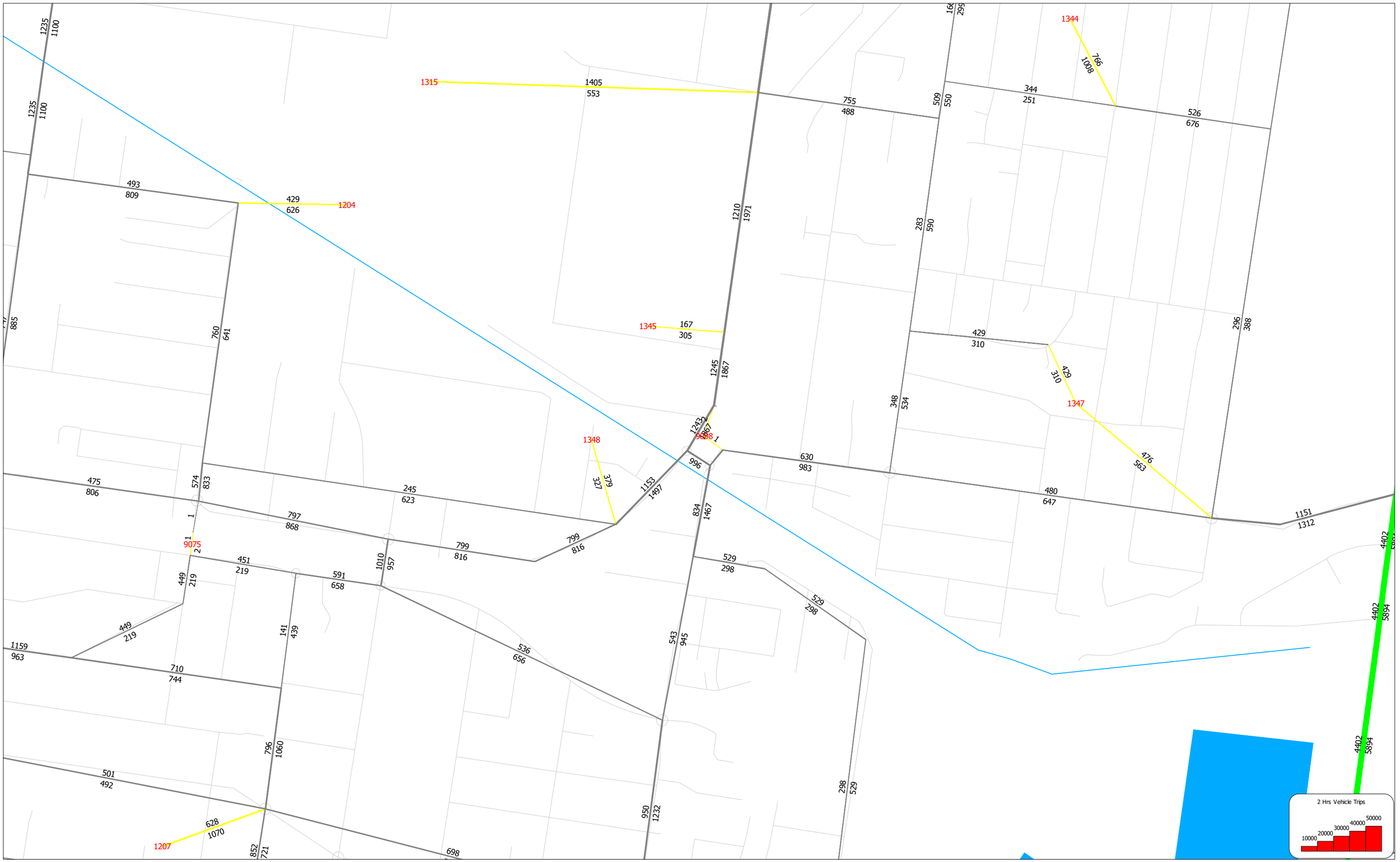
APPENDIX H

TRAFFIC VOLUMES__



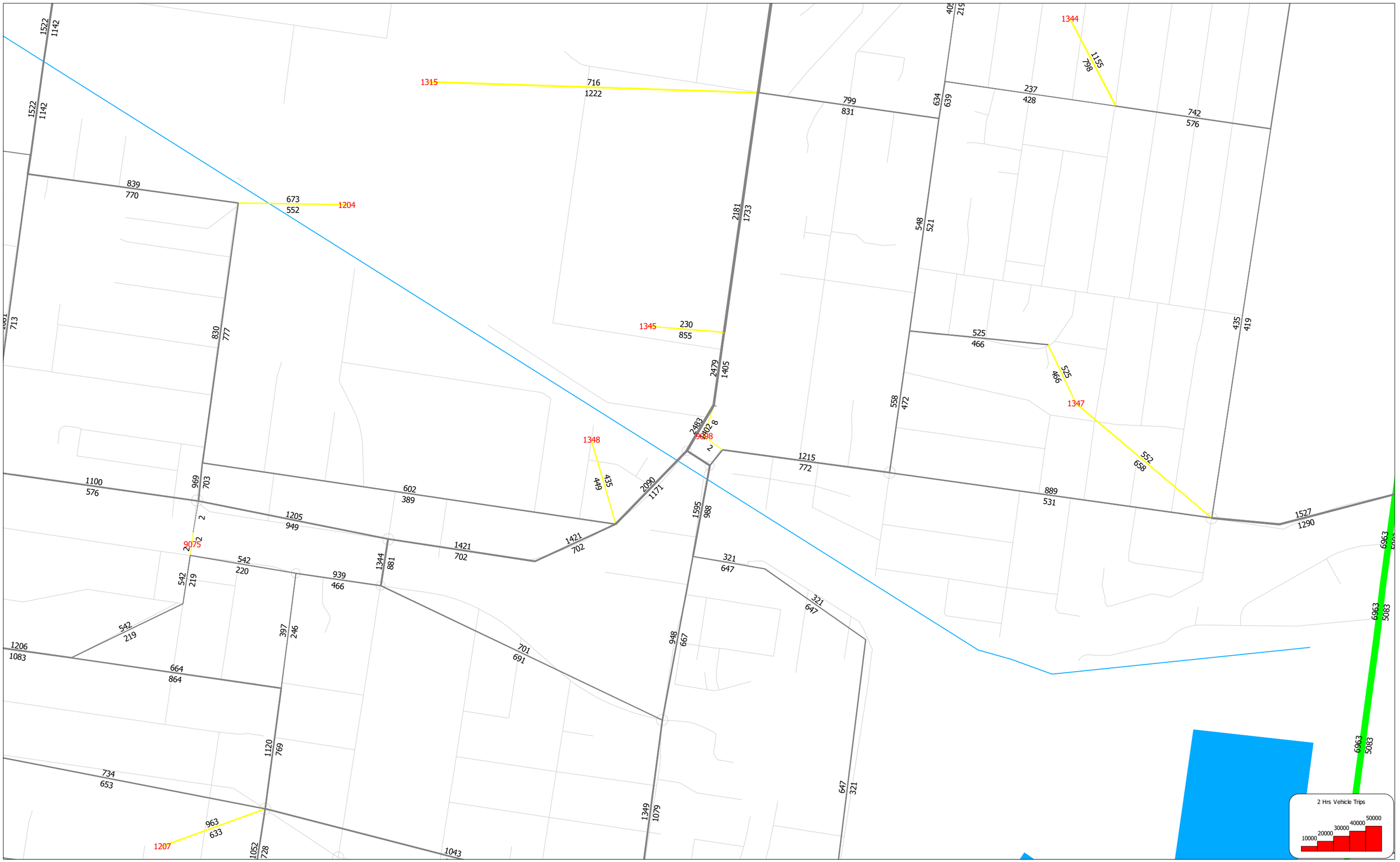
SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL(STFM)
Scenario 2021: 2021_STFM_STD(TZP19STMV3.8FMMV7.1)-7-9AM(mf33)
2021-12-10 10:27

TRAFFIC VOLUMES__



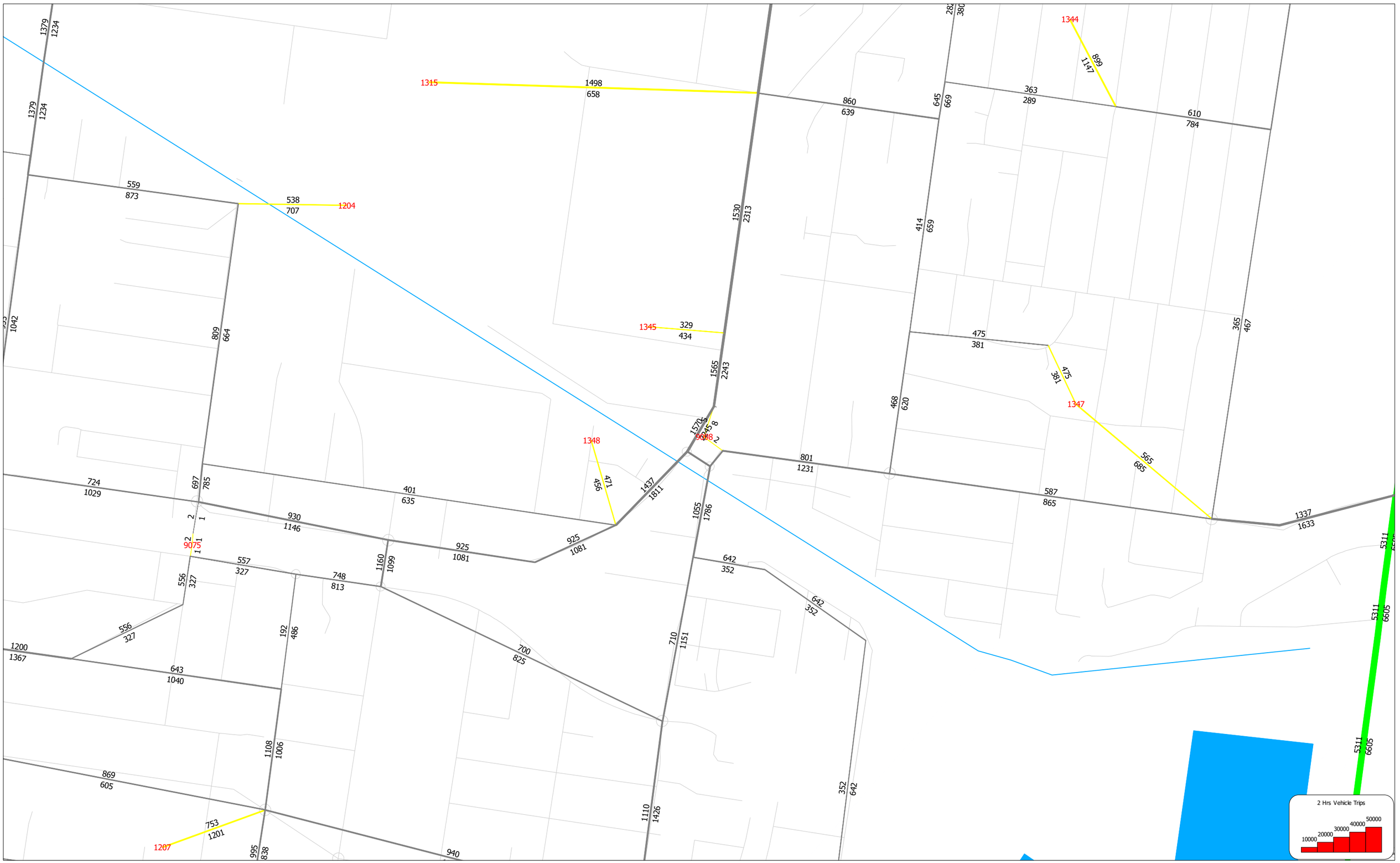
SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL(STFM)
Scenario 20210: 2021_STFM_STD(TZP19STMV3.8FMMV7.1)-4-6PM(mf53)
2021-12-10 10:28

TRAFFIC VOLUMES__



SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL(STFM)
Scenario 2031: 2031_STFM_STD(TZP19STMV3.8FMMV7.1)-7-9AM(mf35)
2021-12-10 10:28

TRAFFIC VOLUMES__



SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL(STFM)
Scenario 20310: 2031_STFM_STD(TZP19STMV3.8FMMV7.1)-4-6PM(mf55)
2021-12-10 10:29

APPENDIX I

TfNSW RMS SURVEY DATA CHILDCARE CENTRES

Description	Abbotsford		Cherrybrook		Concord		Galston		Gordon		Lane Cove		Mascot		Ryde		Westleigh		South Hurstville		Average	
Number of Children	40		40		66		40		50		55		60		29		40		36		45.6	
Ages	0-5		0-5		0-5		0-5		0-3		0-5		2-May		3-Apr		0-5		2-May			
Hours of Operation	7.30am -6.00pm		7.30am -6.00pm		7.30am -5.30pm		7.00am -6.00pm		8.00am -6.00pm		7.30am -6.00pm		7.30am-5.30pm		7.00am -5.30pm		7.30am -6.00pm		NS			
Number. of Staff	7		7		13		10		12		13		11		5		7		4		8.9	
Staff Driving to Centre	5		7		11		10		12		9		9		NS		6		2		7.9	
Peak Parking Accumulation	13		9		19		9		10		12		9		7		9		4		10.1	
Car Driver Mode by Parents (percent)	80.8		97.8		96		100		97.6		96.1		74.7		89.5		100		NS		92.5	
Parking Spaces on Site	12		0		15		65		12		4		0		2		8		4			
Parking Spaces on Street	10		20		30		0		10		25		10		15		20		NS			
Parking Off-Street	0		15		0		0		0		0		0		0		0		-		Average Trips	
Traffic Generation	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	45.6	
AM PEAK	7.00-8.00		8.00.9.00		8.00-9.00		8.00-9.00		8.00-9.00		8.00-9.00		8.00-9.00		8.00-9.00		8.00-9.00		8.00-9.00		IN	OUT
	21	21	11	11	29	29	16	16	18	18	17	17	24	24	16	16	13	13	11	10	17.6	17.5
Traffic Generation	In	Out.	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out		
PM PEAK	5.00 –6.00pm		5.00 -6.00pm		5.00 -6.00pm		5.00 -6.00pm		5.00 -6.00pm		5.00 -6.00pm		4.00-5.00pm		4.00-5.00pm		4.00-5.00pm		4.30-5.30pm			
	20	20	12	12	17	17	11	11	16	16	18	18	16	16	8	8	13	13	15	17	14.6	14.8
Peak Staff Parking	5		7		6		5		4		9		7		3		5					
Peak Parent Parking	8		2		13		4		6		3		2		4		4					

TfNSW Childcare centre Traffic and Parking Surveys

ROADS AND MARITIME SERVICES VALIDATION TRIP GENERATION SURVEYS CHILD CARE CENTRES ANALYSIS REPORT September 2015 TEF Consulting

APPENDIX J

30 AUBURN ROAD PTY LTD

GREEN TRAVEL PLAN
FOR STAGED DEVELOPMENT WORKS-CONCEPT
AFFORDABLE HOUSING DEVELOPMENT
AT
30-46 AUBURN ROAD
REGENTS PARK

Lyle Marshall & Partners Pty Ltd
Consulting Engineers, Architects
Transportation and Environmental Planners

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Job No.: 1160-6-23
Report No.: 12/23 REV A **AUGUST 2024**

DOCUMENT CONTROL

Project No: 1160-6-23
Project: 30 Auburn Road Regents Park
Client: 30 Auburn Road Pty Ltd
File Reference: Report No 12/23 REV A

Revision History

Revision	Date	Details	Approved by
FINAL	18/12/2023	SSD-54988963	EME
REV A	7/08/2024		EME

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CONTENTS

1.0 GREEN TRAVEL PLAN 1

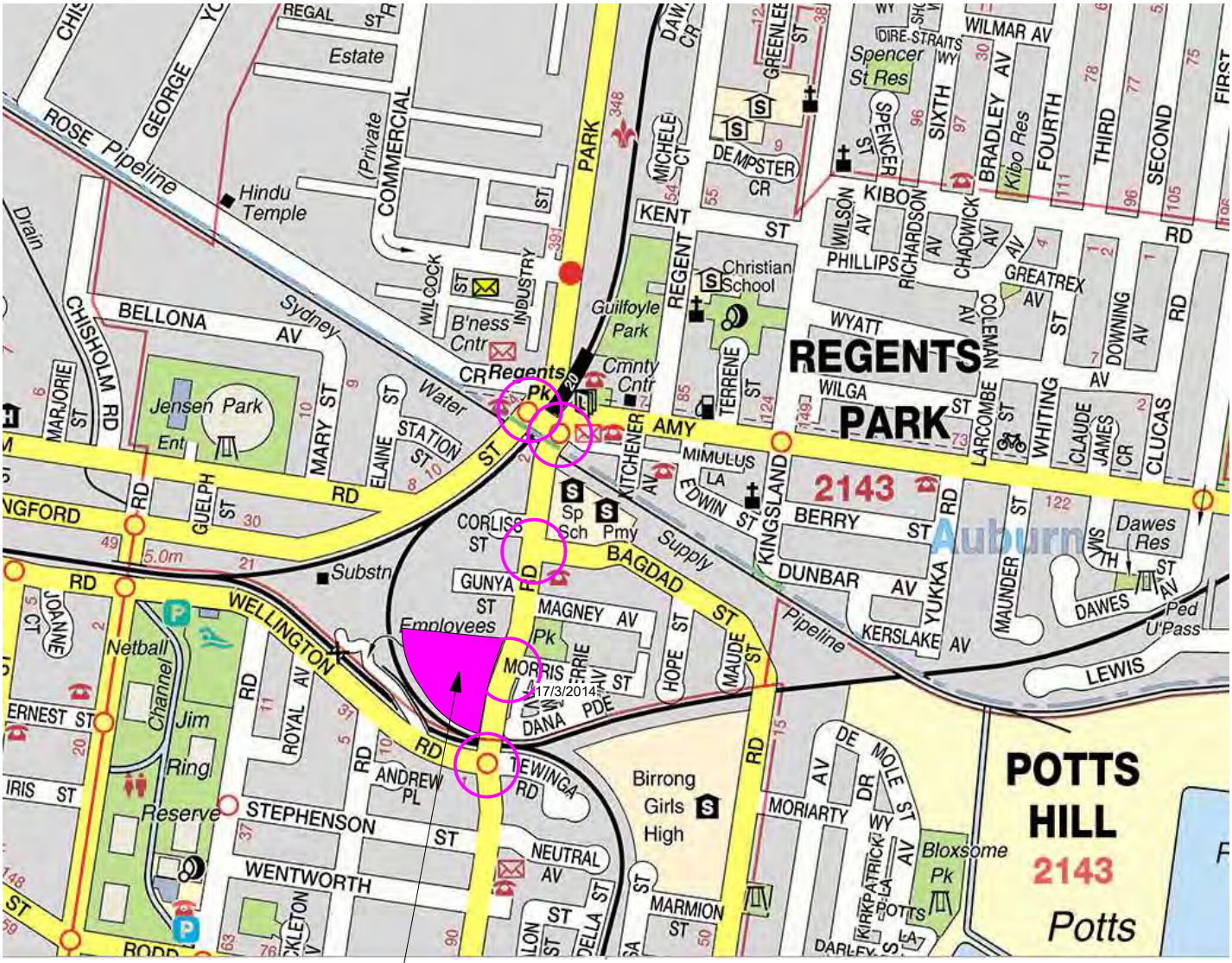
1.1 Scope of this Report 1
1.2 Action Plan 1
1.3 Site Location 1
1.4 Future Public Domain Works 1
1.5 Public Transport 2
1.6 Cycling 2
1.7 Walking 3
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APPENDIX A
Action Plan

NORTH



SUBJECT SITE
30-46 AUBURN ROAD
REGENTS PARK

TRAFFIC COUNT LOCATIONS 23/2/2023

FIGURE 1
LOCALITY MAP

1.0 GREEN TRAVEL PLAN

A Green Travel Plan has been prepared for Staged Development Works for the site located at 30-46 Auburn Road Regents Park. The site is identified in **Figure 1 Locality Plan.**

1.1 Scope of this Report

- Describe the purpose of a green travel plan and the incentives to encourage alternative travel modes away from car usage to active travel.
- Describe alternative sustainable and active travel options within an accessible travel proximity to the site.

1.2 Action Plan

A draft action plan is a summary of the actions and incentives that could be adopted to encourage the use of sustainable transport modes.

1.3 Site Location

The site is located on Auburn Road, approximately 500 metres south of Regents Park Railway Station which is located on the Inner West line which runs from Sydney Central to Liverpool every day with frequent services. Bicycle parking rails with security level C are provided at Regents Park railway station.

Birrong Station is located 700 metres south of the subject site with access to Hudson Parade. Birrong Station is located on the T3 Bankstown line – Liverpool to City. Sefton Railway Station is located 1.1 km south west of the subject site and is also located on the T3 line.

1.4 Future Public Domain Works

Future public domain infrastructure works are proposed with a VPA being progressed with Canterbury Bankstown Council. It seeks to deliver the following elements with the first stage of construction and prior to the occupation certificate to ensure they are available for the first residents. The works proposed are:

- Cycle Link
  - 3.5m bi-directional cycleway along Auburn Road
  - Improved lighting
- Footpath upgrades
  - 1.8m footpath along the western side of Auburn Road
  - Widened footpath along the eastern side of Auburn Road to 1.8m
  - 1.2m footpath along both sides of Morris Street
- Crossings
  - Elevated pedestrian crossing over Auburn Road north of Corliss Street
  - Traffic islands for future zebra crossing at Auburn Road/Magney Avenue and on Morris Street
- 4 of DDA compliant bus stops
- 2 of new bus shelters
- 2 of new benches along the footpaths

(1.4 continued.)

These works will be delivered at Stage 3A.

Sustainable transport information made available to all works and at occupation stage will be placed in key building foyer locations where it will be clearly visible to the residents and visitors of the building. Detailed travel information can also be displayed at each bank of bicycle stands.

As the project is for a mixed use development with affordable housing, this green travel plan will form part of the tenancy pack provided to all residents and retail tenants.

1.5 Public Transport

To encourage public transport use, information sourced from Transport for NSW Apps and Cyclepath Finder can be provided through posters and leaflets and through wayfinding signage. The information provided will detail the scheduling/frequency of local services, the location of train stations/bus stops and linkages to other networks. The surrounding site content and public transport networks are shown in **Figure 2**. The existing bus network is shown in **Figure 3A.**

The bus services are listed below in **Table 1.5**.

Table 1.5 Bus Routes

Route No	Route Description	Stop No	Service
909	Bankstown to Parramatta via Birrong and Auburn	nearest stop Auburn Road opp Morris St 214396	7 days Mon - Fri, 5:39am to 10:20pm, services every 30 mins Sat, 6:30am to 6:30pm Sun and Public Holidays, 8:25am - 5:25pm
908	Merrylands to Bankstown via Auburn	nearest stop Auburn Road opp Morris St 214396	7 days Mon - Fri, 6:20am to 6:30pm, services every 30 mins Sat, 7:46am to 5:29pm Sun and Public Holidays, 9:00am - 4:40pm

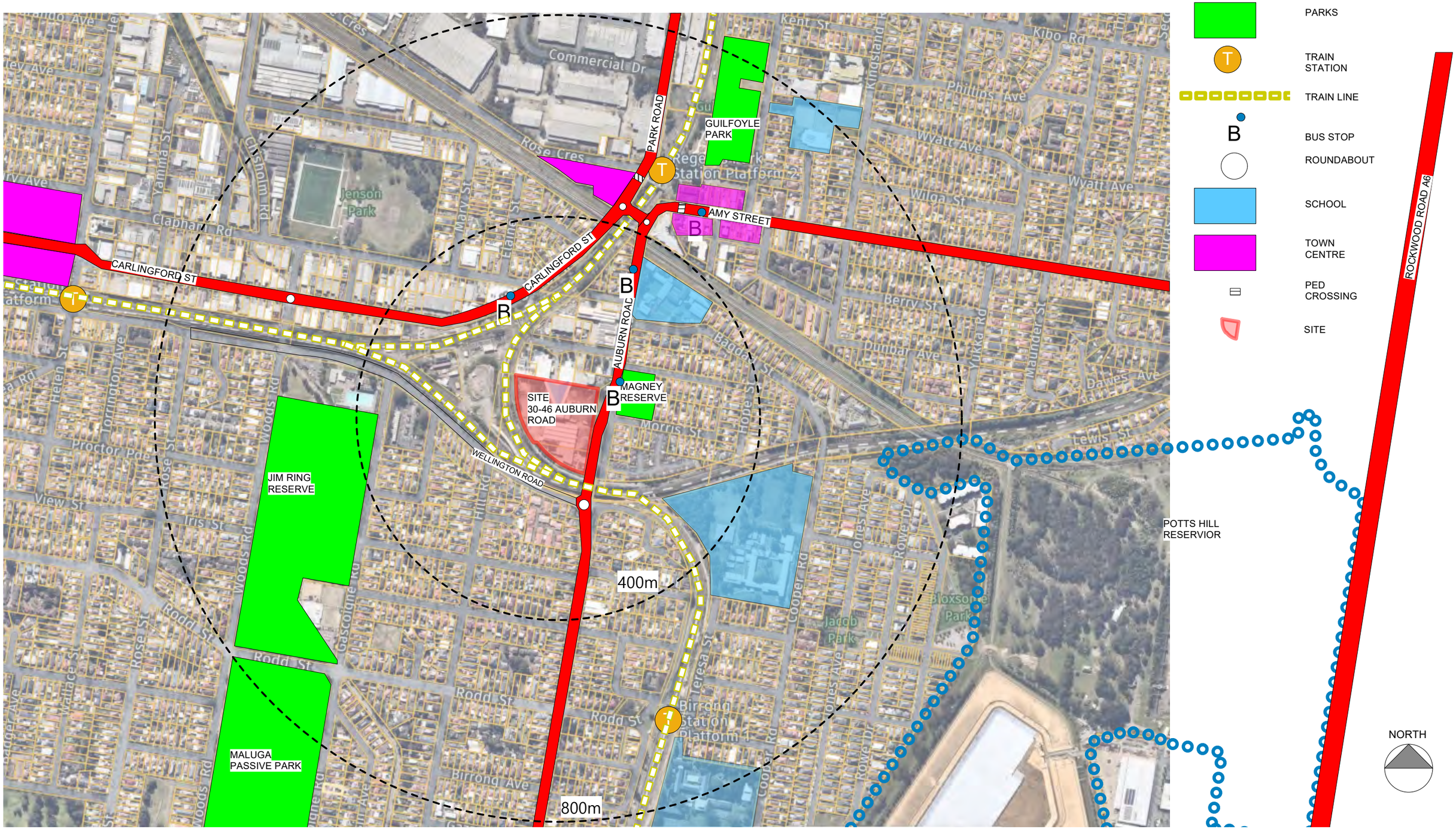
The train service network map is shown in **Figure 3B**.

1.6 Cycling

To promote and market the use of bicycles, a map of the network of on and off-street bicycle paths in the vicinity of the site can be provided to residents and visitors in the form of building signage.

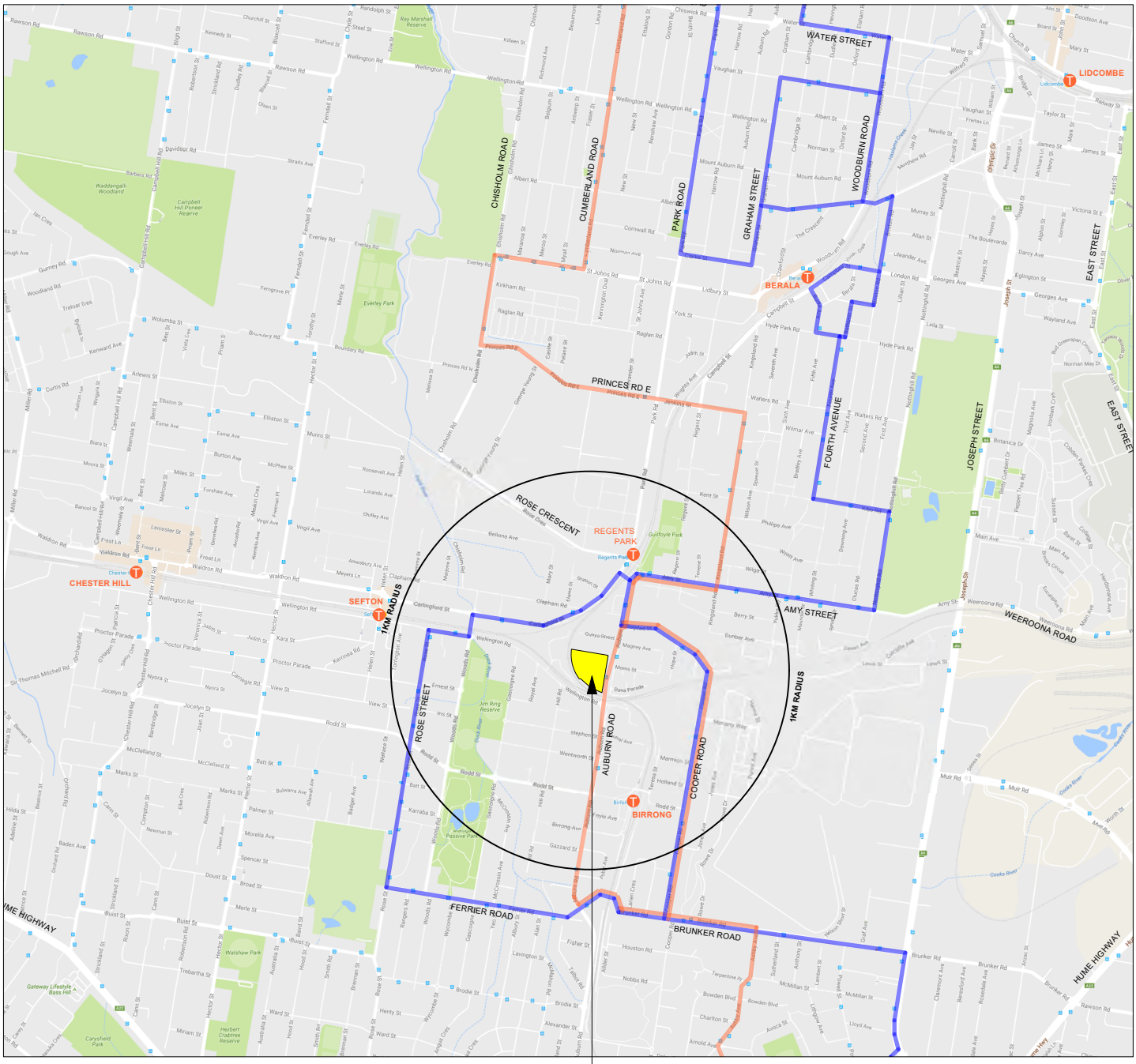
Bicycle Network

Existing Auburn Bicycle paths and Bicycle lanes are located in **Figure 4**. There could be a provision to extend the on-road cycleway from the subject site to connect to the existing northern bicycle route in Gibbons Street that extends to Parramatta Road and off-road from Parramatta Road to Sydney Olympic Park.



SOURCE NEARMAP

FIGURE 2 PUBLIC TRANSPORT AND SITE CONTEXT



SUBJECT SITE:
30-46 AUBURN ROAD,
REGENTS PARK

LEGEND

908 BUS ROUTE
MERRYLANDS TO BANKSTOWN

909 BUS ROUTE
BANKSTOWN TO PARRAMATTA

FIGURE 3A
MAP OF EXISTING BUS ROUTES WITHIN 1KM OF 30 - 46 AUBURN ROAD, REGENTS PARK



LEGEND

Nearest Railway Station

Proposed Site Location

FIGURE 3B
MAP OF EXISTING TRAIN NETWORK

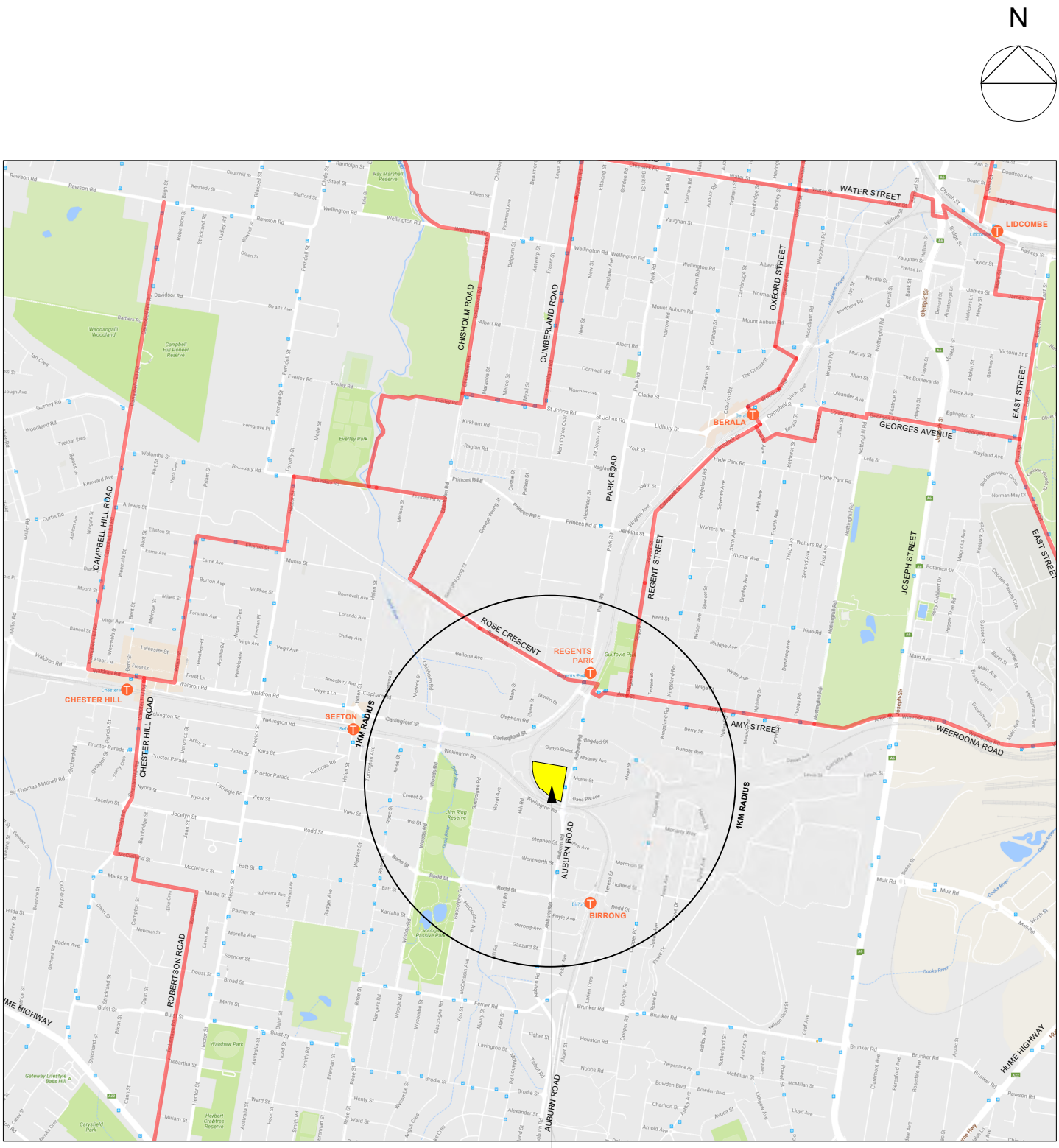


FIGURE 4
MAP OF EXISTING CYCLEWAYS SURROUNDING 30 - 46 AUBURN ROAD, REGENTS PARK

1.7 Walking

Pedestrian accessibility in the vicinity of the site, including pedestrian refuges, footpath improvements and kerb ramps adjacent to Magney Reserve in the vicinity of the site are shown on the detailed site plan which shows linkages within the site and to external infrastructure prepared by Smith & Tzannes Architects.

The existing pedestrian pathways around the site are shown in **Figure 5.**

1.8 Future Pedestrian and Cycle Links

The future pedestrian and cycle paths links are shown in **Figure 6**.

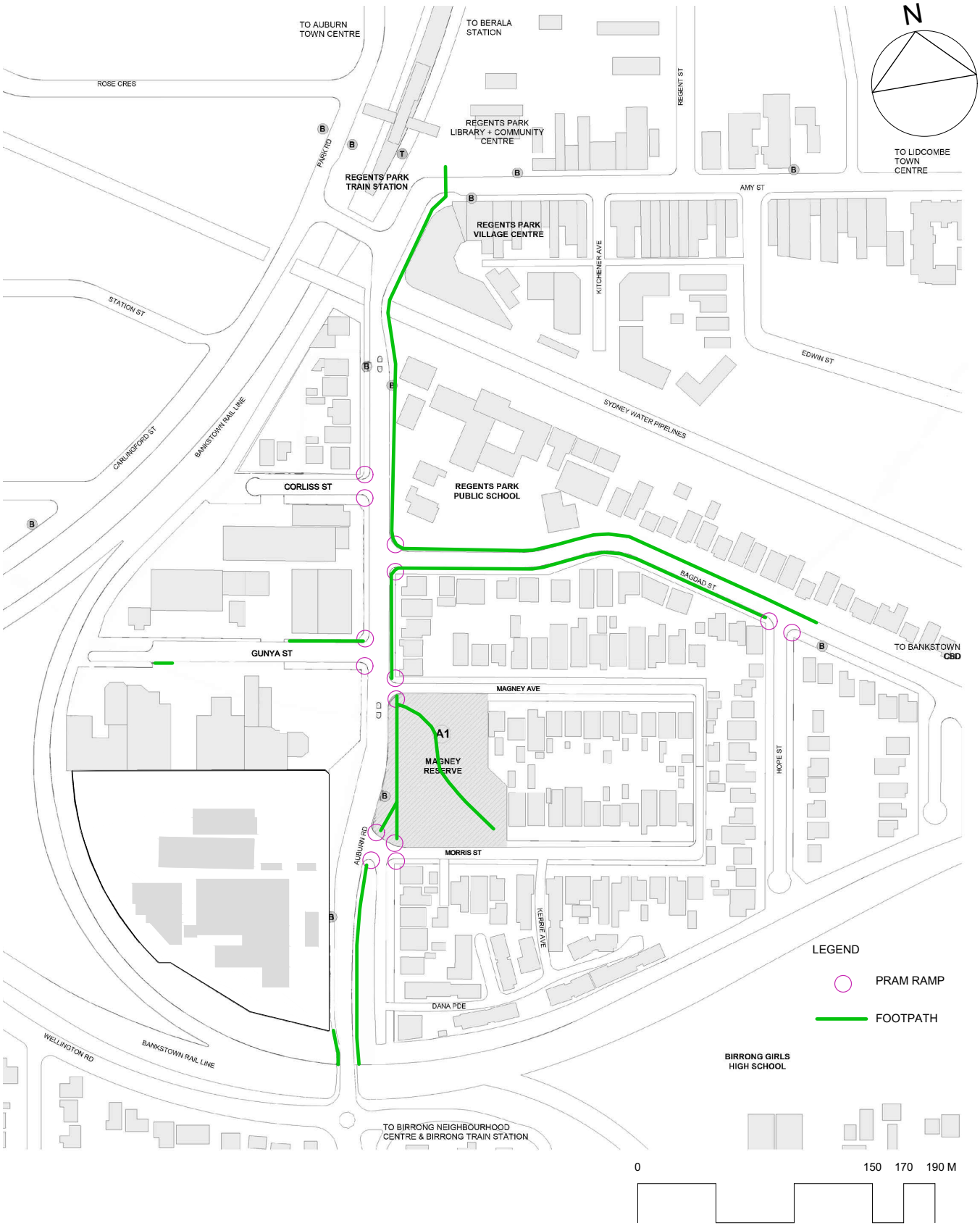


FIGURE 5
EXISTING FOOTPATH NETWORK



FIGURE 6
PROPOSED FUTURE ACCESS, CYCLEWAY PATHS AND PEDESTRIAN ACCESS

APPENDIX A

DRAFT ACTION PLAN

GENERAL ACTIONS

Action	Timeline	By whom
Promotion including: Promote “Walk To Work Day” or “ Ride To Work Day”, Car Share incentives for employees such as car share scheme. Display boards in prominent locations to show public transport maps and timetables.	On Occupation	Corporation Owners/ Business

WALKING

Action	Timeline	By whom
Produce a map showing safe walking routes to and from the site with times, distances to local facilities, such as shops and bus stops	On Occupation	Corporation Owners

CYCLING

Action	Timeline	By whom
Provide sufficient cycle parking to meet peak needs, which is easily accessible and secure	On Occupation	Developer
Provide cycle parking for visitors	On Occupation	Developer
Ensure cycle parking is clearly visible or provide signage to direct people to cycle bays	On Occupation	Developer
Produce a map showing quiet cycle routes in the area	On Occupation	Developer
Provide end of trip facilities for cyclists	Design	Developer

PUBLIC TRANSPORT

Action	Timeline	By whom
Develop a map showing public transport routes in the area	On Occupation	Developer
Put up a noticeboard with leaflets and maps showing the main public transport routes to and from the site	On Occupation	Developer

APPENDIX K

erica lylemarshall.com.au

From: DOBFS <DOBFS@fire.nsw.gov.au>
Sent: Tuesday, 9 May 2023 2:26 PM
To: erica lylemarshall.com.au
Cc: DOBFS; Fire Safety
Subject: RE: Aerial Pumper Type for Property located at 30-46 Auburn Road Regents Park

Good afternoon Erica,

Thank you for our phone discussion just now, about the below project that you are working on, at Regents Park.

Thank you for using our FRNSW fire safety guideline: Access for fire brigade vehicles and firefighters:
Click onto the below link:
https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_access_for_emergency_vehicles.pdf

*"The maximum sized vehicle is the **specialist fire appliance** which is 12.5 metres long and requires a minimum width of 6 metres and overall minimum height of 4.5 metres. This **specialist fire appliance** size requirements are the measurements you **should be using** as the **general fire appliance** is **smaller** at 10 metres long with minimum clearance width of 4.5 metres and minimum height of 4 metres.*

Erica, if you require further information, please ring me on my direct line [redacted]1.

Kind regards,
Grant

6423 Senior Firefighter Grant Haar
Fire Safety - Duty Officer
Community Safety Directorate
Fire and Rescue NSW - FRNSW
1 Amarina Avenue
Greenacre NSW 2190
Locked Bag 12 Greenacre NSW 2190
E: firesafety@fire.nsw.gov.au
T: 02 9742 7434 | 0429 547 341
www.fire.nsw.gov.au

From: erica lylemarshall.com.au <erica@lylemarshall.com.au>
Sent: Tuesday, May 9, 2023 9:25 AM
To: DOBFS <DOBFS@fire.nsw.gov.au>
Subject: RE: Aerial Pumper Type for Property located at 30-46 Auburn Road Regents Park

CAUTION: This email originated from outside of Fire and Rescue NSW. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi Grant,

APPENDIX L

30 AUBURN ROAD PTY LTD

SUPPLEMENTARY REPORT
SSD-20724880 – TRAFFIC IMPACT AND PARKING ASSESSMENT
FOR AFFORDABLE HOUSING DEVELOPMENT
AT
30-46 AUBURN ROAD, REGENTS PARK.

Lyle Marshall & Partners Pty Ltd
Consulting Engineers, Architects
Transportation and Environmental Planners

Suite 15, 265-271 Pennant Hills Road
THORNLEIGH NSW 2120

Phone: **(02) 9436-0086**
Email: **lyle@lylemarshall.com.au**

Job No.: **1160-5-22**
Report No.: **12/24**

MAY 2024

DOCUMENT CONTROL

Project No: 1160-5-22
Project: 30-46 Auburn Road Regents Park
Client: Auburn Road Pty Ltd
File Reference: Rpt 12-24

Revision History

Revision	Date	Details	Approved by
DRAFT	11/4/24	Supplementary Report issued For Review	EME
REVIEW	22/4/2024	Supplementary Report Reviewed	EME
REVISED	07/05/24	Supplementary Report Amended	EME

Disclaimer

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- **Below Ground Envelopes**
- **Above Ground Envelopes**
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- **Network Configuration Diagram**
- **SIDRA Network Analysis Site Access North Access AM Peak and PM Peak Hour 2033 Plus BTG Plus Development**
- **SIDRA Network Analysis Southern Site Access AM and PM Peak Hour 2033 Plus BTG Plus Development**

1.0 INTRODUCTION

1.1 Executive Summary

This report has been prepared to accompany an amendment report which seeks to amend the proposed development currently under assessment. The amendment proposes an increase of FSR from 2.5:1 to 2.6:1, resulting in an increase of 15 apartments. This supplementary report considers the implication of this increase to parking demand and traffic impacts, and is to be read in association with the Traffic Impact Assessment Prepared for the Concept Masterplan **Report No 18-21 Revision G**.

The proposed site is located at 30-46 Auburn Road Regents Park and comprises of Lot 1 DP 656032 and Lot 2 DP 433938 and has a site area of 21,170m^2 as stated on the site survey plans prepared by Geometra Consulting Pty Ltd.

The site has two metal and concrete warehouses and smaller metal and fibro warehouse buildings currently in various stages of occupation. The site is part of a small industrial precinct which is bound by Magney Reserve to the east and Regents Park Public School to the north and the T3 Southern Railway line to the west and south.

The proposed development is an affordable housing residential mixed-use development consisting of 558 residential dwellings and 5 retail shops with a gross floor area of 400m^2 and a 106 place childcare centre with **707** car parking spaces.

The total traffic generation from this amended development is 46 vehicles IN and 119 vehicles OUT in the AM peak hour and 98 vehicles IN and 38 vehicles OUT in the PM peak hour.

This is an increase of 0 vehicles in and **2 vehicles** out, in the AM peak, and **2 vehicles** in and **1** out during the PM peak.

A Green Travel Plan has previously been developed for the site as well as active transport options such as cycling and pedestrian pathways. As a result of active transport and local trips, traffic generation could be reduced by 15% to the road network; 10% for local trips and 5% for active transport. The amount of traffic generation has not been reduced as a result of green travel implementation strategies but the reduction methodology is widely accepted by TfNSW to reduce car dependency. The modelling shows the worst case scenario. TfNSW accepts Green Travel Plans where developments promote active transport strategies.

The intersections within the road networks perform with spare capacity in the Future 2033 Development plus background traffic growth scenario.

1.2 Scope of Report

This report has been prepared to address the additional impacts of traffic generation from the proposed additional units from 543 to 558 and FSR increase from 2.5:1 to 2.6:1 proposed for the concept masterplan design.

The development details concerning site access, swept path analysis, loading and servicing are details in **Report 18-21 Revision G**. The purpose of this report is to detail the impacts from the proposed traffic generation and whether there will be any additional car parking as a result of the increase in density.

2.0 PROPOSED DEVELOPMENT

2.1 Proposed Use

The site area is 21,170m^2 and corresponding uses include 558 residential, a small component of retail shops (400m^2), childcare centre for 106 children places and parking for 707 plus bicycle parking and any motorbike parking. We understand that the corresponding GFA is 55,041m^2.

Table 2.1 Summary of Uses and Areas

Residential No of Units	Childcare Centre (m^2 GFA)	Retail Shops (m^2 GFA)
558	826	400

There is proposed to be an increase of 15 residential units. The detailed breakdown of units and areas will be the subject of further development applications for the site. The increase to the density will be incorporated into Stage 3 Building C residential units. A concept plan showing the site development is shown in **Figure 1A**. A staging plan showing the site access and staging is provided in **Figure 1B Concept Staging Plan.**

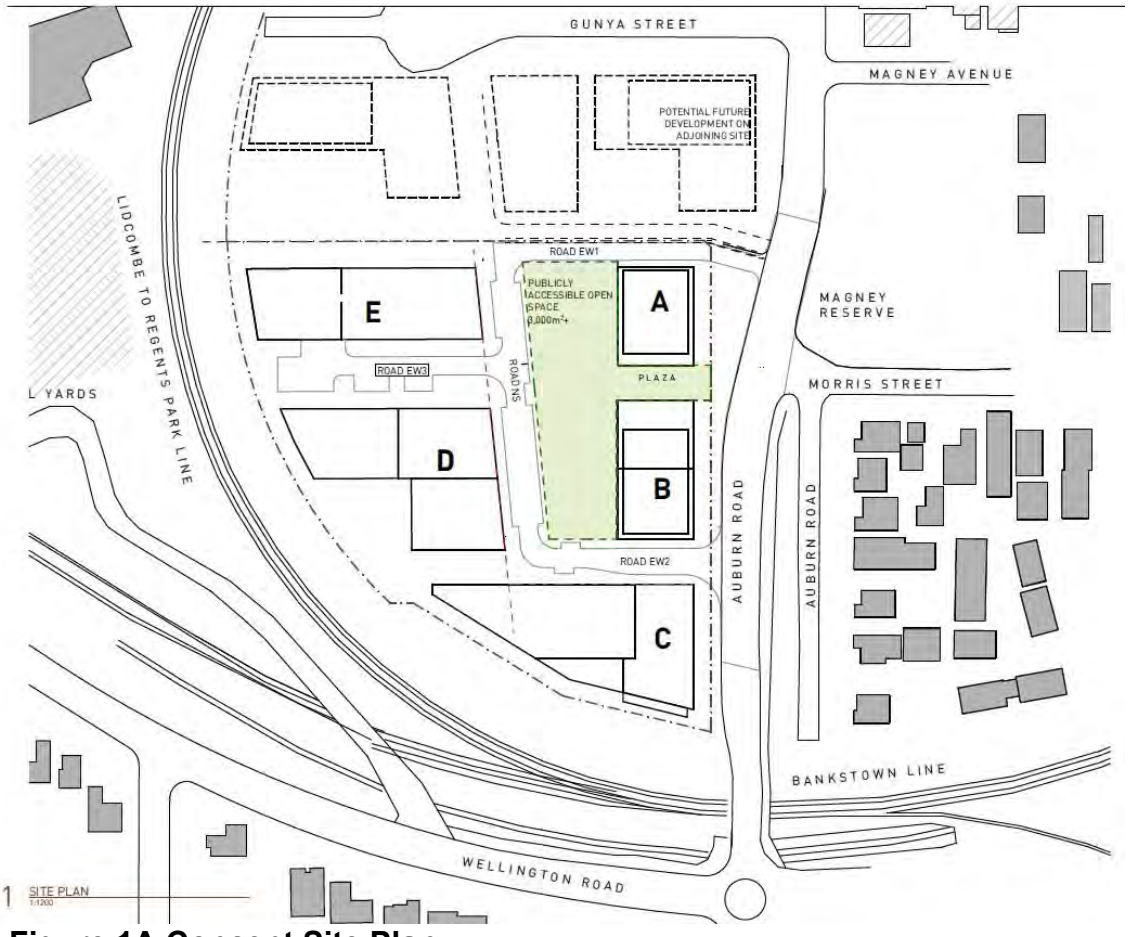


Figure 1A Concept Site Plan

(2.1 continued.)

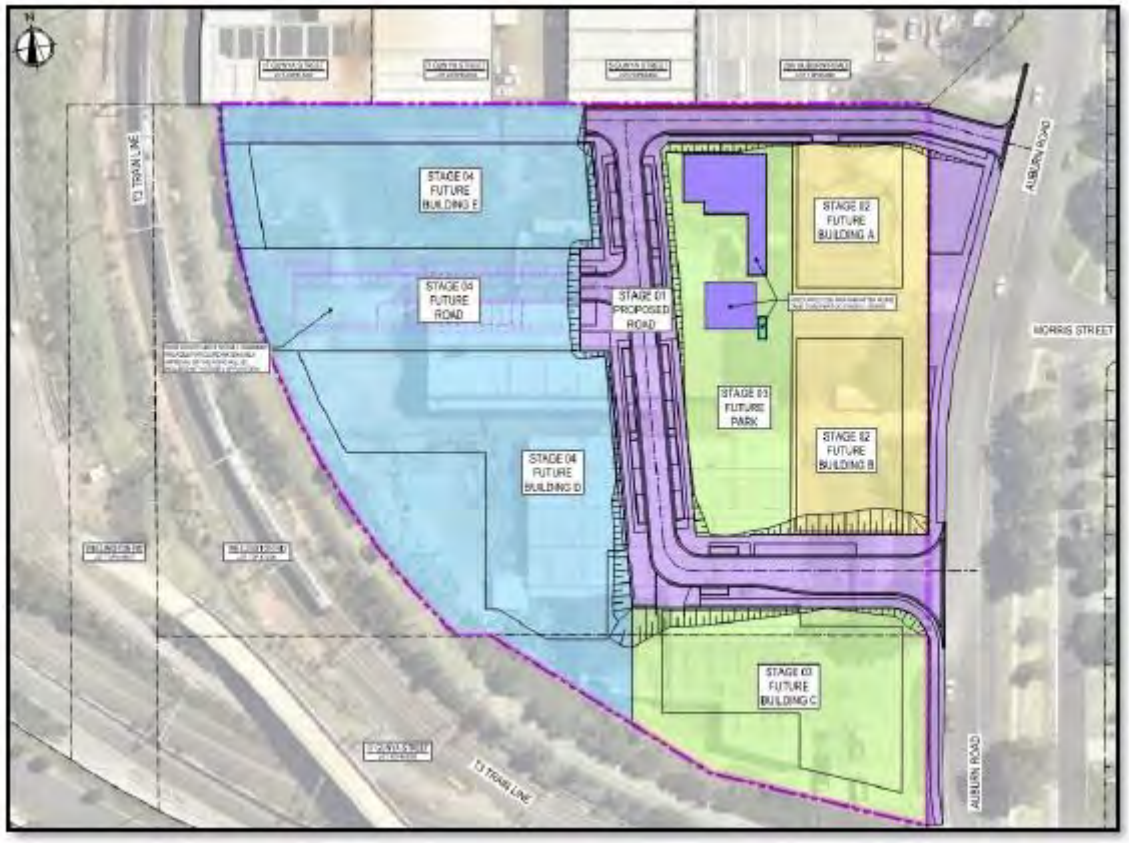


Figure 1B Concept Staging Plan

2.2 Car Parking Provision

The car parking rates for the retail shops and childcare centre have been calculated in accordance with the *Canterbury Bankstown DCP 2023 (CBDCP)* Section 3.2. The *CBDCP* rate is considered appropriate as the childcare centre and retail premises are not exclusive to the development's future residents.

Car parking for visitors for residential flat buildings is provided in accordance with the *CBDCP* at the rate of 1 space per 5 dwellings. The required car parking is 112 spaces.

Residential parking is provided at 1 parking space per apartment. Consideration of the relevant parking requirements is provided below in **Tables 2.2a, 2.2b** and **Table 2.2c**.

One of the objectives of the *CBDCP* is to provide adequate car parking and reduce car dependency. This can be achieved through the promotion of active travel and so the development has adopted a lower requirement than what is proposed in the *CBDCP.* A Green Travel Plan has been prepared for the development.

Table 2.2a Car Parking Rates in Accordance with CBDCP 2003 Section 3.2

Land use	Required number of car parking spaces in accordance with CBDCP 2023 Section 3.2	Bicycle Parking	Proposd Use No Of Units	Required Car Spaces	Required Bicycle Parking
Residential Flat Buildings and Serviced apartments	Zones R4, B1, B2 and B6	1 visitor space per 10 Dwellings	**558**		55.8
	1 car space per 1 bedroom dwelling;		135	135.0	
	1.2 car spaces per 2 bedroom dwelling;		334	400.8	
	1.5 car spaces per 3 or more bedroom dwelling;		89	133.5	
Sub Total				**669**	

We also refer to the *Housing SEPP 2021* whereby Division 1 Affordable housing Clause 19 refers to Non-Discretionary Standards.

Clause 19(2)
(2) The following are non-discretionary development standards in relation to the residential development to which this division applies—

(e) the following number of parking spaces for dwellings used for affordable housing—
(i) for each dwelling containing 1 bedroom—at least 0.4 parking spaces,
(ii) for each dwelling containing 2 bedrooms—at least 0.5 parking spaces,
(iii) for each dwelling containing at least 3 bedrooms— at least 1 parking space,

(f) the following number of parking spaces for dwellings not used for affordable housing—
(i) for each dwelling containing 1 bedroom—at least 0.5 parking spaces,
(ii) for each dwelling containing 2 bedrooms—at least 1 parking space,
(iii) for each dwelling containing at least 3 bedrooms—at least 1.5 parking spaces,

(2.2 continued.)

The amended proposal provides for 558 apartments, of which 135 are 1 bedroom, 334 are 2 bedroom and 89 are 3 bedroom. The amended proposal provides for 15% affordable apartments, albeit without them being allocated. If the assumption is that the affordable apartment breakup reflects the project break up, then the affordable apartment allocation is 20 of 1 bedroom, 50 of 2 bedroom and 13 of 3 bedroom. Therefore, a total **minimum** residential parking requirement is 502 spaces.

Table 2.2b Car Parking Rates in Accordance with SEPP Housing 2021 for Residential Use

Land use	15% Affordanble Housing. Parking in accordance with SEPP Housing 2021 Cl 19 (e).	Proposed Use No Of Units	15% Affordable	No of car parking spaces for affordable units	No of Residual Units	Remainder Parking in accordance with SEPP Housing 2021 Cl 19 (f)	Parking
Residential Flat Buildings and Serviced apartments	Division 1 In-fill affordable housing	**558**	**84**		474		
	i. for each dwelling containing 1 bedroom—at least 0.4 parking spaces,	135	20	**8**	115	0.5 spaces	58
	ii. for each dwelling containing 2 bedrooms—at least 0.5 parking space,	334	50	**25**	284	1.0 space/2 bedroom	284
	iii. for each dwelling containing at least 3 bedrooms—at least 1 parking spaces,	89	13	**13**	76	1.5 spaces per 3 bedroom	113
	No rates for visitor parking						
Total	...		84	**47**	474		**455**

The *Guide to Traffic Generating Developments* (GtTGD) provides rates for car parking for high density residential developments. If this is adopted then the required car parking for residential would be 506 car parking spaces in addition to the visitor car parking, as shown in **Table 2.2c** below.

Table 2.2c Car Parking Rates in Accordance with RMS Guide to Traffic Generating Developments 2002

Land use	RMS	Bicycle Parking	Proposd Use No Of Units	Required Car Spaces	Required Bicycle Parking
High Density Residential Flat Buildings for Sub Regional Centres	0.6 spaces per 1 bedroom unit	SEPP 65 recommends bicycle parking but no rates provided	135	81.0	
On sites that are within 800m of a railway station or light rail stop in the Sydney Metropolitan Area; or	0.9 spaces for 2 bedroom units		334	300.6	
	1.4 spaces for 3 bedroom units		89	124.6	
Sub Total				**506**	

(2.2 continued.)

Disabled Car Parking-Residential

Disabled car parking is required in accordance with Section 3.2 of the C*BDCP*. Accessible car parking must be provided within the car park. Car parking should be provided at the rate of at least one car space per 100 car parking spaces and for every adaptable unit.

The total proposed required car parking to be provided is **707** parking spaces. This is an increase of **18** car parking spaces.

3.0 TRAFFIC GENERATION FROM PROPOSED DEVELOPMENT

The RMS Guide to Traffic Generating Developments provides generic rates for high density residential units, and smaller specialty shops similar to retail shops. There is **no change** in the traffic generation for retail shops and Childcare Centre from **Report 18-21 Revision G**.

3.1 Residential Traffic Generation

The traffic generation rates for the residential units have been adopted from the *RMS TDT04a/2013 technical direction for high density residential units*. A rate of 0.19 trips per unit for AM peak hour and 0.15 trips per unit for PM Peak Hour.

For residential units, a directional distribution of 80% OUT and 20% IN in the AM peak hour and 80% IN and 20% OUT in the PM peak hour has been adopted.

There are **558** residential units within the development and the corresponding traffic generation will be **106** vehicles in the AM peak hour and **84** vehicles in the PM peak hour.

The change in traffic generation is explained in further detail in **Table 3.2**.

Table 3.1a Residential Traffic Generation from Report 18-21

Proposed Development Scenario					Peak Hour Rates		Peak Hour Traffic		AM SPLIT		PM SPLIT	
				Mix	AM	PM	AM	PM	IN	OUT	IN	OUT
	31850	1 Bed	2 Bed	3Bed								
Residentia	No Of Dwellings		25480						IN	OUT	IN	OUT
	543	137	329	77	0.19	0.15	104	81	20%	80%	80%	20%
									21	83	65	16

Note: AM residential rounded up.

Table 3.1b Proposed Residential Traffic Generation Residential

Proposed Development Scenario					Peak Hour Rates		Peak Hour Traffic		AM SPLIT		PM SPLIT	
				Mix	AM	PM	AM	PM	IN	OUT	IN	OUT
	550541	1 Bed	2 Bed	3Bed								
Residentia	No Of Dwellings		440433						IN	OUT	IN	OUT
	558	137	329	77	0.19	0.15	106	84	20%	80%	80%	20%
									21	85	67	17

Table 3.1c Residential Traffic Generation Summary

Report 18-21		Proposed Increase	
Peak Hour Traffic		Peak Hour Traffic	
AM	PM	AM	PM
104	81	106	84

Net increase of 2 vehicles in the AM and 3 PM Peak Hour

3.2 Total Proposed Traffic Generation

The existing traffic generation on the site is detailed in **Report No 18-21**.

There is no change to the retail or childcare centre traffic generation.

The total estimated peak hour traffic generation for the residential units, retail area/shops and childcare centre is as shown in **Table 3.2**.

Table 3.2 Proposed Traffic Generation

Proposed Development Scenario					Peak Hour Rates		Peak Hour Traffic		AM SPLIT		PM SPLIT	
				Mix	AM	PM	AM	PM	IN	OUT	IN	OUT
	31850	1 Bed	2 Bed	3Bed								
Residential	No Of Dwellings		25480						IN	OUT	IN	OUT
	558	137	329	77	0.19	0.15	106	84	20%	80%	80%	20%
									21	85	67	17
Shops	Shop Area GLFA at 82%				46 x 340/1000	46 x 340/1000			IN	OUT	IN	OUT
	340						16	16	20%	80%	80%	20%
									3	13	13	3
Childcare	106				106 children at 0.8/2 trips AM	106 x 0.7\2PM	42	38	21	21	19	19
TOTAL							**164**	**137**	46	119	98	39
Note Childcare trips rounded up to 38 in the PM												

The traffic generation that has been calculated does not take into consideration an off set for active travel of 5% due to improvements to pedestrian footpaths and cycle paths, nor a reduction for local trips of 10%.

Consideration of a possible 15% reduction in vehicular traffic would mean a reduction of 24 trips in the AM peak hour and 20 trips in the PM peak hour.

The assessed traffic generation attributable to the retail shops and childcare care centre do not take into account the high likelihood of these services being taken up by residents of the proposed development, and this analysis is considered a ‘worse case’ scenario.

4.0 TRAFFIC ASSIGNMENT TO ROAD NETWORK

The numerical distribution of AM and PM proposed traffic generation from 30 – 46 Auburn Road to the road network are shown in **Figures 3A** and **3B**.

The numerical distribution of AM and PM 'total traffic generation trips' to the road network are shown in **Figures 4A** and **4B,** for 2023 STFM volumes plus future development traffic. The Additional volumes are included in the totals.

The traffic assignment is based upon the 'arterial road' and 'collector road' network, the shortest path to work destinations from the Regents Park residential area estimated from the *2016 Census Journey to Work* and adjusted based upon peak hour travel time surveys. The traffic assignment is prepared in **Report 18-21 Rev G** and has not changed.

The modelling carried out in the **Report 18-21 Rev G** is still valid for the following reason:-

- The additional number of movements are 0 in and 2 out in the AM peak hour and 2 trips in and 1 trip out in the PM Peak Hour.

- When assigned to the road network the impacts will be minimal. That is, that when the volumes are less than 1% increase on any approach, they are unlikely to make any significant difference to the level of service at that intersection. This is demonstrated in the modelling of the site network intersections where the Level of Service (LoS) does not change.

- The increase volumes do not affect any critical movements at key intersections on the road network.

- There are very minor changes to the degree of saturation DoS at the site main entrance in the AM/PM Peak Hour to the right hand turn movement. A copy of the SIDRA analysis and Summary Table is included in **Appendix 2** of this report. There is no change to the Level of Service between 543 units and 558 units at the modelled site network for the year 2033 plus background traffic growth plus development traffic.

5.0 SUMMARY AND CONCLUSIONS

- The proposed development is an affordable housing residential mixed-use development consisting of 558 residential dwellings and 5 retail shops with a gross floor area of 400m^2 and a 106 place childcare centre with **707** car parking spaces.

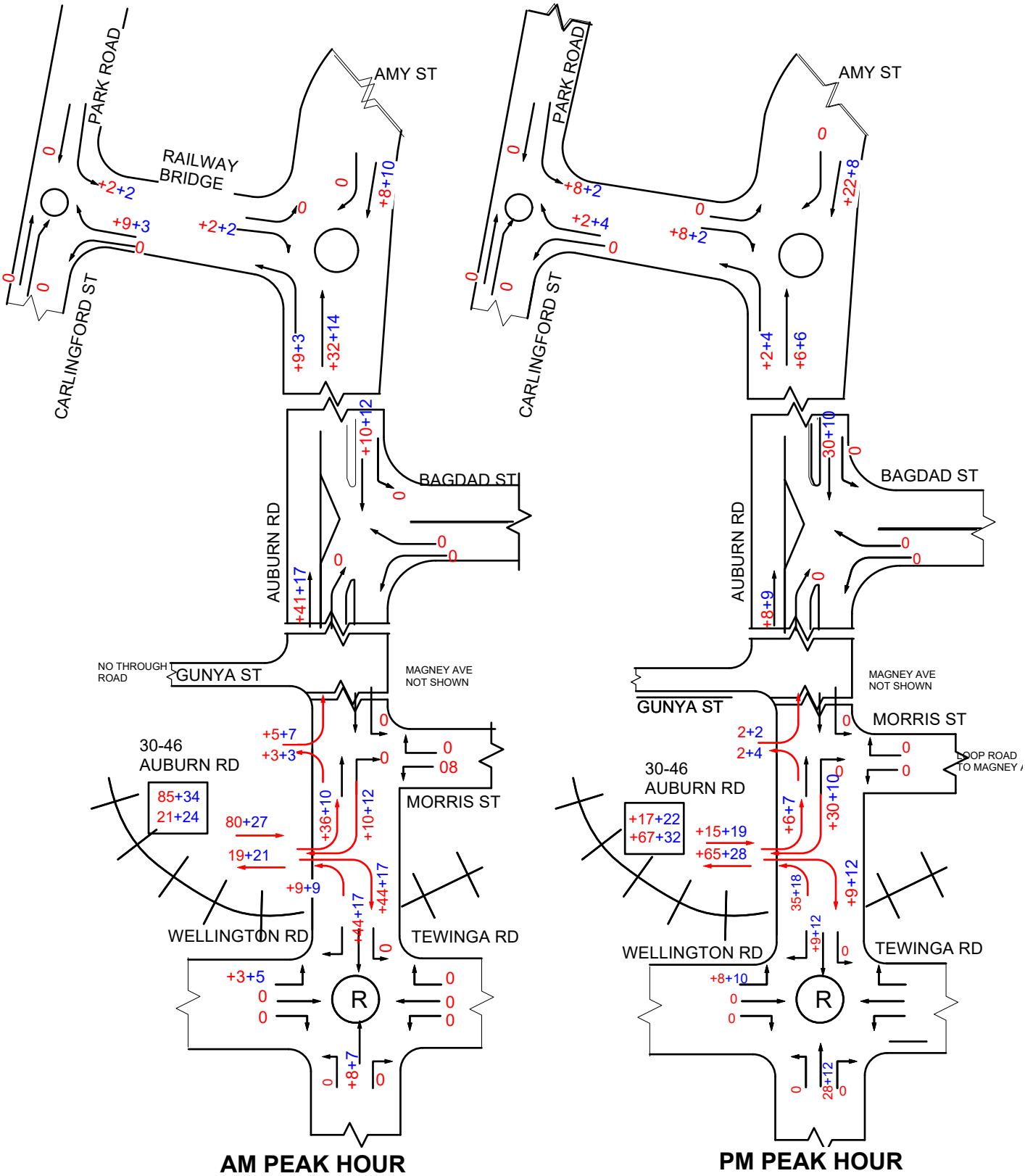
- The proposed development use is increased by 15 residential units. There is no change to any other uses. The proposed total parking is 707 spaces, an increase of 18 car parking spaces.

- The additional number of movements are 0 in and 2 out in the AM peak hour and 2 trips in and 1 trip out in the PM peak hour.

- As demonstrated in the SIDRA network modelling undertaken at the site entrance/exit driveways with Auburn Road and linked to Wellington Road/ Auburn Road intersection, there are very minor changes to the degree of saturation DoS and no change to the Level of Service (LoS) at the site main entrance in the AM/PM Peak Hour to the right hand turn movement.

- We are satisfied that there is minimal impact on the overall network as a result of this small change in the development residential increase.

- We support this development on traffic and parking grounds.



LEGEND

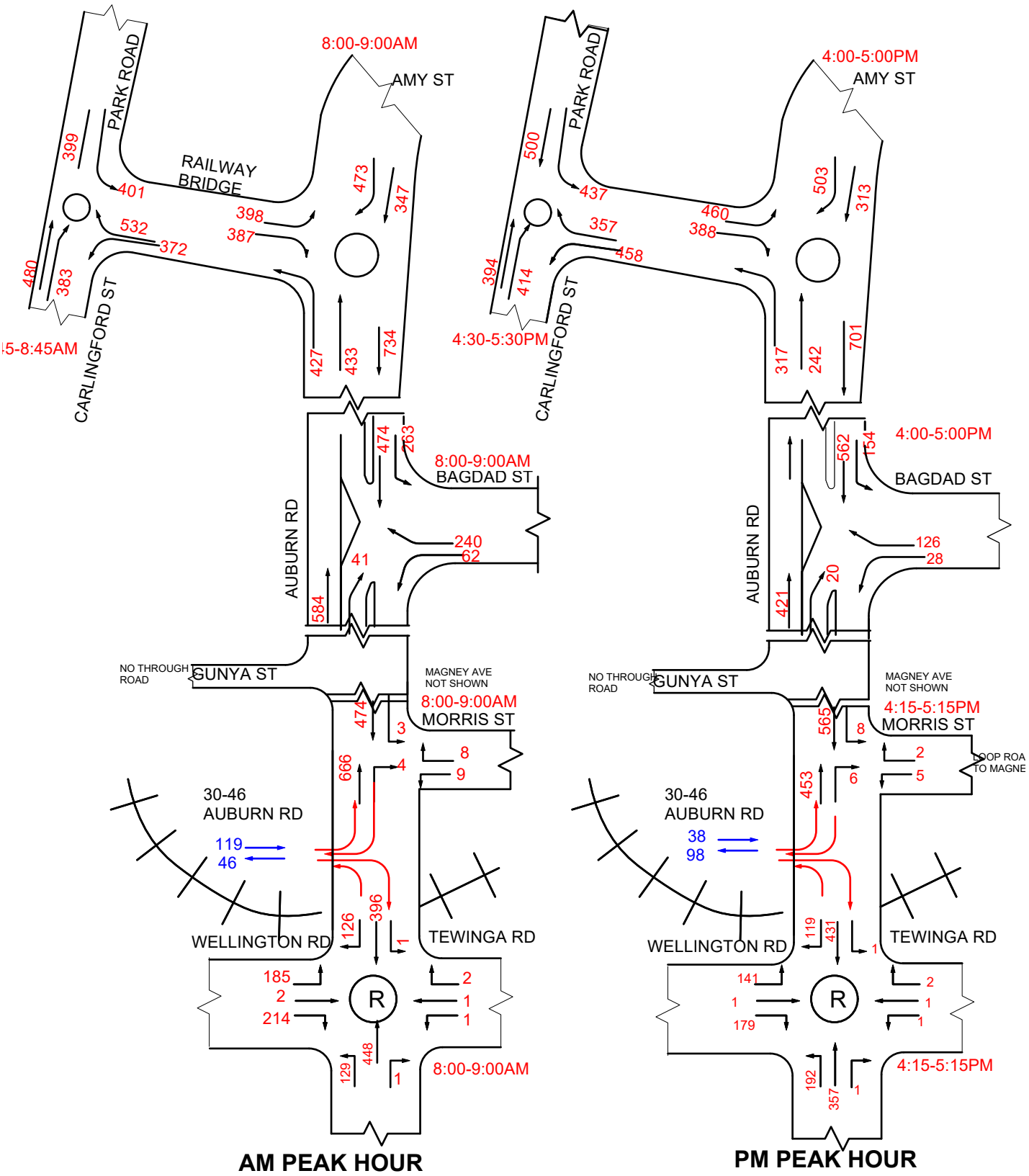
+21 ADDITIONAL PEAK HOUR VOLUMES GENERATED BY THE PROPOSED RESIDENTIAL APARTMENTS SITE AT 30-46 AUBURN ROAD

+34 GENERATED BY CHILDCARE CENTRE + SHOPS

N

CONCEPT DEVELOPMENT
558 APARTMENTS PLUS
SHOPS &
CHILDCARE CENTRE

FIGURES 3A + 3B



LEGEND

448 8.00 - 9.00AM PEAK HOUR
4.30 -5.30PM PEAK HOUR

119 → TOTAL SITE DEVELOPMENT VOLUMES

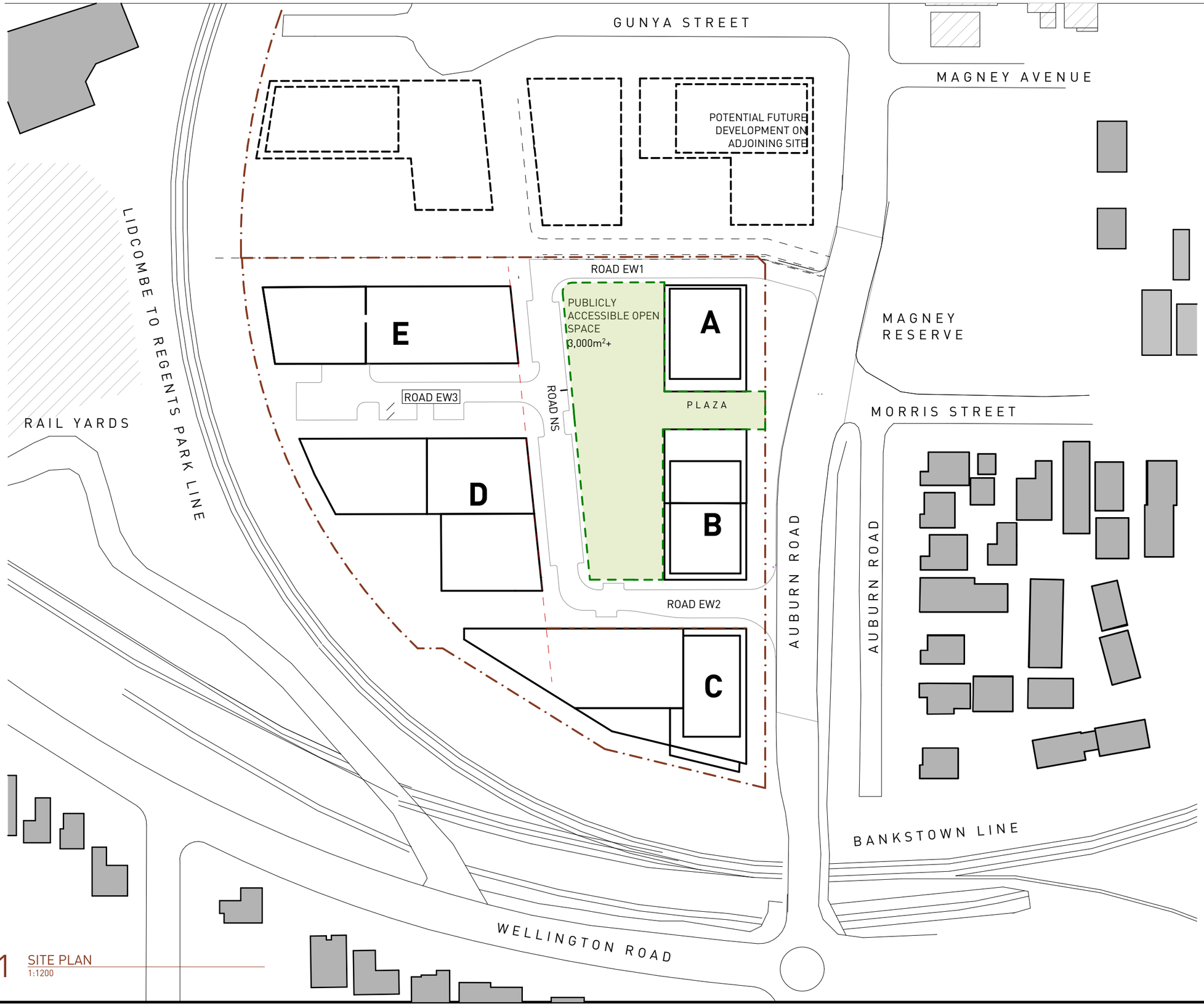
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FUTURE PEAK HOUR VOLUMES SUPPLEMENTARY REPORT

EXISTING 2023 PLUS FUTURE DEVELOPMENT AT 30-46 AUBURN ROAD

FIGURES 4A + 4B

APPENDIX 1



1 SITE PLAN
1:1200

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0
10m - 1:200
5.0m - 1:100
2.5m - 1:50
1.25m - 1:25

NOTES

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2. Verify all dimensions on site prior to commencement & report discrepancies to the architect.
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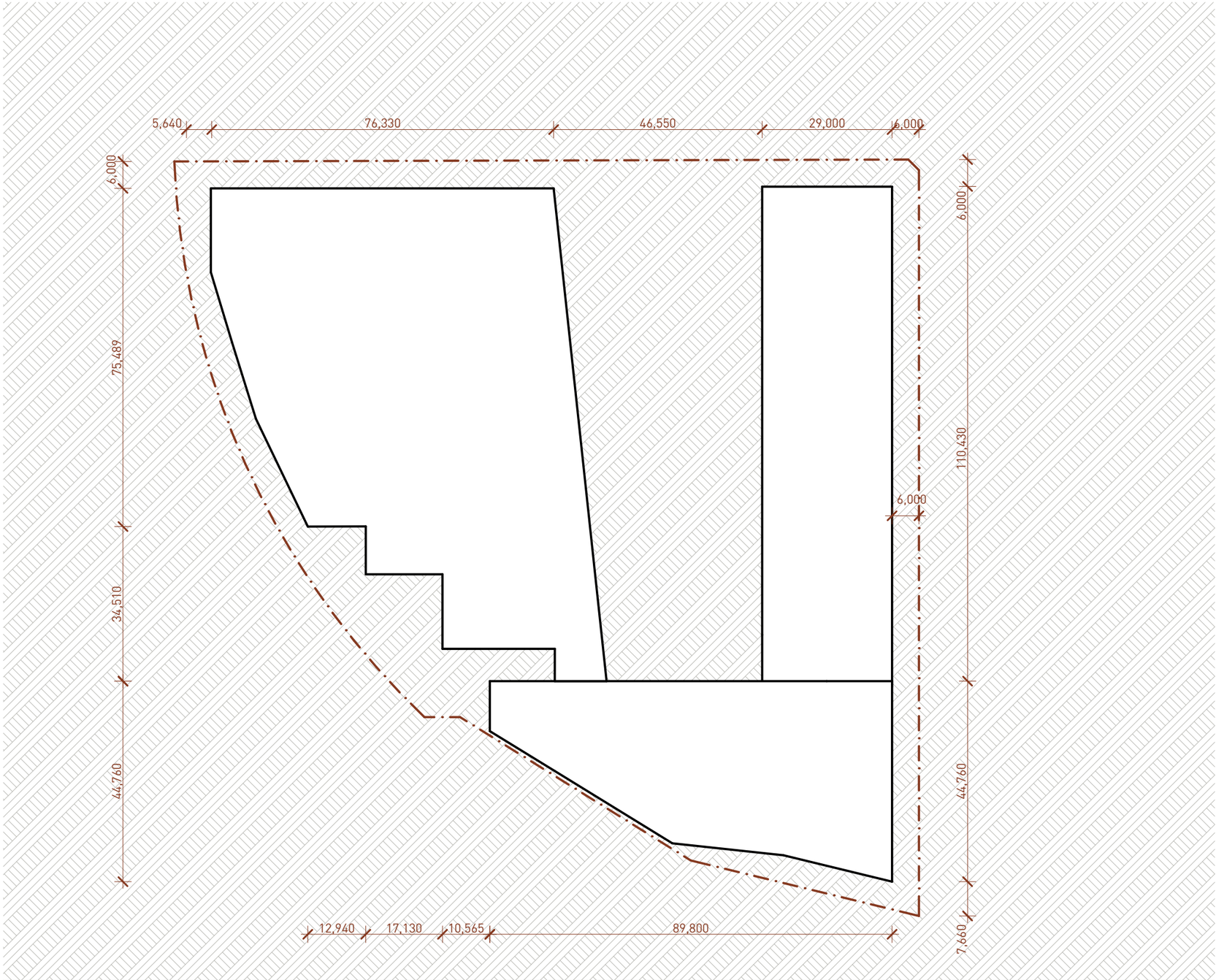
DOCUMENT
SITE PLAN

STAGE
SSD CONCEPT DA

PROJECT
REGENTS PARK AFFORDABLE HOUSING - CONCEPT PLAN
30-46 AUBURN ROAD
REGENTS PARK
30 Auburn Road Pty Ltd

ARCHITECTURE URBAN PLANNING
M1/147 McEvoy Street Alexandria NSW 2015
P 02 9516 2022 **E** email@smithtzannes.com.au
smithtzannes.com.au
Nominated Architect: Peter Smith (Reg 7024)
SMITH & TZANNES

20_053 U-010



1 ENVELOPE BELOW GROUND
1:1000

VERSION
ISSUED FOR AMENDMENT REPORT

REV E 11-04-2024

DOCUMENT
BELOW GROUND ENVELOPES

STAGE
SSD CONCEPT DA

PROJECT
REGENTS PARK AFFORDABLE HOUSING - CONCEPT PLAN
30-46 AUBURN ROAD
REGENTS PARK
30 Auburn Road Pty Ltd

20_053 U-014

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0
10m - 1:200
5.0m - 1:100
2.5m - 1:50
1.25m - 1:25

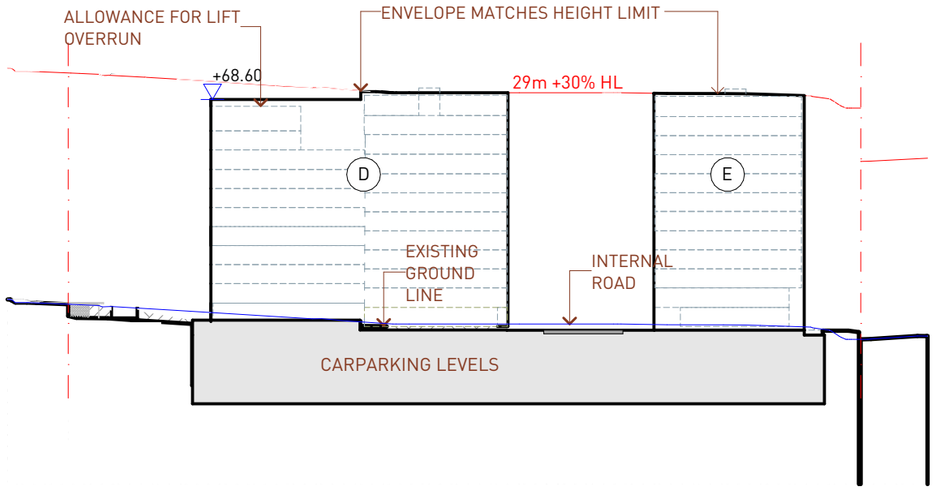
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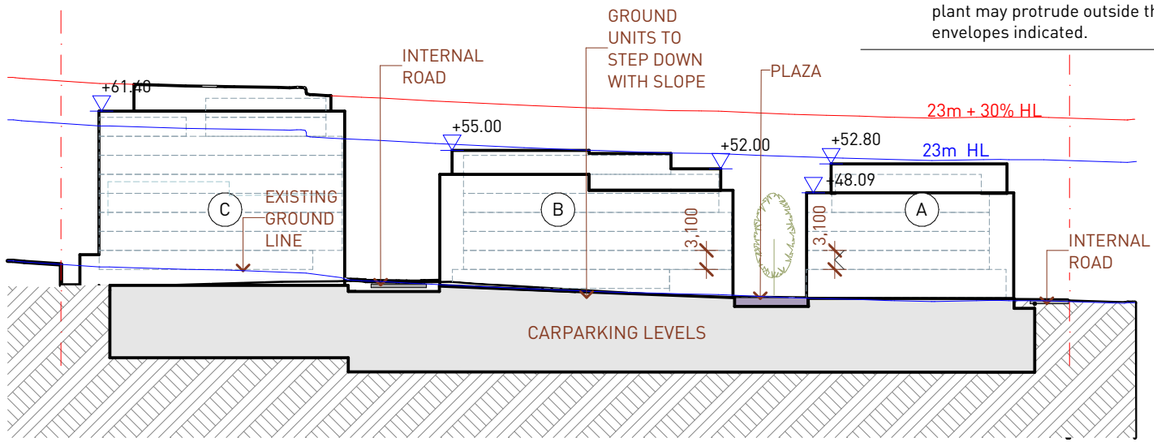
ARCHITECTURE URBAN PLANNING
M1/147 McEvoy Street Alexandria NSW 2015
P 02 9516 2022 **E** email@smithtzannes.com.au
smithtzannes.com.au
Nominated Architect: Peter Smith (Reg 7024)

SMITH & TZANNES

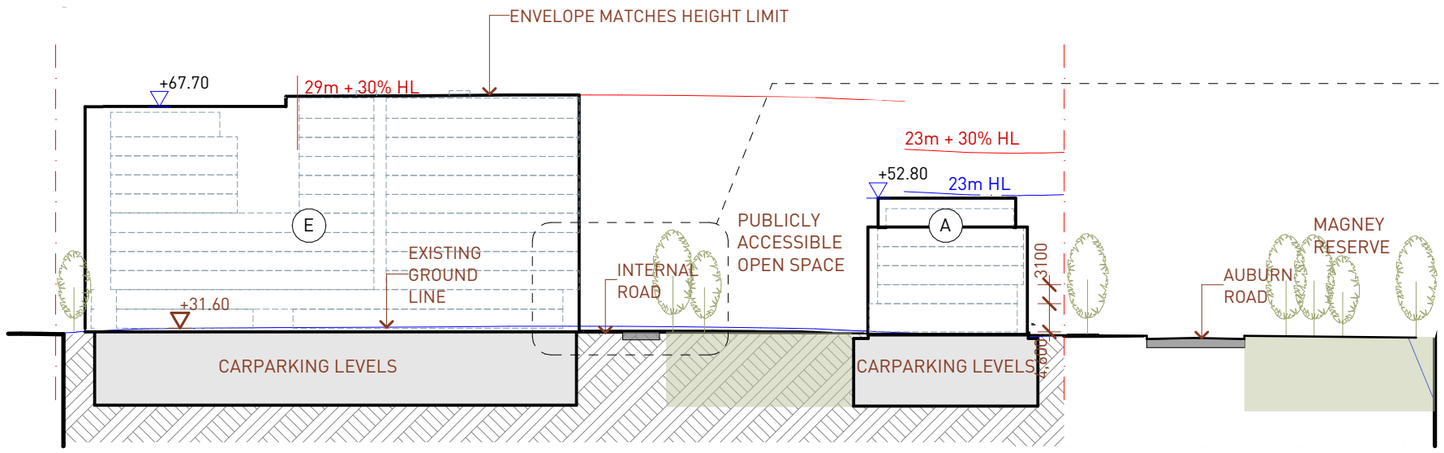


1 SECTION - E & D
1:1000

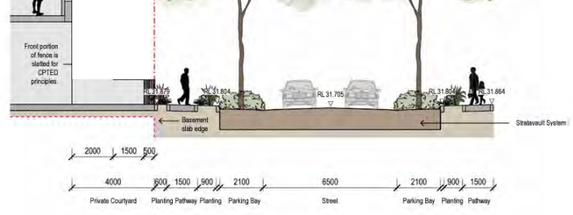
NOTE: Awnings, articulation elements, parapets, balustrades, lift overruns and plant may protrude outside the building envelopes indicated.



2 SECTION - BUILDING A, B & C
1:1000

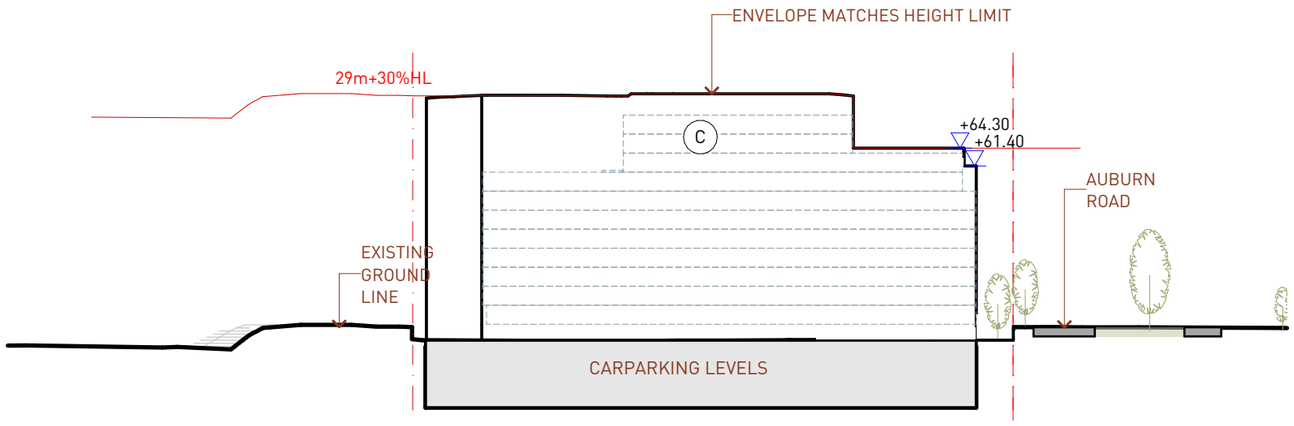


3 SECTION - A & E
1:1000



4 INTERNAL STREET SECTION

Note: Street Section is indicative, for information only and subject to design development



5 SECTION A
1:1000

INSTRUMENT	LEP	ARH SEPP 2009	HOUSING SEPP 2021
FSR	2:1	2.5:1	2.6:1
HEIGHT	23m	23m	29.9m
	29m	29m	37.7m
	41m	41m	53.3m

NOTE: Where levels not shown, the envelope matches height limit.

INDICATIVE REFERENCE SCHEME STOREYS (NOT FOR APPROVAL)

VERSION
ISSUED FOR AMENDMENT REPORT

REV E 11-04-2024

DOCUMENT
ENVELOPE SECTIONS

STAGE
SSD CONCEPT DA

PROJECT
REGENTS PARK AFFORDABLE HOUSING - CONCEPT PLAN
30-46 AUBURN ROAD
REGENTS PARK
30 Auburn Road Pty Ltd

20_053 U-020

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0 | 10m - 1:200 | 5.0m - 1:100 | 2.5m - 1:50 | 1.25m - 1:25

NOTES
1. NEVER scale off drawings, use figured dimensions only.
2. Verify all dimensions on site prior to commencement & report discrepancies to the architect.
3. Drawings describe scope of works and general set out. These drawings are not shop drawings. Set out to to be undertaken by surveyor on site. Shop drawings should be prepared where required or necessary
4. The copyright of this design remains the property of SMITH & TZANNES. This design is not to be used, copied or reproduced without the authority of SMITH & TZANNES.
5. This drawing is only to be used by the stated Client in the stated location for the purpose it was created. Do not use this drawing for construction unless designated.

LEGEND
Refer to the notes page for a legend that includes further notes and an explanation of abbreviations.

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Nominated Architect: Peter Smith (Reg 7024)
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APPENDIX 2

APPENDIX 2

SIDRA NETWORK MODEL SITE ACCESS 2033 BTG + DEVELOPMENT 543 UNITS

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/vehicle)	Level of Service[3]	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE PLUS DEVELOPMENT							
Site Access Network	AM	0.708	4.5	**B**			
Site Access Network	PM	0.634	2.9	**A**			
Site Access ** Networked South Access	AM	0.708	3.8	**NA (E)** (Worst: F)	Give Way	RT from Site Access 61.1s	1.3 veh (9.1m)
	PM	0.345	1.2	NA (C) (Worst D)		RT from Site Access 34.3s	0.2 veh (1.7m)
Site Access ** Networked North Access	AM	0.397	0.2	NA (Worst A)	Give Way	LHT 8.3 secs	0.0 Veh (0.2m)
	PM	0.396	0.2	NA((Worst A)		LHT 8.2secs	0.0 Veh (0.0m)

Note: Denoted in ( ) is the worst movement.
Note: Control SS =Stop sign, S =Signal, G =Giveway, R =Roundabout Sto= Median Storage
Note* Intersection Networked
Note: No change in Level of Service from Existing Plus Background Traffic Growth 2033
Note NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements

SIDRA NETWORK MODEL SITE ACCESS 2033 BTG + DEVELOPMENT 558 UNITS

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/vehicle)	Level of Service[3]	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE PLUS DEVELOPMENT							
Site Access Network	AM	0.710	4.5	**B**			
Site Access Network	PM	0.634	2.9	**A**			
Site Access ** Networked South Access	AM	0.710	3.8	**NA (E)** (Worst: F)	Give Way	RT from Site Access 61.1s	1.3 veh (9.1m)
	PM	0.345	1.2	NA (C) (Worst D)		RT from Site Access 34.3s	0.3 veh (1.8m)
Site Access ** Networked North Access	AM	0.397	0.2	NA (Worst A)	Give Way	LHT 8.3secs	0.0 Veh (0.2m)
	PM	0.396	0.2	NA((Worst A)		LHT 8.2secs	0.0 Veh (0.1m)

Note: Denoted in ( ) is the worst movement.
Note: Control SS =Stop sign, S =Signal, G =Giveway, R =Roundabout Sto= Median Storage
Note* Intersection Networked
Note: No change in Level of Service from Existing Plus Background Traffic Growth 2033
Note NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements

NETWORK SUMMARY

Network: N101 [2023+FU-AM-SITE ACCESS-WELLINGTON (Network Folder: 2023+ FUTURE)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network
Network Category: Future Conditions 2

Network Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS A		
Speed Efficiency		0.90		
Travel Time Index		8.91		
Congestion Coefficient		1.11		
Travel Speed (Average)	km/h	49.5	49.5	km/h
Travel Distance (Total)	veh-km/h	2325.5	2790.6	pers-km/h
Travel Time (Total)	veh-h/h	47.0	56.4	pers-h/h
Desired Speed	km/h	54.9		
Demand Flows (Total for all Sites)	veh/h	4007	4809	pers/h
Arrival Flows (Total for all Sites)	veh/h	4007	4809	pers/h
Demand Flows (Entry Total)	veh/h	1642		
Midblock Inflows (Total)	veh/h	27		
Midblock Outflows (Total)	veh/h	-49		
Percent Heavy Vehicles (Demand)	%	2.4		
Percent Heavy Vehicles (Arrival)	%	2.4		
Degree of Saturation		0.512		
Control Delay (Total)	veh-h/h	3.72	4.46	pers-h/h
Control Delay (Average)	sec	3.3	3.3	sec
Control Delay (Worst Lane by MC)	sec	24.1		
Control Delay (Worst Movement by MC)	sec	32.5	32.5	sec
Geometric Delay (Average)	sec	1.8		
Stop-Line Delay (Average)	sec	1.5		
Ave. Que Storage Ratio (Worst Lane)		0.12		
Effective Stops (Total)	veh/h	1058	1270	pers/h
Effective Stop Rate		0.26	0.26	
Proportion Queued		0.27	0.27	
Performance Index		78.5	78.5	
Cost (Total)	$/h	1730.50	1730.50	$/h
Fuel Consumption (Total)	L/h	182.7		
Fuel Economy	L/100km	7.9		
Carbon Dioxide (Total)	kg/h	431.7		
Hydrocarbons (Total)	kg/h	0.033		
Carbon Monoxide (Total)	kg/h	0.43		
NOx (Total)	kg/h	0.462		

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

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

Network Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	1,923,537	2,308,244	pers/y
Delay (Total)	veh-h/y	1,784	2,141	pers-h/y
Effective Stops (Total)	veh/y	507,943	609,531	pers/y
Travel Distance (Total)	veh-km/y	1,116,223	1,339,467	pers-km/y
Travel Time (Total)	veh-h/y	22,553	27,063	pers-h/y
Cost (Total)	$/y	830,641	830,641	$/y

Fuel Consumption (Total)	L/y	87,709
Carbon Dioxide (Total)	kg/y	207,194
Hydrocarbons (Total)	kg/y	16
Carbon Monoxide (Total)	kg/y	207
NOx (Total)	kg/y	222

1 Hours per Year: 480 (Network)

NETWORK SUMMARY

Selected Routes

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2023+FU-AM-SITE ACCESS-WELLINGTON (Network Folder: 2023+ FUTURE)]

New Network
Network Category: Future Conditions 2

Output statistics for Approaches (All Movements) on the Selected Routes

Selected Routes	
Route ID	**Route Name**
R101	RHT FROM SITE SOUTH
R101	LHT FROM SITE NORTH

Network Performance by Routes - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS B		
Speed Efficiency		0.89		
Travel Time Index		8.83		
Congestion Coefficient		1.12		
Travel Speed (Average)	km/h	50.1	50.1	km/h
Travel Distance (Total)	veh-km/h	1011.8	1214.2	pers-km/h
Travel Time (Total)	veh-h/h	20.2	24.2	pers-h/h
Desired Speed	km/h	56.0		
Demand Flows (Total for all Sites)	veh/h	1312	1574	pers/h
Arrival Flows (Total for all Sites)	veh/h	1312	1574	pers/h
Demand Flows (Entry Total)	veh/h	113		
Midblock Inflows (Total)	veh/h	4		
Midblock Outflows (Total)	veh/h	-42		
Percent Heavy Vehicles (Demand)	%	1.7		
Percent Heavy Vehicles (Arrival)	%	1.7		
Degree of Saturation		0.512		
Control Delay (Total)	veh-h/h	1.70	2.04	pers-h/h
Control Delay (Average)	sec	4.7	4.7	sec
Control Delay (Worst Lane by MC)	sec	24.1		
Control Delay (Worst Movement by MC)	sec	32.5	32.5	sec
Geometric Delay (Average)	sec	2.2		
Stop-Line Delay (Average)	sec	2.5		
Ave. Que Storage Ratio (Worst Lane)		0.12		
Effective Stops (Total)	veh/h	429	514	pers/h
Effective Stop Rate		0.33	0.33	
Proportion Queued		0.34	0.35	
Performance Index		32.2	32.2	
Cost (Total)	$/h	743.82	892.59	$/h
Fuel Consumption (Total)	L/h	76.1		
Fuel Economy	L/100km	7.5		
Carbon Dioxide (Total)	kg/h	179.9		
Hydrocarbons (Total)	kg/h	0.014		
Carbon Monoxide (Total)	kg/h	0.19		
NOx (Total)	kg/h	0.162		

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

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

Network Performance by Routes - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	629,558	755,470	pers/y
Delay (Total)	veh-h/y	815	978	pers-h/y
Effective Stops (Total)	veh/y	205,735	246,882	pers/y
Travel Distance (Total)	veh-km/y	485,687	582,825	pers-km/y
Travel Time (Total)	veh-h/y	9,693	11,631	pers-h/y
Cost (Total)	$/y	357,035	428,442	$/y
Fuel Consumption (Total)	L/y	36,512		
Carbon Dioxide (Total)	kg/y	86,353		
Hydrocarbons (Total)	kg/y	7		
Carbon Monoxide (Total)	kg/y	90		
NOx (Total)	kg/y	78		

1 Hours per Year: 480 (Network)

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INTERSECTION SUMMARY

Site: 101 [FUTURE AM: Auburn Road/ Site Access (Site Folder: 2023 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2023+FU-AM-SITE ACCESS-WELLINGTON (Network Folder: 2023+ FUTURE)]

Development at 30-46 Auburn Road, Regents Park
Existing + Future 2023
Site Category: (None)
Give-Way (Two-Way)

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	51.7	51.7 km/h
Travel Distance (Total)	veh-km/h	349.1	419.0 pers-km/h
Travel Time (Total)	veh-h/h	6.7	8.1 pers-h/h
Desired Speed	km/h	59.6	
Speed Efficiency		0.87	
Travel Time Index		8.54	
Congestion Coefficient		1.15	
Demand Flows (Total)	veh/h	1279	1535 pers/h
Arrival Flows (Total)	veh/h	1279	1535 pers/h
Percent Heavy Vehicles (Demand)	%	2.5	
Percent Heavy Vehicles (Arrivals)	%	2.5	
Degree of Saturation		0.459	
Practical Spare Capacity	%	74.3	
Effective Intersection Capacity	veh/h	2787	
Control Delay (Total)	veh-h/h	0.86	1.03 pers-h/h
Control Delay (Average)	sec	2.4	2.4 sec
Control Delay (Worst Lane by MC)	sec	24.1	
Control Delay (Worst Movement by MC)	sec	32.5	32.5 sec
Geometric Delay (Average)	sec	0.6	
Stop-Line Delay (Average)	sec	1.8	
Idling Time (Average)	sec	1.3	
Intersection Level of Service (LOS)		NA	
Average Back of Queue - Veh (Worst Lane)	veh	0.8	
Average Back of Queue - Dist (Worst Lane)	m	5.4	
Ave. Que Storage Ratio (Worst Lane)		0.05	
Effective Stops (Total)	veh/h	145	175 pers/h
Effective Stop Rate		0.11	0.11
Proportion Queued		0.09	0.09
Performance Index		9.1	9.1
Cost (Total)	$/h	256.83	256.83 $/h
Fuel Consumption (Total)	L/h	26.5	
Carbon Dioxide (Total)	kg/h	62.4	
Hydrocarbons (Total)	kg/h	0.005	
Carbon Monoxide (Total)	kg/h	0.07	
NOx (Total)	kg/h	0.067	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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

Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %

Number of Iterations: 3 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 86.8% 64.2% 0.0%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	613,895	736,674	pers/y
Arrival Flows (Total)	veh/y	613,895		
Delay (Total)	veh-h/y	411	493	pers-h/y
Effective Stops (Total)	veh/y	69,807	83,769	pers/y
Travel Distance (Total)	veh-km/y	167,583	201,100	pers-km/y
Travel Time (Total)	veh-h/y	3,240	3,888	pers-h/y
Cost (Total)	$/y	123,278	123,278	$/y
Fuel Consumption (Total)	L/y	12,706		
Carbon Dioxide (Total)	kg/y	29,956		
Hydrocarbons (Total)	kg/y	2		
Carbon Monoxide (Total)	kg/y	35		
NOx (Total)	kg/y	32		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 101 [FUTURE AM: Auburn Road/ Site Access (Site Folder: 2023 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2023+FU-AM-SITE ACCESS-WELLINGTON (Network Folder: 2023+ FUTURE)]

Development at 30-46 Auburn Road, Regents Park
Existing + Future 2023
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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Auburn Road South															
1	L2	All MCs	19	0.0	19	0.0	0.010	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	36.9
2	T1	All MCs	642	1.9	642	1.9	0.333	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			661	1.9	661	1.9	0.333	0.2	NA	0.0	0.0	0.00	0.02	0.00	57.9
North: Auburn Road North															
8	T1	All MCs	482	4.0	482	4.0	0.254	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	23	0.0	23	0.0	0.035	9.4	LOS A	0.1	0.4	0.56	0.74	0.56	45.2
Approach			505	3.8	505	3.8	0.254	0.5	NA	0.1	0.4	0.03	0.03	0.03	58.8
West: Site Access															
10	L2	All MCs	48	0.0	48	0.0	0.459	12.9	LOS B	0.8	5.4	0.86	1.04	1.20	12.8
12	R2	All MCs	64	0.0	64	0.0	0.459	32.5	LOS D	0.8	5.4	0.86	1.04	1.20	12.8
Approach			113	0.0	113	0.0	0.459	24.1	LOS C	0.8	5.4	0.86	1.04	1.20	12.8
All Vehicles			1279	2.5	1279	2.5	0.459	2.4	NA	0.8	5.4	0.09	0.11	0.12	51.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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INTERSECTION SUMMARY

Site: 101 [FUTURE AM: Auburn Road/North Site Access (Site Folder: 2023 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2023+FU-AM-SITE ACCESS-WELLINGTON (Network Folder: 2023+ FUTURE)]

Development at 30-46 Auburn Road, Regents Park
Existing + Future 2023
Site Category: (None)
Give-Way (Two-Way)

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	59.3	59.3 km/h
Travel Distance (Total)	veh-km/h	906.1	1087.3 pers-km/h
Travel Time (Total)	veh-h/h	15.3	18.3 pers-h/h
Desired Speed	km/h	59.9	
Speed Efficiency		0.99	
Travel Time Index		9.89	
Congestion Coefficient		1.01	
Demand Flows (Total)	veh/h	1143	1372 pers/h
Arrival Flows (Total)	veh/h	1143	1372 pers/h
Percent Heavy Vehicles (Demand)	%	2.7	
Percent Heavy Vehicles (Arrivals)	%	2.7	
Degree of Saturation		0.337	
Practical Spare Capacity	%	191.0	
Effective Intersection Capacity	veh/h	3394	
Control Delay (Total)	veh-h/h	0.06	0.08 pers-h/h
Control Delay (Average)	sec	0.2	0.2 sec
Control Delay (Worst Lane by MC)	sec	7.3	
Control Delay (Worst Movement by MC)	sec	7.3	7.3 sec
Geometric Delay (Average)	sec	0.1	
Stop-Line Delay (Average)	sec	0.1	
Idling Time (Average)	sec	0.0	
Intersection Level of Service (LOS)		NA	
Average Back of Queue - Veh (Worst Lane)	veh	0.0	
Average Back of Queue - Dist (Worst Lane)	m	0.2	
Ave. Que Storage Ratio (Worst Lane)		0.00	
Effective Stops (Total)	veh/h	12	14 pers/h
Effective Stop Rate		0.01	0.01
Proportion Queued		0.01	0.01
Performance Index		15.3	15.3
Cost (Total)	$/h	574.34	574.34 $/h
Fuel Consumption (Total)	L/h	56.8	
Carbon Dioxide (Total)	kg/h	134.2	
Hydrocarbons (Total)	kg/h	0.010	
Carbon Monoxide (Total)	kg/h	0.17	
NOx (Total)	kg/h	0.129	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 55.8% 0.0% 0.0%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	548,716	658,459	pers/y
Arrival Flows (Total)	veh/y	548,716		
Delay (Total)	veh-h/y	31	37	pers-h/y
Effective Stops (Total)	veh/y	5,791	6,949	pers/y
Travel Distance (Total)	veh-km/y	434,912	521,895	pers-km/y
Travel Time (Total)	veh-h/y	7,331	8,798	pers-h/y
Cost (Total)	$/y	275,683	275,683	$/y
Fuel Consumption (Total)	L/y	27,246		
Carbon Dioxide (Total)	kg/y	64,409		
Hydrocarbons (Total)	kg/y	5		
Carbon Monoxide (Total)	kg/y	79		
NOx (Total)	kg/y	62		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 101 [FUTURE AM: Auburn Road/North Site Access (Site Folder: 2023 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2023+FU-AM-SITE ACCESS-WELLINGTON (Network Folder: 2023+ FUTURE)]

Development at 30-46 Auburn Road, Regents Park
Existing + Future 2023
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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Auburn Road South															
1	L2	All MCs	6	0.0	6	0.0	0.337	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	31.6
2	T1	All MCs	642	1.9	642	1.9	0.337	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
Approach			648	1.9	648	1.9	0.337	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.4
North: Auburn Road North															
8	T1	All MCs	482	4.0	482	4.0	0.254	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			482	4.0	482	4.0	0.254	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
West: Site Access															
10	L2	All MCs	13	0.0	13	0.0	0.015	7.3	LOS A	0.0	0.2	0.53	0.66	0.53	41.4
Approach			13	0.0	13	0.0	0.015	7.3	LOS A	0.0	0.2	0.53	0.66	0.53	41.4
All Vehicles			1143	2.7	1143	2.7	0.337	0.2	NA	0.0	0.2	0.01	0.01	0.01	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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NETWORK SUMMARY

Network: N101 [2023-FU-PM-SITE ACCESS-WELLINGTON (Network Folder: 2023+ FUTURE)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network
Network Category: (None)

Network Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS A		
Speed Efficiency		0.92		
Travel Time Index		9.13		
Congestion Coefficient		1.08		
Travel Speed (Average)	km/h	49.8	49.8	km/h
Travel Distance (Total)	veh-km/h	2318.5	2782.2	pers-km/h
Travel Time (Total)	veh-h/h	46.6	55.9	pers-h/h
Desired Speed	km/h	54.0		
Demand Flows (Total for all Sites)	veh/h	3786	4544	pers/h
Arrival Flows (Total for all Sites)	veh/h	3786	4544	pers/h
Demand Flows (Entry Total)	veh/h	1443		
Midblock Inflows (Total)	veh/h	286		
Midblock Outflows (Total)	veh/h	-4		
Percent Heavy Vehicles (Demand)	%	2.0		
Percent Heavy Vehicles (Arrival)	%	2.0		
Degree of Saturation		0.506		
Control Delay (Total)	veh-h/h	2.74	3.29	pers-h/h
Control Delay (Average)	sec	2.6	2.6	sec
Control Delay (Worst Lane by MC)	sec	16.4		
Control Delay (Worst Movement by MC)	sec	22.3	22.3	sec
Geometric Delay (Average)	sec	1.8		
Stop-Line Delay (Average)	sec	0.8		
Ave. Que Storage Ratio (Worst Lane)		0.12		
Effective Stops (Total)	veh/h	889	1067	pers/h
Effective Stop Rate		0.23	0.23	
Proportion Queued		0.23	0.23	
Performance Index		71.8	71.8	
Cost (Total)	$/h	1705.85	1705.85	$/h
Fuel Consumption (Total)	L/h	175.6		
Fuel Economy	L/100km	7.6		
Carbon Dioxide (Total)	kg/h	414.4		
Hydrocarbons (Total)	kg/h	0.031		
Carbon Monoxide (Total)	kg/h	0.40		
NOx (Total)	kg/h	0.375		

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

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

Network Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	1,817,432	2,180,918	pers/y
Delay (Total)	veh-h/y	1,315	1,579	pers-h/y
Effective Stops (Total)	veh/y	426,700	512,040	pers/y
Travel Distance (Total)	veh-km/y	1,112,881	1,335,458	pers-km/y
Travel Time (Total)	veh-h/y	22,368	26,842	pers-h/y
Cost (Total)	$/y	818,810	818,810	$/y

Fuel Consumption (Total)	L/y	84,282
Carbon Dioxide (Total)	kg/y	198,914
Hydrocarbons (Total)	kg/y	15
Carbon Monoxide (Total)	kg/y	193
NOx (Total)	kg/y	180

1 Hours per Year: 480 (Network)

NETWORK SUMMARY

Selected Routes

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2023-FU-PM-SITE ACCESS-WELLINGTON (Network Folder: 2023+ FUTURE)]

New Network
Network Category: (None)

Output statistics for Approaches (All Movements) on the Selected Routes

Selected Routes	
Route ID	Route Name
R101	RHT FROM SITE SOUTH
R101	LHT FROM SITE NORTH

Network Performance by Routes - Hourly Values				
Performance Measure	Vehicles:	All MCs	Persons	
Network Level of Service (LOS)		LOS A		
Speed Efficiency		0.92		
Travel Time Index		9.13		
Congestion Coefficient		1.08		
Travel Speed (Average)	km/h	51.6	51.6	km/h
Travel Distance (Total)	veh-km/h	1021.3	1225.6	pers-km/h
Travel Time (Total)	veh-h/h	19.8	23.8	pers-h/h
Desired Speed	km/h	56.0		
Demand Flows (Total for all Sites)	veh/h	1264	1517	pers/h
Arrival Flows (Total for all Sites)	veh/h	1264	1517	pers/h
Demand Flows (Entry Total)	veh/h	36		
Midblock Inflows (Total)	veh/h	176		
Midblock Outflows (Total)	veh/h	0		
Percent Heavy Vehicles (Demand)	%	1.5		
Percent Heavy Vehicles (Arrival)	%	1.5		
Degree of Saturation		0.506		
Control Delay (Total)	veh-h/h	1.09	1.30	pers-h/h
Control Delay (Average)	sec	3.1	3.1	sec
Control Delay (Worst Lane by MC)	sec	16.4		
Control Delay (Worst Movement by MC)	sec	22.3	22.3	sec
Geometric Delay (Average)	sec	2.0		
Stop-Line Delay (Average)	sec	1.1		
Ave. Que Storage Ratio (Worst Lane)		0.12		
Effective Stops (Total)	veh/h	340	408	pers/h
Effective Stop Rate		0.27	0.27	
Proportion Queued		0.28	0.29	
Performance Index		30.0	30.0	
Cost (Total)	$/h	726.29	871.55	$/h
Fuel Consumption (Total)	L/h	73.8		
Fuel Economy	L/100km	7.2		
Carbon Dioxide (Total)	kg/h	174.3		
Hydrocarbons (Total)	kg/h	0.013		
Carbon Monoxide (Total)	kg/h	0.18		
NOx (Total)	kg/h	0.139		

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

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

Network Performance by Routes - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	606,821	728,185	pers/y
Delay (Total)	veh-h/y	522	626	pers-h/y
Effective Stops (Total)	veh/y	163,054	195,664	pers/y
Travel Distance (Total)	veh-km/y	490,247	588,296	pers-km/y
Travel Time (Total)	veh-h/y	9,501	11,402	pers-h/y
Cost (Total)	$/y	348,621	418,346	$/y
Fuel Consumption (Total)	L/y	35,414		
Carbon Dioxide (Total)	kg/y	83,686		
Hydrocarbons (Total)	kg/y	6		
Carbon Monoxide (Total)	kg/y	88		
NOx (Total)	kg/y	67		

1 Hours per Year: 480 (Network)

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INTERSECTION SUMMARY

Site: 101 [FUTURE PM: Auburn Road/ Site Access (Site Folder: 2023 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2023-FU-PM-SITE ACCESS-WELLINGTON (Network Folder: 2023+ FUTURE)]

Development at 30-46 Auburn Road, Regents Park
Existing + Future 2023
Site Category: (None)
Give-Way (Two-Way)

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	56.0	56.0 km/h
Travel Distance (Total)	veh-km/h	375.1	450.2 pers-km/h
Travel Time (Total)	veh-h/h	6.7	8.0 pers-h/h
Desired Speed	km/h	59.9	
Speed Efficiency		0.94	
Travel Time Index		9.28	
Congestion Coefficient		1.07	
Demand Flows (Total)	veh/h	1151	1381 pers/h
Arrival Flows (Total)	veh/h	1151	1381 pers/h
Percent Heavy Vehicles (Demand)	%	2.0	
Percent Heavy Vehicles (Arrivals)	%	2.0	
Degree of Saturation		0.287	
Practical Spare Capacity	%	241.3	
Effective Intersection Capacity	veh/h	4007	
Control Delay (Total)	veh-h/h	0.36	0.43 pers-h/h
Control Delay (Average)	sec	1.1	1.1 sec
Control Delay (Worst Lane by MC)	sec	16.4	
Control Delay (Worst Movement by MC)	sec	22.3	22.3 sec
Geometric Delay (Average)	sec	0.6	
Stop-Line Delay (Average)	sec	0.5	
Idling Time (Average)	sec	0.3	
Intersection Level of Service (LOS)		NA	
Average Back of Queue - Veh (Worst Lane)	veh	0.2	
Average Back of Queue - Dist (Worst Lane)	m	1.2	
Ave. Que Storage Ratio (Worst Lane)		0.01	
Effective Stops (Total)	veh/h	93	112 pers/h
Effective Stop Rate		0.08	0.08
Proportion Queued		0.04	0.04
Performance Index		7.6	7.6
Cost (Total)	$/h	255.84	255.84 $/h
Fuel Consumption (Total)	L/h	26.7	
Carbon Dioxide (Total)	kg/h	63.0	
Hydrocarbons (Total)	kg/h	0.005	
Carbon Monoxide (Total)	kg/h	0.08	
NOx (Total)	kg/h	0.054	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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

Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %

Number of Iterations: 3 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 84.8% 55.6% 0.0%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	552,253	662,703	pers/y
Arrival Flows (Total)	veh/y	552,253		
Delay (Total)	veh-h/y	172	207	pers-h/y
Effective Stops (Total)	veh/y	44,630	53,557	pers/y
Travel Distance (Total)	veh-km/y	180,062	216,074	pers-km/y
Travel Time (Total)	veh-h/y	3,215	3,858	pers-h/y
Cost (Total)	$/y	122,804	122,804	$/y
Fuel Consumption (Total)	L/y	12,829		
Carbon Dioxide (Total)	kg/y	30,219		
Hydrocarbons (Total)	kg/y	2		
Carbon Monoxide (Total)	kg/y	36		
NOx (Total)	kg/y	26		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 101 [FUTURE PM: Auburn Road/ Site Access (Site Folder: 2023 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2023-FU-PM-SITE ACCESS-WELLINGTON (Network Folder: 2023+ FUTURE)]

Development at 30-46 Auburn Road, Regents Park
Existing + Future 2023
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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Auburn Road South															
1	L2	All MCs	56	0.0	56	0.0	0.030	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	36.9
2	T1	All MCs	466	1.8	466	1.8	0.242	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			522	1.6	522	1.6	0.242	0.6	NA	0.0	0.0	0.00	0.06	0.00	53.6
North: Auburn Road North															
8	T1	All MCs	551	2.6	551	2.6	0.287	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
9	R2	All MCs	42	0.0	42	0.0	0.052	8.2	LOS A	0.1	0.5	0.51	0.70	0.51	46.3
Approach			593	2.4	593	2.4	0.287	0.7	NA	0.1	0.5	0.04	0.05	0.04	58.4
West: Site Access															
10	L2	All MCs	14	0.0	14	0.0	0.127	6.9	LOS A	0.2	1.2	0.74	0.88	0.74	16.8
12	R2	All MCs	22	0.0	22	0.0	0.127	22.3	LOS C	0.2	1.2	0.74	0.88	0.74	16.8
Approach			36	0.0	36	0.0	0.127	16.4	LOS C	0.2	1.2	0.74	0.88	0.74	16.8
All Vehicles			1151	2.0	1151	2.0	0.287	1.1	NA	0.2	1.2	0.04	0.08	0.04	56.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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INTERSECTION SUMMARY

Site: 101 [FUTURE PM: Auburn Road/North Site Access (Site Folder: 2023 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2023-FU-PM-SITE ACCESS-WELLINGTON (Network Folder: 2023+ FUTURE)]

Development at 30-46 Auburn Road, Regents Park
Existing + Future 2023
Site Category: (None)
Give-Way (Two-Way)

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	56.4	56.4 km/h
Travel Distance (Total)	veh-km/h	900.9	1081.1 pers-km/h
Travel Time (Total)	veh-h/h	16.0	19.2 pers-h/h
Desired Speed	km/h	56.9	
Speed Efficiency		0.99	
Travel Time Index		9.91	
Congestion Coefficient		1.01	
Demand Flows (Total)	veh/h	1135	1362 pers/h
Arrival Flows (Total)	veh/h	1135	1362 pers/h
Percent Heavy Vehicles (Demand)	%	2.8	
Percent Heavy Vehicles (Arrivals)	%	2.8	
Degree of Saturation		0.337	
Practical Spare Capacity	%	191.0	
Effective Intersection Capacity	veh/h	3369	
Control Delay (Total)	veh-h/h	0.05	0.06 pers-h/h
Control Delay (Average)	sec	0.2	0.2 sec
Control Delay (Worst Lane by MC)	sec	7.2	
Control Delay (Worst Movement by MC)	sec	7.2	7.2 sec
Geometric Delay (Average)	sec	0.0	
Stop-Line Delay (Average)	sec	0.1	
Idling Time (Average)	sec	0.0	
Intersection Level of Service (LOS)		NA	
Average Back of Queue - Veh (Worst Lane)	veh	0.0	
Average Back of Queue - Dist (Worst Lane)	m	0.1	
Ave. Que Storage Ratio (Worst Lane)		0.00	
Effective Stops (Total)	veh/h	6	8 pers/h
Effective Stop Rate		0.01	0.01
Proportion Queued		0.00	0.00
Performance Index		15.9	15.9
Cost (Total)	$/h	594.69	594.69 $/h
Fuel Consumption (Total)	L/h	56.7	
Carbon Dioxide (Total)	kg/h	134.0	
Hydrocarbons (Total)	kg/h	0.009	
Carbon Monoxide (Total)	kg/h	0.15	
NOx (Total)	kg/h	0.130	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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

Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %

Number of Iterations: 3 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 55.8% 0.0% 0.0%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	544,674	653,608	pers/y
Arrival Flows (Total)	veh/y	544,674		
Delay (Total)	veh-h/y	23	28	pers-h/y
Effective Stops (Total)	veh/y	3,051	3,661	pers/y
Travel Distance (Total)	veh-km/y	432,423	518,908	pers-km/y
Travel Time (Total)	veh-h/y	7,665	9,199	pers-h/y
Cost (Total)	$/y	285,450	285,450	$/y
Fuel Consumption (Total)	L/y	27,203		
Carbon Dioxide (Total)	kg/y	64,309		
Hydrocarbons (Total)	kg/y	4		
Carbon Monoxide (Total)	kg/y	71		
NOx (Total)	kg/y	62		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 101 [FUTURE PM: Auburn Road/North Site Access (Site Folder: 2023 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2023-FU-PM-SITE ACCESS-WELLINGTON (Network Folder: 2023+ FUTURE)]

Development at 30-46 Auburn Road, Regents Park
Existing + Future 2023
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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Auburn Road South															
1	L2	All MCs	6	0.0	6	0.0	0.337	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	31.6
2	T1	All MCs	642	1.9	642	1.9	0.337	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
Approach			648	1.9	648	1.9	0.337	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.4
North: Auburn Road North															
8	T1	All MCs	482	4.0	482	4.0	0.254	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach			482	4.0	482	4.0	0.254	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Site Access															
10	L2	All MCs	4	0.0	4	0.0	0.005	7.2	LOS A	0.0	0.1	0.53	0.61	0.53	41.5
Approach			4	0.0	4	0.0	0.005	7.2	LOS A	0.0	0.1	0.53	0.61	0.53	41.5
All Vehicles			1135	2.8	1135	2.8	0.337	0.2	NA	0.0	0.1	0.00	0.01	0.00	56.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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NETWORK SUMMARY

Network: N101 [2033+FU-AM SITE-WELLINGTON (Network Folder: 2033+BTG+DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network
Network Category: (None)
Design Life Analysis (Final Year): Results for 10 years

Network Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS B		
Speed Efficiency		0.89		
Travel Time Index		8.78		
Congestion Coefficient		1.12		
Travel Speed (Average)	km/h	44.5	44.5	km/h
Travel Distance (Total)	veh-km/h	2739.7	3287.6	pers-km/h
Travel Time (Total)	veh-h/h	61.6	73.9	pers-h/h
Desired Speed	km/h	50.0		
Demand Flows (Total for all Sites)	veh/h	4705	5646	pers/h
Arrival Flows (Total for all Sites)	veh/h	4705	5646	pers/h
Demand Flows (Entry Total)	veh/h	1914		
Midblock Inflows (Total)	veh/h	44		
Midblock Outflows (Total)	veh/h	-48		
Percent Heavy Vehicles (Demand)	%	2.4		
Percent Heavy Vehicles (Arrival)	%	2.4		
Degree of Saturation		0.710		
Control Delay (Total)	veh-h/h	5.83	6.99	pers-h/h
Control Delay (Average)	sec	4.5	4.5	sec
Control Delay (Worst Lane by MC)	sec	46.6		
Control Delay (Worst Movement by MC)	sec	61.1	61.1	sec
Geometric Delay (Average)	sec	1.8		
Stop-Line Delay (Average)	sec	2.6		
Ave. Que Storage Ratio (Worst Lane)		0.18		
Effective Stops (Total)	veh/h	1411	1693	pers/h
Effective Stop Rate		0.30	0.30	
Proportion Queued		0.33	0.33	
Performance Index		110.4	110.4	
Cost (Total)	$/h	2230.24	2230.24	$/h
Fuel Consumption (Total)	L/h	219.9		
Fuel Economy	L/100km	8.0		
Carbon Dioxide (Total)	kg/h	519.4		
Hydrocarbons (Total)	kg/h	0.037		
Carbon Monoxide (Total)	kg/h	0.42		
NOx (Total)	kg/h	0.556		

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

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

Network Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	2,258,355	2,710,026	pers/y
Delay (Total)	veh-h/y	2,798	3,357	pers-h/y
Effective Stops (Total)	veh/y	677,125	812,551	pers/y
Travel Distance (Total)	veh-km/y	1,315,036	1,578,043	pers-km/y
Travel Time (Total)	veh-h/y	29,551	35,461	pers-h/y

Cost (Total)	$/y	1,070,515	1,070,515 $/y
Fuel Consumption (Total)	L/y	105,547	
Carbon Dioxide (Total)	kg/y	249,332	
Hydrocarbons (Total)	kg/y	18	
Carbon Monoxide (Total)	kg/y	200	
NOx (Total)	kg/y	267	

1 Hours per Year: 480 (Network)

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NETWORK SUMMARY

Selected Routes

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2033+FU-AM SITE-WELLINGTON (Network Folder: 2033+BTG+DEV)]

New Network
Network Category: (None)
Design Life Analysis (Final Year): Results for 10 years

Output statistics for Approaches (All Movements) on the Selected Routes

Selected Routes	
Route ID	**Route Name**
R101	RHT FROM SITE ROUTE SOUTH
R101	LHT FROM SITE ROUTE NORTH

Network Performance by Routes - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS B		
Speed Efficiency		0.88		
Travel Time Index		8.68		
Congestion Coefficient		1.13		
Travel Speed (Average)	km/h	44.1	44.1	km/h
Travel Distance (Total)	veh-km/h	1191.6	1430.0	pers-km/h
Travel Time (Total)	veh-h/h	27.0	32.4	pers-h/h
Desired Speed	km/h	50.0		
Demand Flows (Total for all Sites)	veh/h	1527	1833	pers/h
Arrival Flows (Total for all Sites)	veh/h	1527	1833	pers/h
Demand Flows (Entry Total)	veh/h	113		
Midblock Inflows (Total)	veh/h	17		
Midblock Outflows (Total)	veh/h	-41		
Percent Heavy Vehicles (Demand)	%	1.8		
Percent Heavy Vehicles (Arrival)	%	1.8		
Degree of Saturation		0.710		
Control Delay (Total)	veh-h/h	2.81	3.38	pers-h/h
Control Delay (Average)	sec	6.6	6.6	sec
Control Delay (Worst Lane by MC)	sec	46.6		
Control Delay (Worst Movement by MC)	sec	61.1	61.1	sec
Geometric Delay (Average)	sec	2.1		
Stop-Line Delay (Average)	sec	4.5		
Ave. Que Storage Ratio (Worst Lane)		0.18		
Effective Stops (Total)	veh/h	558	669	pers/h
Effective Stop Rate		0.37	0.37	
Proportion Queued		0.40	0.41	
Performance Index		45.6	45.6	
Cost (Total)	$/h	976.32	1171.59	$/h
Fuel Consumption (Total)	L/h	91.7		
Fuel Economy	L/100km	7.7		
Carbon Dioxide (Total)	kg/h	216.9		
Hydrocarbons (Total)	kg/h	0.015		
Carbon Monoxide (Total)	kg/h	0.17		
NOx (Total)	kg/h	0.194		

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

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

Network Performance by Routes - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	733,147	879,776	pers/y
Delay (Total)	veh-h/y	1,351	1,621	pers-h/y
Effective Stops (Total)	veh/y	267,741	321,289	pers/y
Travel Distance (Total)	veh-km/y	571,988	686,386	pers-km/y
Travel Time (Total)	veh-h/y	12,977	15,573	pers-h/y
Cost (Total)	$/y	468,635	562,361	$/y
Fuel Consumption (Total)	L/y	44,022		
Carbon Dioxide (Total)	kg/y	104,112		
Hydrocarbons (Total)	kg/y	7		
Carbon Monoxide (Total)	kg/y	82		
NOx (Total)	kg/y	93		

1 Hours per Year: 480 (Network)

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INTERSECTION SUMMARY

Site: 101 [FUTURE AM: Auburn Road/ Site Access -2033 (Site Folder: 2033 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2033+FU-AM SITE-WELLINGTON (Network Folder: 2033+BTG+DEV)]

Development at 30-46 Auburn Road, Regents Park
Future Plus BTG 2033
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	41.8	41.8 km/h
Travel Distance (Total)	veh-km/h	409.6	491.6 pers-km/h
Travel Time (Total)	veh-h/h	9.8	11.8 pers-h/h
Desired Speed	km/h	50.0	
Speed Efficiency		0.84	
Travel Time Index		8.17	
Congestion Coefficient		1.20	
Demand Flows (Total)	veh/h	1489	1787 pers/h
Arrival Flows (Total)	veh/h	1489	1787 pers/h
Percent Heavy Vehicles (Demand)	%	2.5	
Percent Heavy Vehicles (Arrivals)	%	2.5	
Degree of Saturation		0.710	
Practical Spare Capacity	%	12.6	
Effective Intersection Capacity	veh/h	2096	
Control Delay (Total)	veh-h/h	1.59	1.90 pers-h/h
Control Delay (Average)	sec	3.8	3.8 sec
Control Delay (Worst Lane by MC)	sec	46.6	
Control Delay (Worst Movement by MC)	sec	61.1	61.1 sec
Geometric Delay (Average)	sec	0.5	
Stop-Line Delay (Average)	sec	3.3	
Idling Time (Average)	sec	2.7	
Intersection Level of Service (LOS)		NA	
Average Back of Queue - Veh (Worst Lane)	veh	1.3	
Average Back of Queue - Dist (Worst Lane)	m	9.1	
Ave. Que Storage Ratio (Worst Lane)		0.09	
Effective Stops (Total)	veh/h	169	203 pers/h
Effective Stop Rate		0.11	0.11
Proportion Queued		0.08	0.08
Performance Index		13.4	13.4
Cost (Total)	$/h	357.90	357.90 $/h
Fuel Consumption (Total)	L/h	31.5	
Carbon Dioxide (Total)	kg/h	74.2	
Hydrocarbons (Total)	kg/h	0.005	
Carbon Monoxide (Total)	kg/h	0.06	
NOx (Total)	kg/h	0.079	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 91.5% 70.6% 0.0%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	714,664	857,597	pers/y
Arrival Flows (Total)	veh/y	714,664		
Delay (Total)	veh-h/y	761	914	pers-h/y
Effective Stops (Total)	veh/y	81,253	97,504	pers/y
Travel Distance (Total)	veh-km/y	196,625	235,950	pers-km/y
Travel Time (Total)	veh-h/y	4,706	5,648	pers-h/y
Cost (Total)	$/y	171,790	171,790	$/y
Fuel Consumption (Total)	L/y	15,107		
Carbon Dioxide (Total)	kg/y	35,620		
Hydrocarbons (Total)	kg/y	2		
Carbon Monoxide (Total)	kg/y	28		
NOx (Total)	kg/y	38		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 101 [FUTURE AM: Auburn Road/ Site Access -2033 (Site Folder: 2033 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2033+FU-AM SITE-WELLINGTON (Network Folder: 2033+BTG+DEV)]

Development at 30-46 Auburn Road, Regents Park
Future Plus BTG 2033
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Auburn Road South															
1	L2	All MCs	22	0.0	22	0.0	0.012	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	35.5
2	T1	All MCs	758	1.9	758	1.9	0.393	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach			780	1.9	780	1.9	0.393	0.2	NA	0.0	0.0	0.00	0.02	0.00	48.7
North: Auburn Road North															
8	T1	All MCs	569	4.0	569	4.0	0.299	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
9	R2	All MCs	27	0.0	27	0.0	0.051	9.9	LOS A	0.1	0.5	0.64	0.81	0.64	39.5
Approach			596	3.8	596	3.8	0.299	0.6	NA	0.1	0.5	0.03	0.04	0.03	49.1
West: Site Access															
10	L2	All MCs	48	0.0	48	0.0	0.710	27.5	LOS D	1.3	9.1	0.95	1.20	1.71	7.6
12	R2	All MCs	64	0.0	64	0.0	0.710	61.1	LOS F[11]	1.3	9.1	0.95	1.20	1.71	7.6
Approach			113	0.0	113	0.0	0.710	46.6	LOS E[11]	1.3	9.1	0.95	1.20	1.71	7.6
All Vehicles			1489	2.5	1489	2.5	0.710	3.8	NA	1.3	9.1	0.08	0.11	0.14	41.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

INTERSECTION SUMMARY

Site: 101 [FUTURE AM: Auburn Road/ North Site Access -2033 2 (Site Folder: 2033 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2033+FU-AM SITE-WELLINGTON (Network Folder: 2033+BTG+DEV)]

Development at 30-46 Auburn Road, Regents Park
Future Plus BTG 2033
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	49.7	49.7 km/h
Travel Distance (Total)	veh-km/h	1067.8	1281.3 pers-km/h
Travel Time (Total)	veh-h/h	21.5	25.8 pers-h/h
Desired Speed	km/h	50.0	
Speed Efficiency		0.99	
Travel Time Index		9.93	
Congestion Coefficient		1.01	
Demand Flows (Total)	veh/h	1347	1616 pers/h
Arrival Flows (Total)	veh/h	1347	1616 pers/h
Percent Heavy Vehicles (Demand)	%	2.7	
Percent Heavy Vehicles (Arrivals)	%	2.7	
Degree of Saturation		0.397	
Practical Spare Capacity	%	146.6	
Effective Intersection Capacity	veh/h	3389	
Control Delay (Total)	veh-h/h	0.09	0.11 pers-h/h
Control Delay (Average)	sec	0.2	0.2 sec
Control Delay (Worst Lane by MC)	sec	8.3	
Control Delay (Worst Movement by MC)	sec	8.3	8.3 sec
Geometric Delay (Average)	sec	0.1	
Stop-Line Delay (Average)	sec	0.2	
Idling Time (Average)	sec	0.0	
Intersection Level of Service (LOS)		NA	
Average Back of Queue - Veh (Worst Lane)	veh	0.0	
Average Back of Queue - Dist (Worst Lane)	m	0.2	
Ave. Que Storage Ratio (Worst Lane)		0.00	
Effective Stops (Total)	veh/h	13	16 pers/h
Effective Stop Rate		0.01	0.01
Proportion Queued		0.01	0.01
Performance Index		21.5	21.5
Cost (Total)	$/h	782.73	782.73 $/h
Fuel Consumption (Total)	L/h	68.2	
Carbon Dioxide (Total)	kg/h	161.3	
Hydrocarbons (Total)	kg/h	0.010	
Carbon Monoxide (Total)	kg/h	0.12	
NOx (Total)	kg/h	0.154	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 62.9% 0.0% 0.0%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	646,393	775,672	pers/y
Arrival Flows (Total)	veh/y	646,393		
Delay (Total)	veh-h/y	43	51	pers-h/y
Effective Stops (Total)	veh/y	6,260	7,512	pers/y
Travel Distance (Total)	veh-km/y	512,524	615,029	pers-km/y
Travel Time (Total)	veh-h/y	10,314	12,377	pers-h/y
Cost (Total)	$/y	375,709	375,709	$/y
Fuel Consumption (Total)	L/y	32,752		
Carbon Dioxide (Total)	kg/y	77,429		
Hydrocarbons (Total)	kg/y	5		
Carbon Monoxide (Total)	kg/y	60		
NOx (Total)	kg/y	74		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 101 [FUTURE AM: Auburn Road/ North Site Access -2033 2 (Site Folder: 2033 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2033+FU-AM SITE-WELLINGTON (Network Folder: 2033+BTG+DEV)]

Development at 30-46 Auburn Road, Regents Park
Future Plus BTG 2033
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Auburn Road South															
1	L2	All MCs	7	0.0	7	0.0	0.397	4.7	LOS A	0.0	0.0	0.00	0.01	0.00	47.8
2	T1	All MCs	758	1.9	758	1.9	0.397	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	49.8
Approach			765	1.9	765	1.9	0.397	0.2	NA	0.0	0.0	0.00	0.01	0.00	49.7
North: Auburn Road North															
8	T1	All MCs	569	4.0	569	4.0	0.299	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach			569	4.0	569	4.0	0.299	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Site Access															
10	L2	All MCs	13	0.0	13	0.0	0.018	8.3	LOS A	0.0	0.2	0.58	0.71	0.58	40.7
Approach			13	0.0	13	0.0	0.018	8.3	LOS A	0.0	0.2	0.58	0.71	0.58	40.7
All Vehicles			1347	2.7	1347	2.7	0.397	0.2	NA	0.0	0.2	0.01	0.01	0.01	49.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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NETWORK SUMMARY

Network: N101 [2033+FU-PM SITE-WELLINGTON (Network Folder: 2033+BTG+DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network
Network Category: (None)
Design Life Analysis (Final Year): Results for 10 years

Network Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS A		
Speed Efficiency		0.92		
Travel Time Index		9.13		
Congestion Coefficient		1.09		
Travel Speed (Average)	km/h	46.1	46.1	km/h
Travel Distance (Total)	veh-km/h	2757.0	3308.4	pers-km/h
Travel Time (Total)	veh-h/h	59.8	71.8	pers-h/h
Desired Speed	km/h	50.0		
Demand Flows (Total for all Sites)	veh/h	4502	5402	pers/h
Arrival Flows (Total for all Sites)	veh/h	4502	5402	pers/h
Demand Flows (Entry Total)	veh/h	1703		
Midblock Inflows (Total)	veh/h	354		
Midblock Outflows (Total)	veh/h	0		
Percent Heavy Vehicles (Demand)	%	2.0		
Percent Heavy Vehicles (Arrival)	%	2.0		
Degree of Saturation		0.634		
Control Delay (Total)	veh-h/h	3.66	4.39	pers-h/h
Control Delay (Average)	sec	2.9	2.9	sec
Control Delay (Worst Lane by MC)	sec	24.4		
Control Delay (Worst Movement by MC)	sec	34.3	34.3	sec
Geometric Delay (Average)	sec	1.8		
Stop-Line Delay (Average)	sec	1.1		
Ave. Que Storage Ratio (Worst Lane)		0.17		
Effective Stops (Total)	veh/h	1144	1373	pers/h
Effective Stop Rate		0.25	0.25	
Proportion Queued		0.28	0.28	
Performance Index		96.1	96.1	
Cost (Total)	$/h	2162.41	2162.41	$/h
Fuel Consumption (Total)	L/h	210.9		
Fuel Economy	L/100km	7.6		
Carbon Dioxide (Total)	kg/h	497.7		
Hydrocarbons (Total)	kg/h	0.035		
Carbon Monoxide (Total)	kg/h	0.40		
NOx (Total)	kg/h	0.450		

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

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

Network Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	2,160,768	2,592,922	pers/y
Delay (Total)	veh-h/y	1,756	2,107	pers-h/y
Effective Stops (Total)	veh/y	549,143	658,971	pers/y
Travel Distance (Total)	veh-km/y	1,323,354	1,588,025	pers-km/y
Travel Time (Total)	veh-h/y	28,720	34,464	pers-h/y

Cost (Total)	$/y	1,037,957	1,037,957 $/y
Fuel Consumption (Total)	L/y	101,228	
Carbon Dioxide (Total)	kg/y	238,914	
Hydrocarbons (Total)	kg/y	17	
Carbon Monoxide (Total)	kg/y	191	
NOx (Total)	kg/y	216	

1 Hours per Year: 480 (Network)

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NETWORK SUMMARY

Selected Routes

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2033+FU-PM SITE-WELLINGTON (Network Folder: 2033+BTG+DEV)]

New Network
Network Category: (None)
Design Life Analysis (Final Year): Results for 10 years

Output statistics for Approaches (All Movements) on the Selected Routes

Selected Routes	
Route ID	**Route Name**
R101	RHT FROM SITE ROUTE SOUTH
R101	LHT FROM SITE ROUTE NORTH

Network Performance by Routes - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS A		
Speed Efficiency		0.92		
Travel Time Index		9.15		
Congestion Coefficient		1.08		
Travel Speed (Average)	km/h	46.2	46.2	km/h
Travel Distance (Total)	veh-km/h	1211.7	1454.1	pers-km/h
Travel Time (Total)	veh-h/h	26.2	31.5	pers-h/h
Desired Speed	km/h	50.0		
Demand Flows (Total for all Sites)	veh/h	1497	1796	pers/h
Arrival Flows (Total for all Sites)	veh/h	1497	1796	pers/h
Demand Flows (Entry Total)	veh/h	36		
Midblock Inflows (Total)	veh/h	205		
Midblock Outflows (Total)	veh/h	0		
Percent Heavy Vehicles (Demand)	%	1.5		
Percent Heavy Vehicles (Arrival)	%	1.5		
Degree of Saturation		0.634		
Control Delay (Total)	veh-h/h	1.51	1.82	pers-h/h
Control Delay (Average)	sec	3.6	3.6	sec
Control Delay (Worst Lane by MC)	sec	24.4		
Control Delay (Worst Movement by MC)	sec	34.3	34.3	sec
Geometric Delay (Average)	sec	2.0		
Stop-Line Delay (Average)	sec	1.6		
Ave. Que Storage Ratio (Worst Lane)		0.17		
Effective Stops (Total)	veh/h	446	535	pers/h
Effective Stop Rate		0.30	0.30	
Proportion Queued		0.36	0.36	
Performance Index		41.3	41.3	
Cost (Total)	$/h	946.35	1135.62	$/h
Fuel Consumption (Total)	L/h	89.3		
Fuel Economy	L/100km	7.4		
Carbon Dioxide (Total)	kg/h	211.1		
Hydrocarbons (Total)	kg/h	0.014		
Carbon Monoxide (Total)	kg/h	0.17		
NOx (Total)	kg/h	0.168		

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

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

Network Performance by Routes - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	718,525	862,230	pers/y
Delay (Total)	veh-h/y	726	872	pers-h/y
Effective Stops (Total)	veh/y	214,174	257,009	pers/y
Travel Distance (Total)	veh-km/y	581,637	697,964	pers-km/y
Travel Time (Total)	veh-h/y	12,595	15,114	pers-h/y
Cost (Total)	$/y	454,247	545,096	$/y
Fuel Consumption (Total)	L/y	42,884		
Carbon Dioxide (Total)	kg/y	101,340		
Hydrocarbons (Total)	kg/y	7		
Carbon Monoxide (Total)	kg/y	80		
NOx (Total)	kg/y	81		

1 Hours per Year: 480 (Network)

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INTERSECTION SUMMARY

Site: 101 [FUTURE PM: Auburn Road/ Site Access - 2033 (Site Folder: 2033 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2033+FU-PM SITE-WELLINGTON (Network Folder: 2033+BTG+DEV)]

Development at 30-46 Auburn Road, Regents Park
Future Plus BTG 2033
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	47.2	47.2 km/h
Travel Distance (Total)	veh-km/h	449.3	539.2 pers-km/h
Travel Time (Total)	veh-h/h	9.5	11.4 pers-h/h
Desired Speed	km/h	50.0	
Speed Efficiency		0.94	
Travel Time Index		9.38	
Congestion Coefficient		1.06	
Demand Flows (Total)	veh/h	1373	1648 pers/h
Arrival Flows (Total)	veh/h	1373	1648 pers/h
Percent Heavy Vehicles (Demand)	%	2.0	
Percent Heavy Vehicles (Arrivals)	%	2.0	
Degree of Saturation		0.345	
Practical Spare Capacity	%	184.4	
Effective Intersection Capacity	veh/h	3986	
Control Delay (Total)	veh-h/h	0.47	0.56 pers-h/h
Control Delay (Average)	sec	1.2	1.2 sec
Control Delay (Worst Lane by MC)	sec	24.4	
Control Delay (Worst Movement by MC)	sec	34.3	34.3 sec
Geometric Delay (Average)	sec	0.5	
Stop-Line Delay (Average)	sec	0.7	
Idling Time (Average)	sec	0.5	
Intersection Level of Service (LOS)		NA	
Average Back of Queue - Veh (Worst Lane)	veh	0.3	
Average Back of Queue - Dist (Worst Lane)	m	1.8	
Ave. Que Storage Ratio (Worst Lane)		0.02	
Effective Stops (Total)	veh/h	106	128 pers/h
Effective Stop Rate		0.08	0.08
Proportion Queued		0.04	0.04
Performance Index		10.7	10.7
Cost (Total)	$/h	348.93	348.93 $/h
Fuel Consumption (Total)	L/h	31.3	
Carbon Dioxide (Total)	kg/h	73.7	
Hydrocarbons (Total)	kg/h	0.005	
Carbon Monoxide (Total)	kg/h	0.06	
NOx (Total)	kg/h	0.063	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 90.1% 61.6% 0.0%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	659,267	791,121	pers/y
Arrival Flows (Total)	veh/y	659,267		
Delay (Total)	veh-h/y	225	270	pers-h/y
Effective Stops (Total)	veh/y	51,020	61,223	pers/y
Travel Distance (Total)	veh-km/y	215,678	258,814	pers-km/y
Travel Time (Total)	veh-h/y	4,568	5,481	pers-h/y
Cost (Total)	$/y	167,485	167,485	$/y
Fuel Consumption (Total)	L/y	15,009		
Carbon Dioxide (Total)	kg/y	35,357		
Hydrocarbons (Total)	kg/y	2		
Carbon Monoxide (Total)	kg/y	28		
NOx (Total)	kg/y	30		

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 101 [FUTURE PM: Auburn Road/ Site Access - 2033 (Site Folder: 2033 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2033+FU-PM SITE-WELLINGTON (Network Folder: 2033+BTG+DEV)]

Development at 30-46 Auburn Road, Regents Park
Future Plus BTG 2033
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Auburn Road South															
1	L2	All MCs	67	0.0	67	0.0	0.036	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	35.5
2	T1	All MCs	560	1.8	560	1.8	0.290	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach			627	1.6	627	1.6	0.290	0.5	NA	0.0	0.0	0.00	0.06	0.00	46.3
North: Auburn Road North															
8	T1	All MCs	661	2.6	661	2.6	0.345	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
9	R2	All MCs	51	0.0	51	0.0	0.072	8.1	LOS A	0.1	0.7	0.56	0.74	0.56	40.7
Approach			711	2.4	711	2.4	0.345	0.7	NA	0.1	0.7	0.04	0.05	0.04	48.9
West: Site Access															
10	L2	All MCs	14	0.0	14	0.0	0.194	8.3	LOS A	0.3	1.8	0.84	0.94	0.88	12.7
12	R2	All MCs	22	0.0	22	0.0	0.194	34.3	LOS D	0.3	1.8	0.84	0.94	0.88	12.7
Approach			36	0.0	36	0.0	0.194	24.4	LOS C	0.3	1.8	0.84	0.94	0.88	12.7
All Vehicles			1373	2.0	1373	2.0	0.345	1.2	NA	0.3	1.8	0.04	0.08	0.04	47.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

INTERSECTION SUMMARY

Site: 101 [FUTURE PM: Auburn Road/ North Site Access -2033 2 (Site Folder: 2033 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2033+FU-PM SITE-WELLINGTON (Network Folder: 2033+BTG+DEV)]

Development at 30-46 Auburn Road, Regents Park
Future Plus BTG 2033
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	49.7	49.7 km/h
Travel Distance (Total)	veh-km/h	1062.6	1275.1 pers-km/h
Travel Time (Total)	veh-h/h	21.4	25.6 pers-h/h
Desired Speed	km/h	50.0	
Speed Efficiency		0.99	
Travel Time Index		9.94	
Congestion Coefficient		1.01	
Demand Flows (Total)	veh/h	1338	1606 pers/h
Arrival Flows (Total)	veh/h	1338	1606 pers/h
Percent Heavy Vehicles (Demand)	%	2.8	
Percent Heavy Vehicles (Arrivals)	%	2.8	
Degree of Saturation		0.397	
Practical Spare Capacity	%	146.6	
Effective Intersection Capacity	veh/h	3367	
Control Delay (Total)	veh-h/h	0.07	0.08 pers-h/h
Control Delay (Average)	sec	0.2	0.2 sec
Control Delay (Worst Lane by MC)	sec	8.2	
Control Delay (Worst Movement by MC)	sec	8.2	8.2 sec
Geometric Delay (Average)	sec	0.0	
Stop-Line Delay (Average)	sec	0.1	
Idling Time (Average)	sec	0.0	
Intersection Level of Service (LOS)		NA	
Average Back of Queue - Veh (Worst Lane)	veh	0.0	
Average Back of Queue - Dist (Worst Lane)	m	0.1	
Ave. Que Storage Ratio (Worst Lane)		0.00	
Effective Stops (Total)	veh/h	7	8 pers/h
Effective Stop Rate		0.01	0.01
Proportion Queued		0.00	0.00
Performance Index		21.4	21.4
Cost (Total)	$/h	777.96	777.96 $/h
Fuel Consumption (Total)	L/h	67.8	
Carbon Dioxide (Total)	kg/h	160.2	
Hydrocarbons (Total)	kg/h	0.010	
Carbon Monoxide (Total)	kg/h	0.12	
NOx (Total)	kg/h	0.154	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
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.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 0.0 %
Number of Iterations: 3 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 62.9% 0.0% 0.0%

Intersection Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total)	veh/y	642,351	770,821 pers/y
Arrival Flows (Total)	veh/y	642,351	
Delay (Total)	veh-h/y	33	40 pers-h/y
Effective Stops (Total)	veh/y	3,284	3,940 pers/y
Travel Distance (Total)	veh-km/y	510,035	612,043 pers-km/y
Travel Time (Total)	veh-h/y	10,253	12,304 pers-h/y
Cost (Total)	$/y	373,421	373,421 $/y
Fuel Consumption (Total)	L/y	32,531	
Carbon Dioxide (Total)	kg/y	76,910	
Hydrocarbons (Total)	kg/y	5	
Carbon Monoxide (Total)	kg/y	59	
NOx (Total)	kg/y	74	

1 Hours per Year: 480 (Network)

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MOVEMENT SUMMARY

Site: 101 [FUTURE PM: Auburn Road/ North Site Access -2033 2 (Site Folder: 2033 + FUTURE DEV)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2033+FU-PM SITE-WELLINGTON (Network Folder: 2033+BTG+DEV)]

Development at 30-46 Auburn Road, Regents Park
Future Plus BTG 2033
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

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	Aver. Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Auburn Road South															
1	L2	All MCs	7	0.0	7	0.0	0.397	4.7	LOS A	0.0	0.0	0.00	0.01	0.00	47.8
2	T1	All MCs	758	1.9	758	1.9	0.397	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	49.8
Approach			765	1.9	765	1.9	0.397	0.2	NA	0.0	0.0	0.00	0.01	0.00	49.7
North: Auburn Road North															
8	T1	All MCs	569	4.0	569	4.0	0.299	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach			569	4.0	569	4.0	0.299	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Site Access															
10	L2	All MCs	4	0.0	4	0.0	0.006	8.2	LOS A	0.0	0.1	0.58	0.66	0.58	40.8
Approach			4	0.0	4	0.0	0.006	8.2	LOS A	0.0	0.1	0.58	0.66	0.58	40.8
All Vehicles			1338	2.8	1338	2.8	0.397	0.2	NA	0.0	0.1	0.00	0.01	0.00	49.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data 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.

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