

SSD-57703458 - STAGE 3 BUILDING C
TRAFFIC IMPACT ASSESSMENT
AFFORDABLE HOUSING DEVELOPMENT
AT
30 - 46 AUBURN ROAD, REGENTS PARK.

REV C



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- Tuesday 01/08/2023 between 4 - 6 pm
- Wednesday 02/08/2023 between 7 - 9 am

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- Intersection of Auburn Road/Morris Street
- Intersection of Auburn Road/Magney Reserve
- Intersection of Auburn Road/Gunya Street

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- **Drawing No 1160-8-23 Figure 1 Level C0 Car parking layout. Ground floor and swept paths for B99 and B85**
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- **Existing SIDRA Analysis 2023**
- **Existing Plus Background Traffic Growth to 2033**

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- **Travel Time Surveys**

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- **STFM (Sydney GMA Strategic Traffic Forecasting Model 2021) Growth Data from TfNSW**

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- **Childcare Centre Data**

APPENDIX J

- **Report 12/23 Rev A Green Travel Plan for Stage 3 Development Works for Affordable Housing Development at 30-46 Auburn Road Regents Park.**

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- **Email from NSW Fire & Rescue dated 09/05/20**

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- **Supplementary Report Traffic Impact Assessment Report For Affordable Housing Mixed Use Development-SSD-20724880 May 2024**

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 21,170m².

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.

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: -

- o *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.*
- o *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: -

- o 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: -

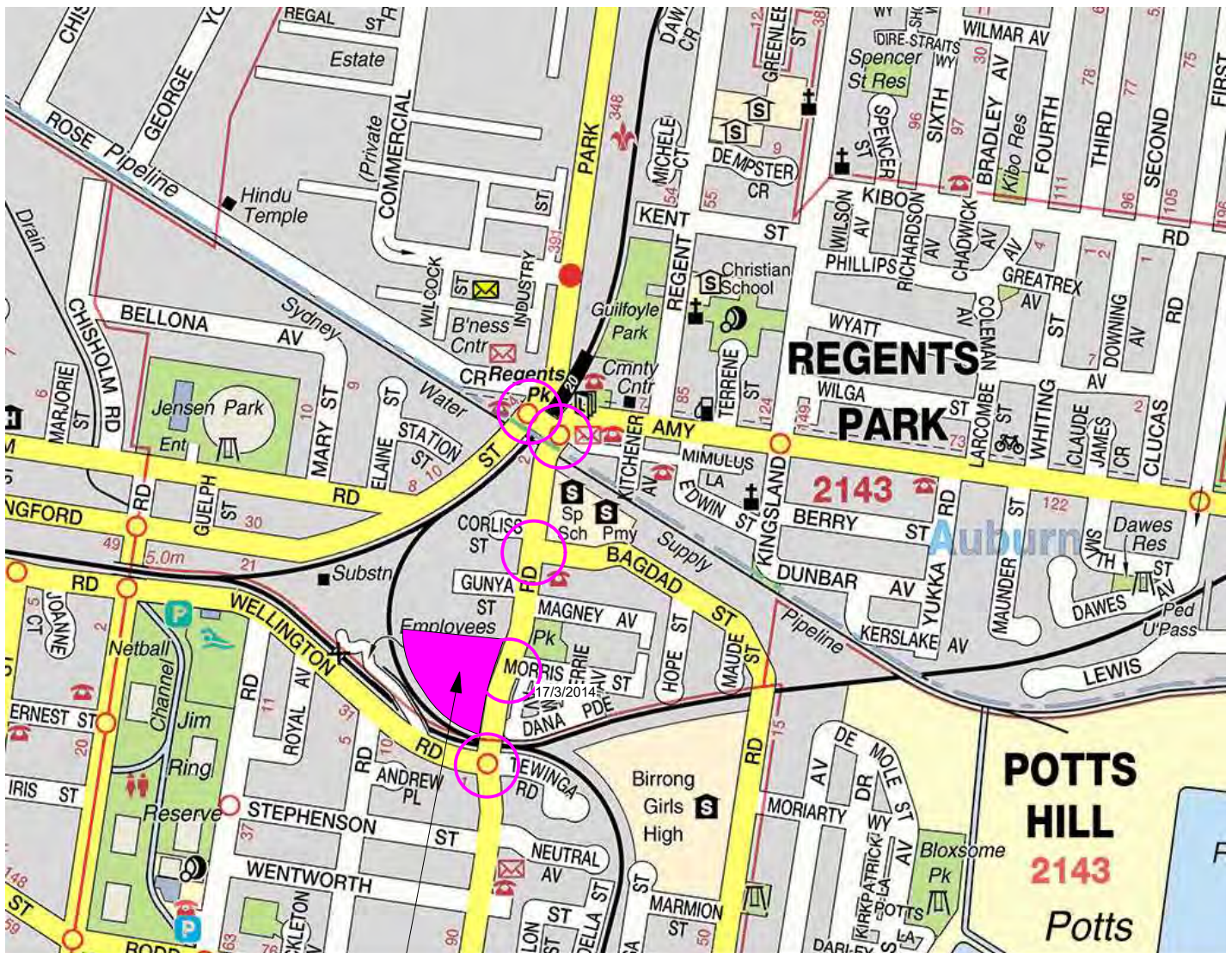
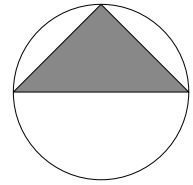
- o Provide a Transport Impact Assessment (TIA) in accordance with the processes and methodology recommended in the Guide to Transport Impact Assessment (GITA) published by TfNSW.
- o If the construction of the development would cause interruptions to regular pedestrian and transport routes (including 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



SUBJECT SITE
30-46 AUBURN ROAD
REGENTS PARK



TRAFFIC COUNT LOCATIONS 23/2/2023

FIGURE 1
LOCALITY MAP

2.0 EXISTING TRAFFIC CONDITIONS

2.1 Site Description

The Site Area is 21,170m² 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 21,170m² 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 5735m². 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

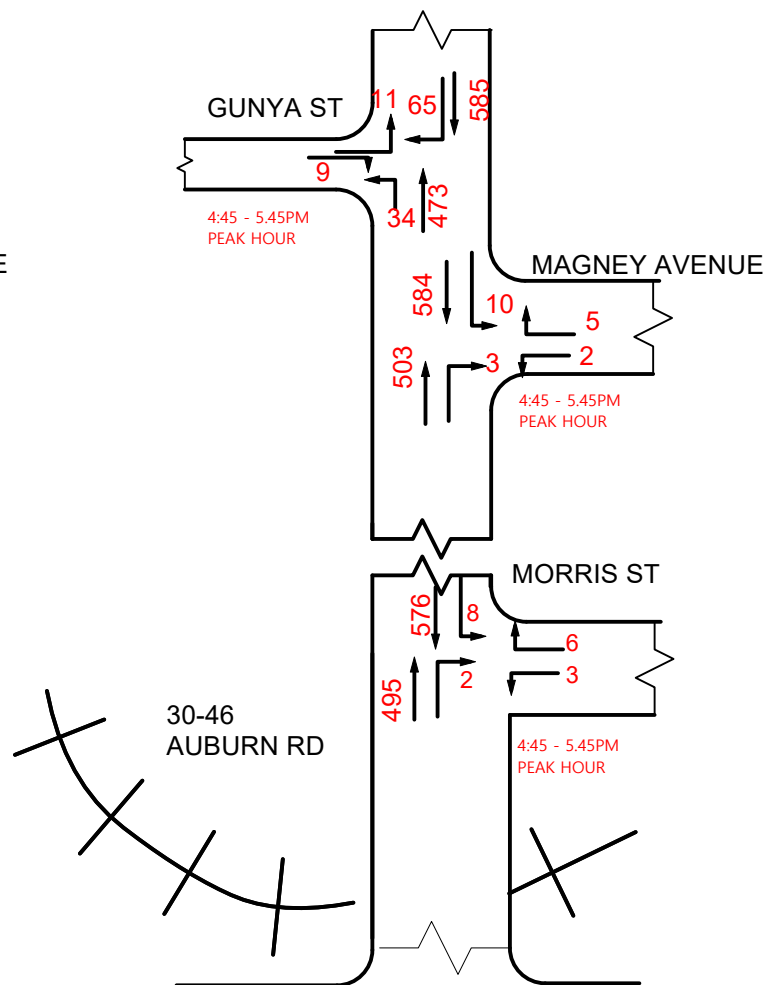
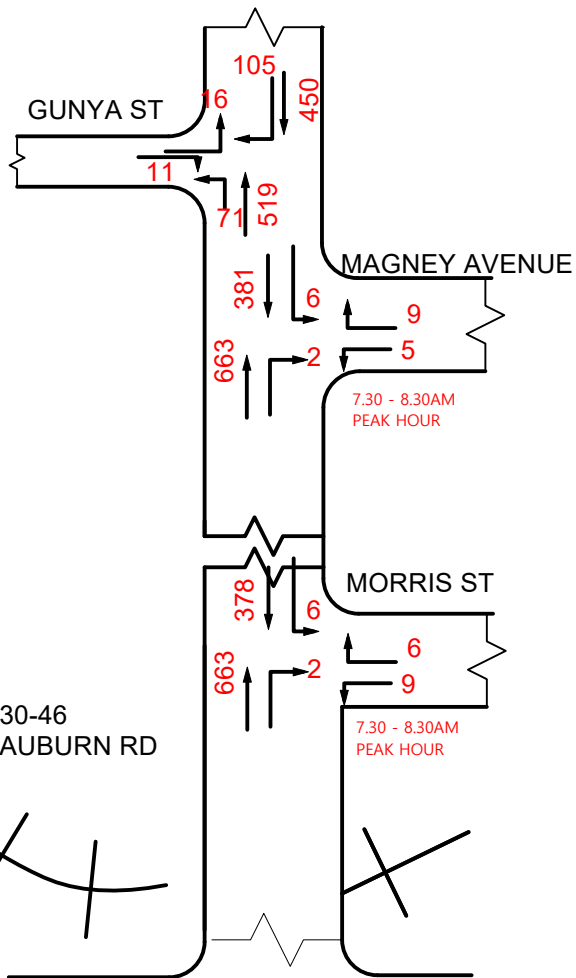
The existing road network surrounding the site including the key intersections is illustrated in **Figures 2E1 and 2F1** and **Figure 2E2** and **Figure 2F2**.

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.

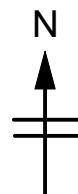
Brunker Road/Ferrier Road – is an east west collector road route travelling from Hume Highway to the east, crossing Auburn Road and connecting to Rose Street to the West.



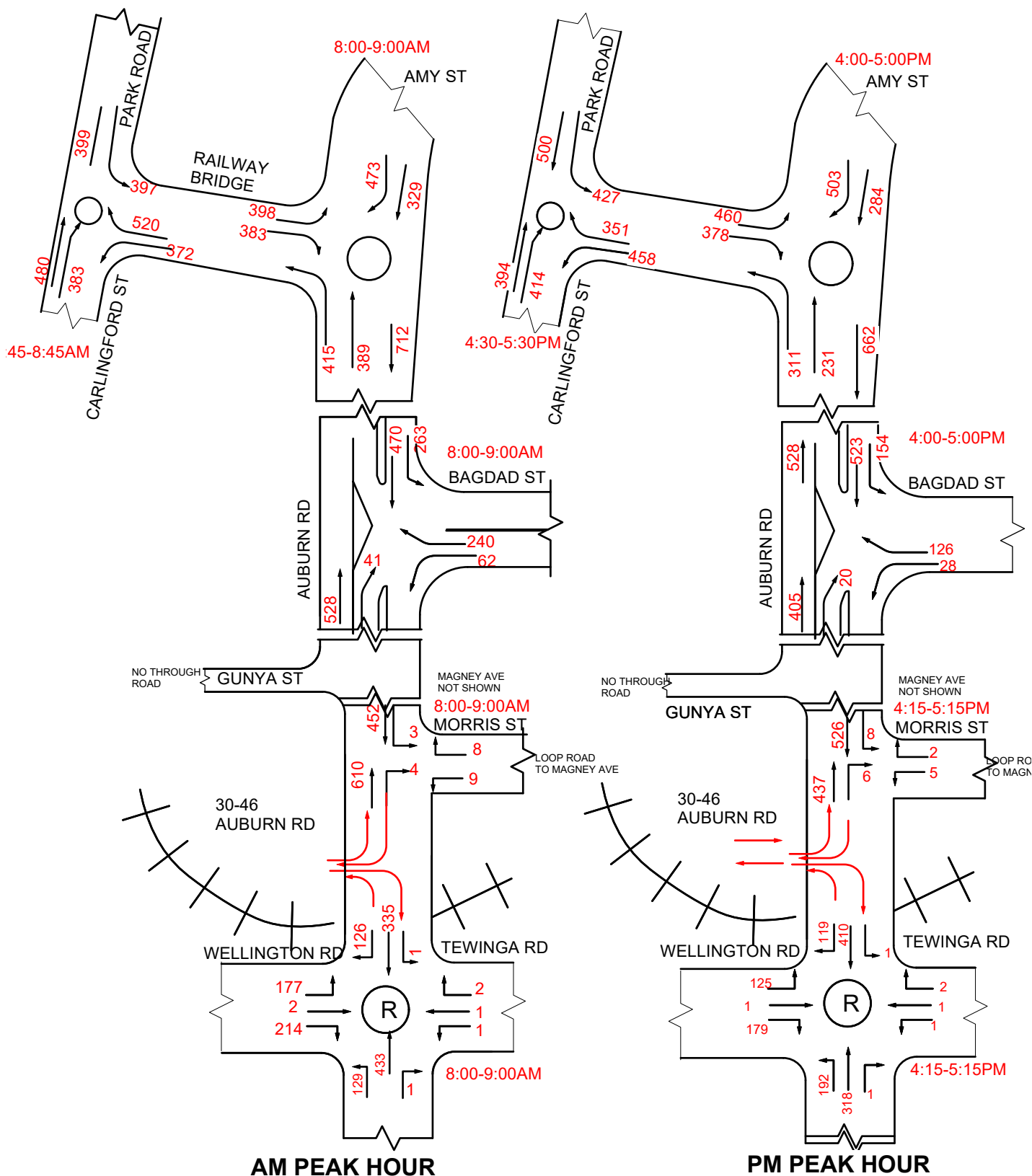
LEGEND

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

EXISTING PEAK HOUR VOLUMES
WED 6/3/2024



FIGURES 2E1 + 2F1



(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

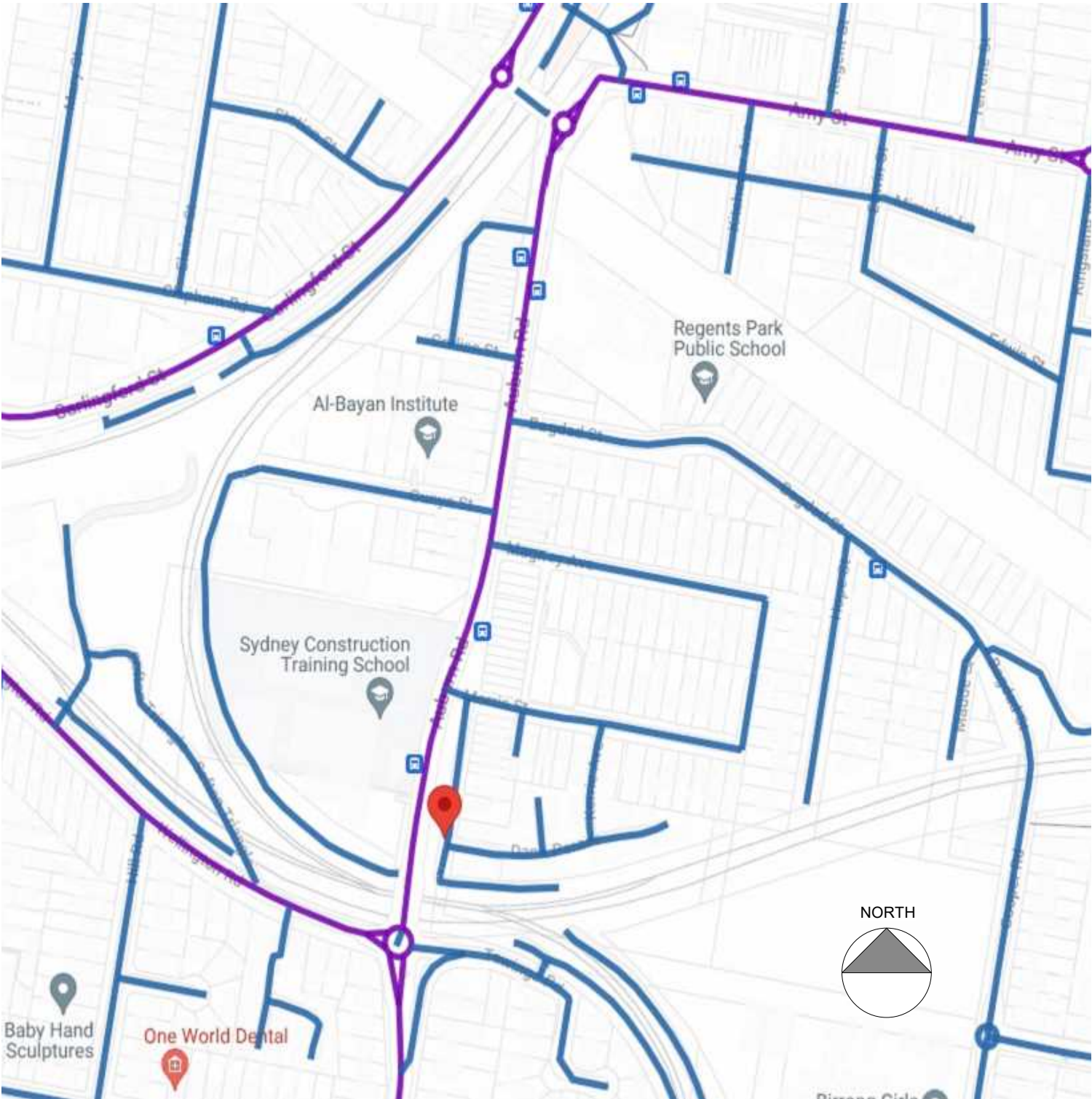
Updated traffic count data is included in **Appendix B** and **C**.

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 = Giveaway, 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

Mode	Auburn Road	
	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

Mode	Auburn Road	
	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

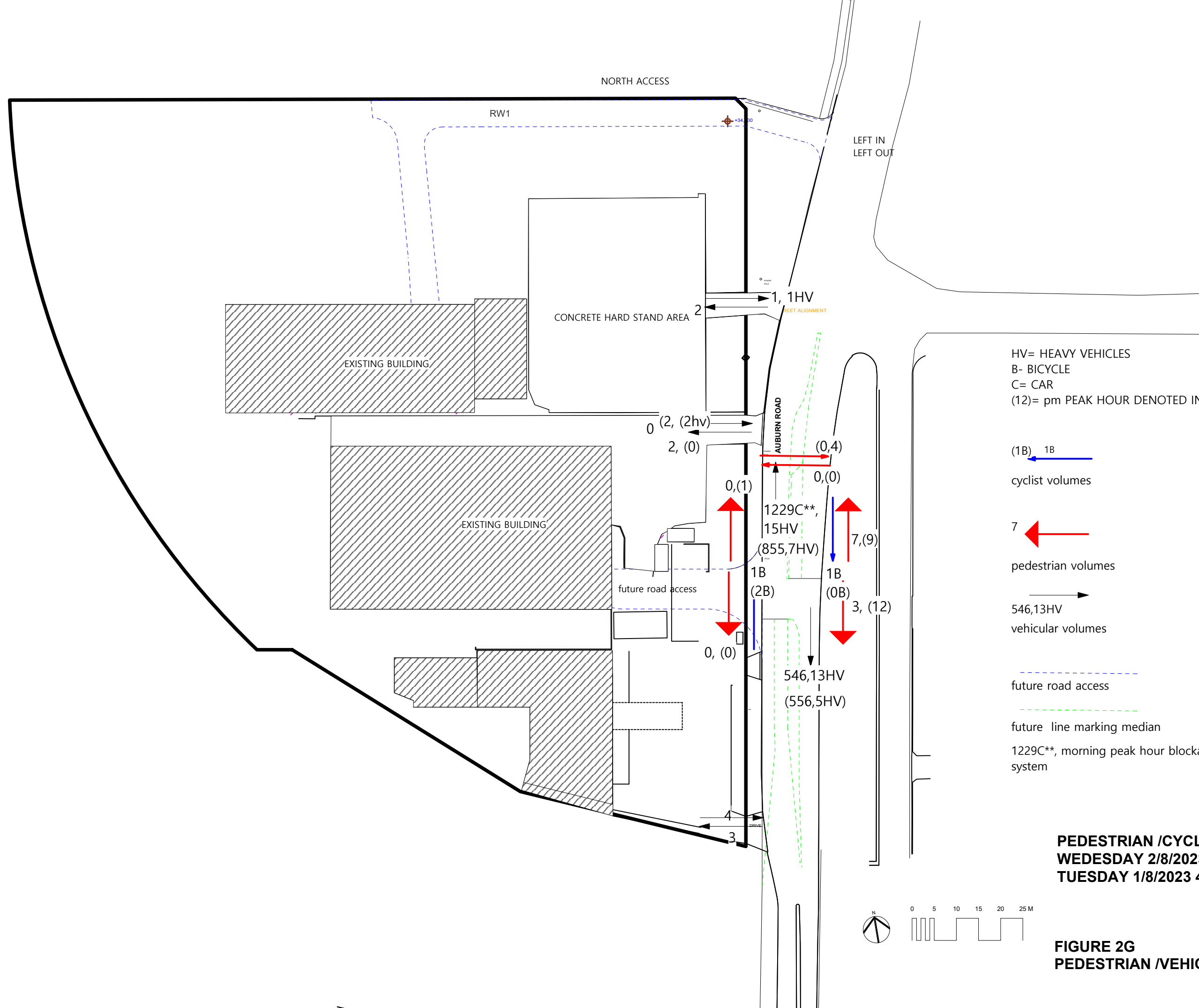
Note*: Volumes northbound 453 and 586 southbound. See **Table 2.5.2c**.

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**.



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

(1B) 1B
 cyclist volumes

7
 pedestrian volumes

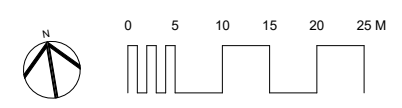
546, 13HV
 vehicular volumes

future road access

future line marking median

1229C**, morning peak hour blockage in system

**PEDESTRIAN /CYCLIST AND VEHICLE COUNT
 WEDNESDAY 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**

AMPeak 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				

PMPeak 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				

AMPeak 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				

PMPeak 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				

AMPeak 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				

PMPeak 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.

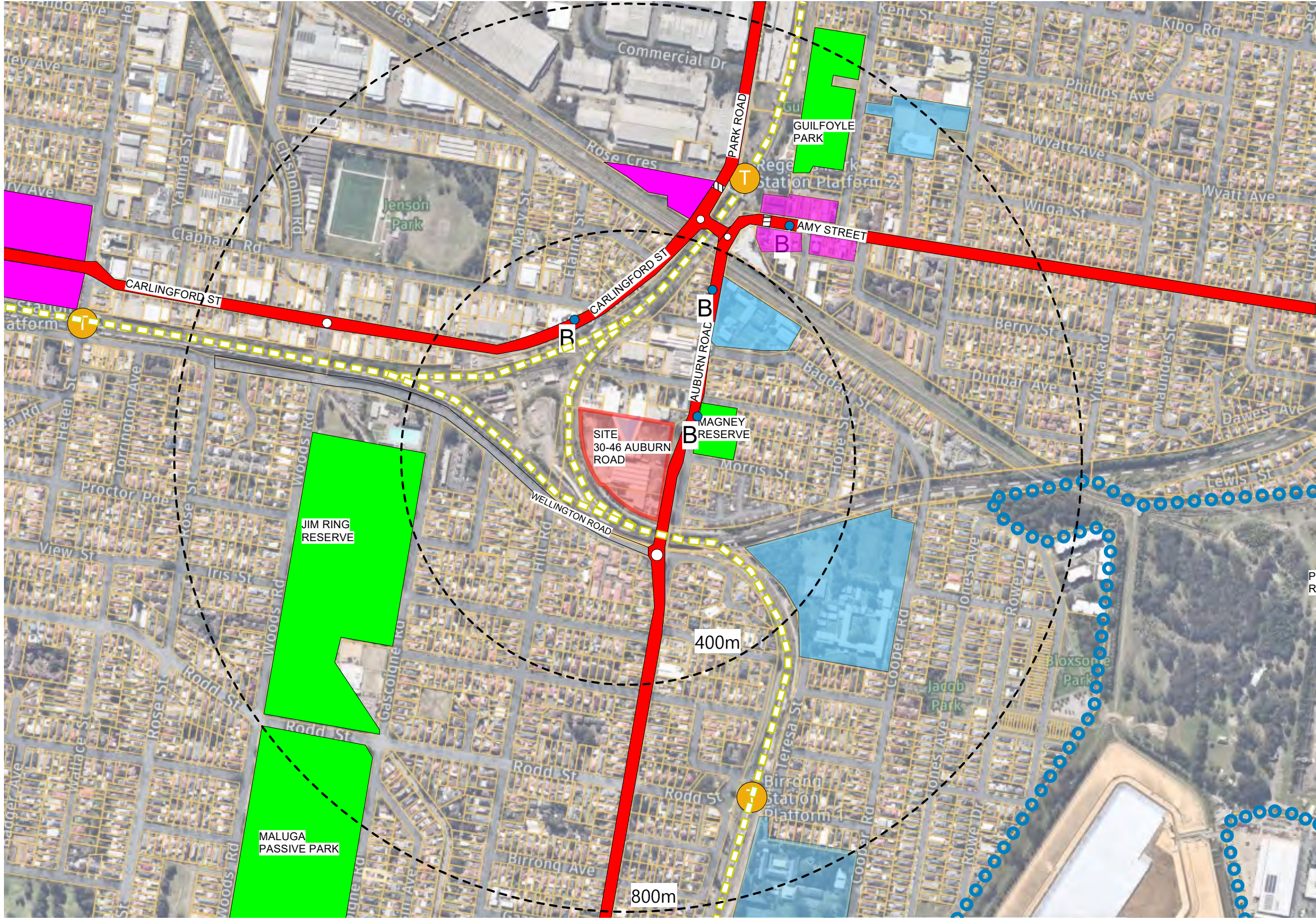
The site location with respect to the railway stations as shown in **Figure 2H**. The site is a 7 minute walk to Regents Park Railway Station.

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.



LEGEND

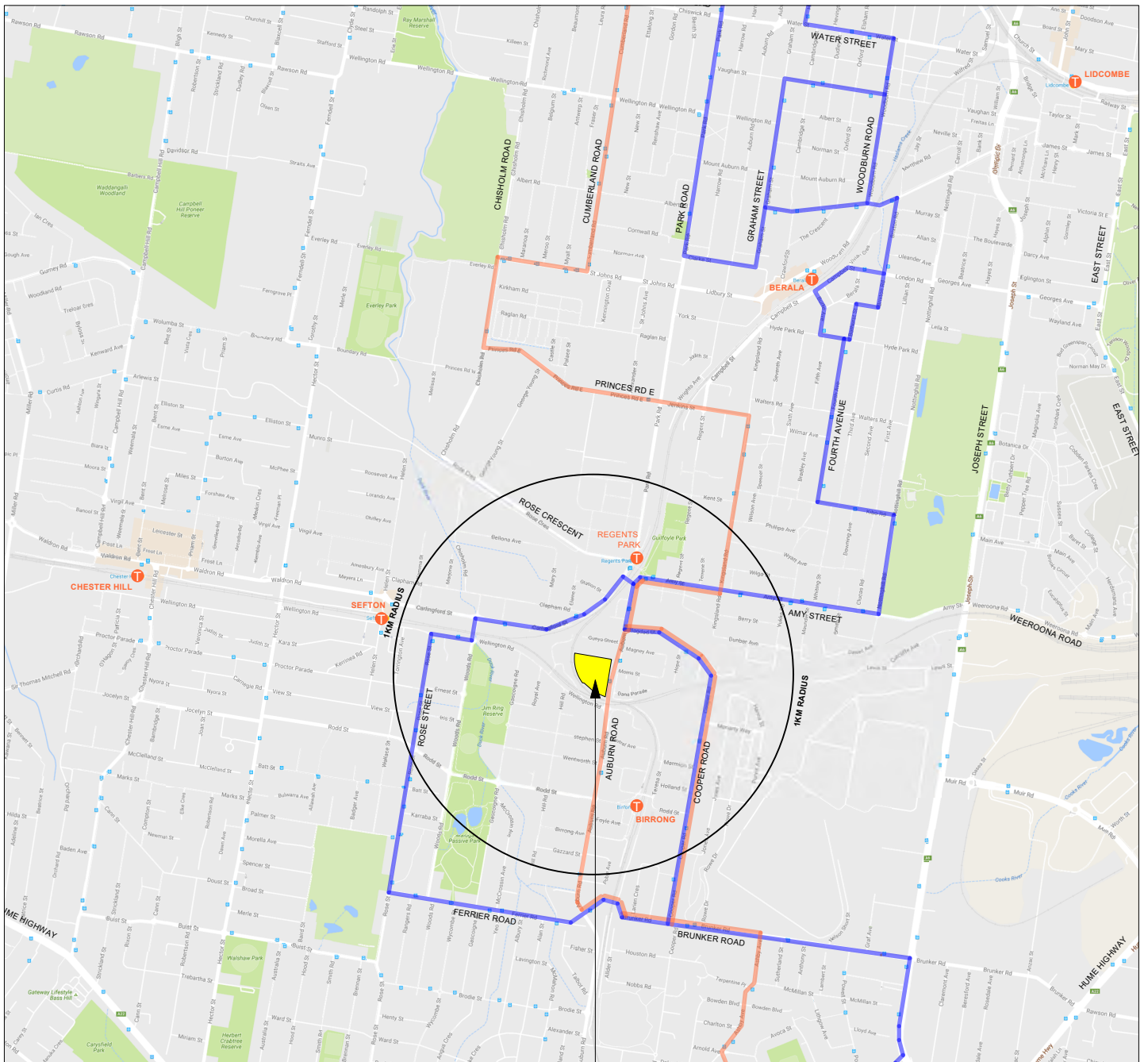
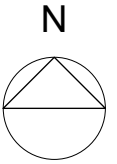
- POTTS HILL RESERVIOR
- REGIONAL ROAD
- PARKS
- TRAIN STATION
- TRAIN LINE
- BUS STOP
- ROUNDABOUT
- SCHOOL
- TOWN CENTRE
- PED CROSSING
- SITE

POTTS HILL
RESERVIOR

NORTH

SOURCE NEARMAP

FIGURE 2H 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

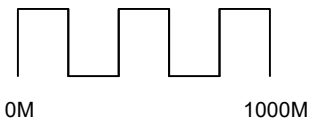


FIGURE 21
MAP OF EXISTING BUS ROUTES WITHIN 1KM OF
30 - 46 AUBURN ROAD, REGENTS PARK

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.

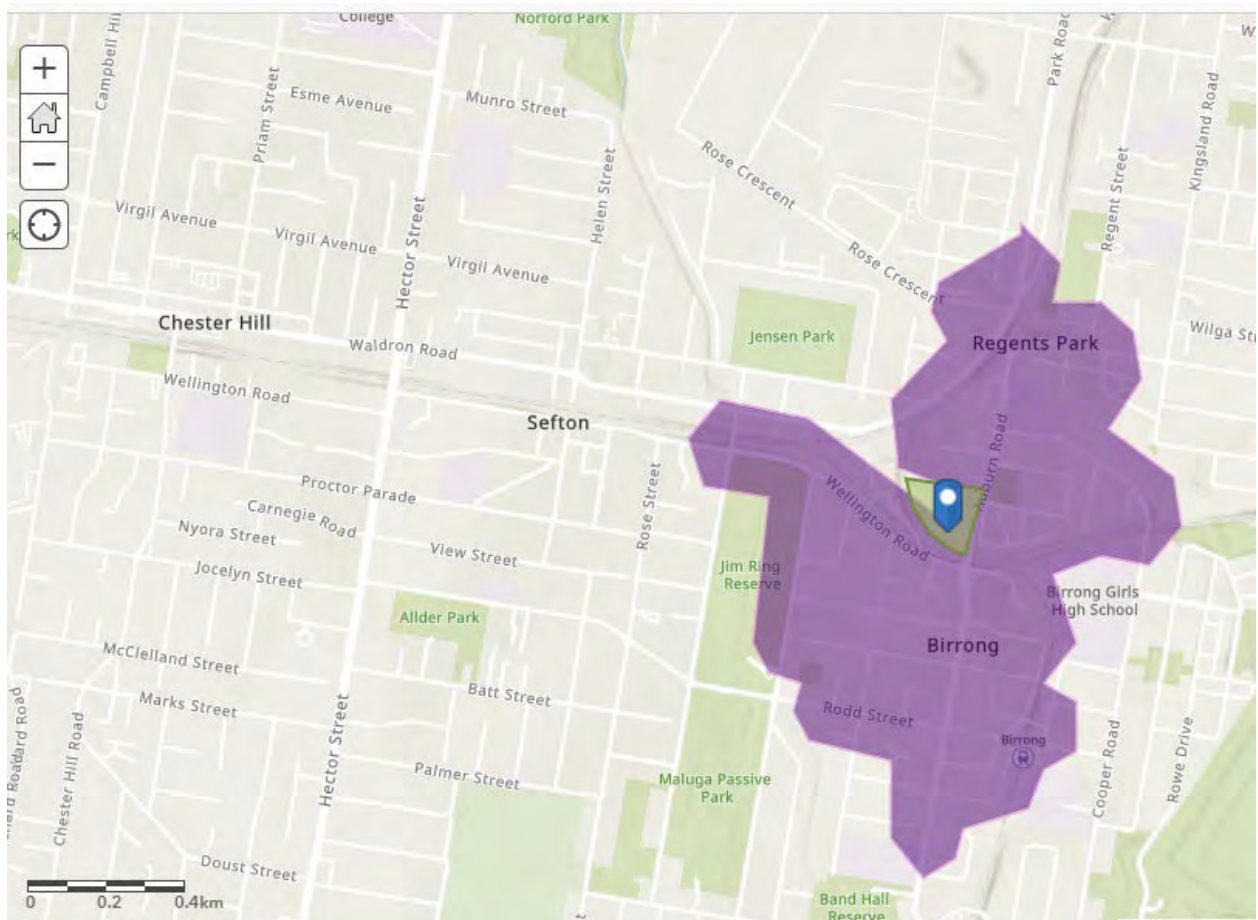
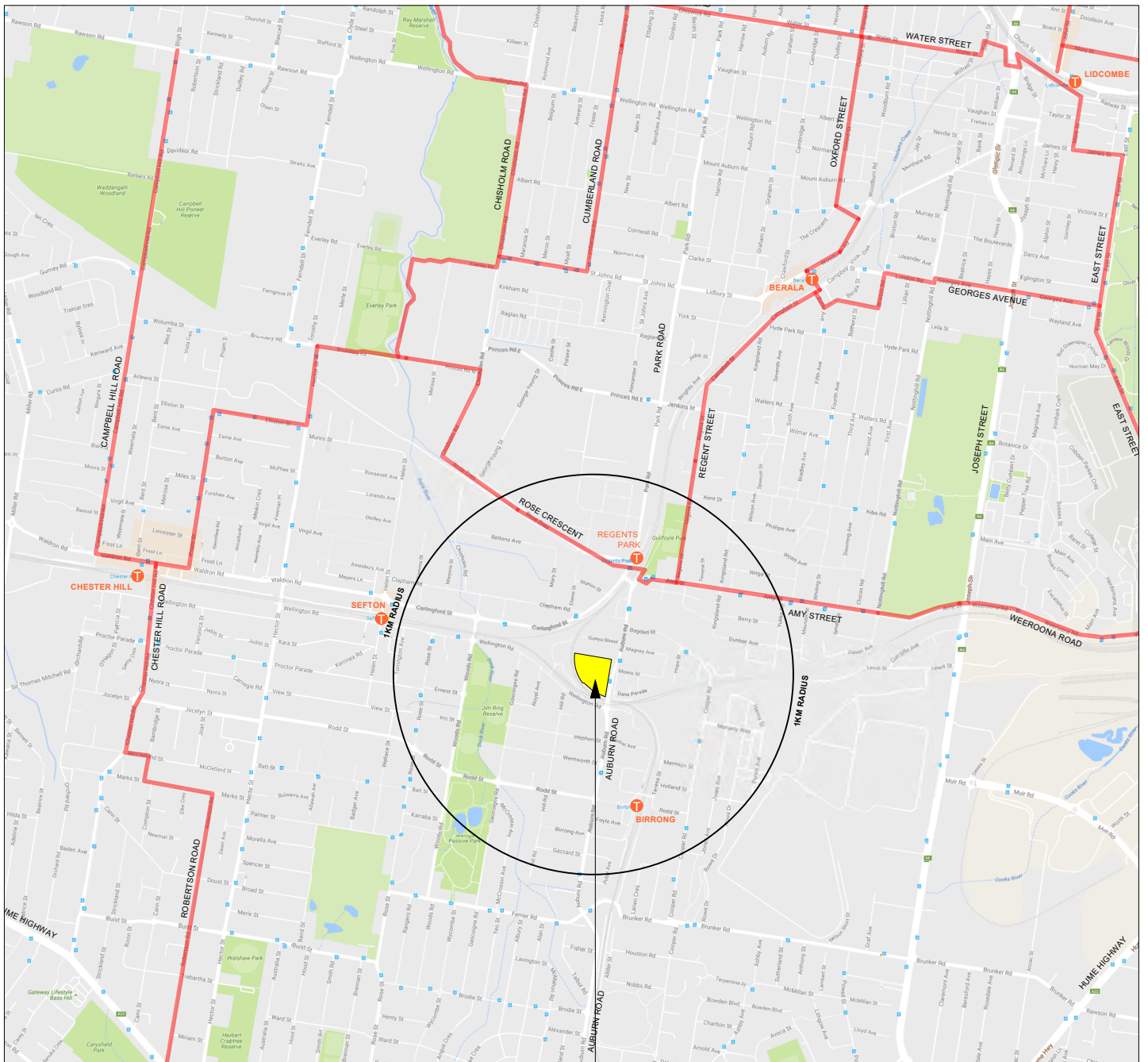
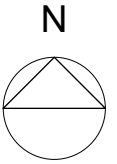


Figure 8L.666 walking distance in metres to railway stations from proposed site. Source: ESRI, Geoscience Australia



SUBJECT SITE:
30-46 AUBURN ROAD,
REGENTS PARK

LEGEND

 **CYCLEWAY**

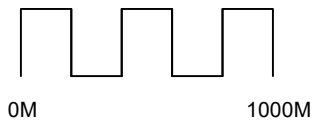


FIGURE 2J
MAP OF EXISTING CYCLEWAYS SURROUNDING
30 - 46 AUBURN ROAD, REGENTS PARK

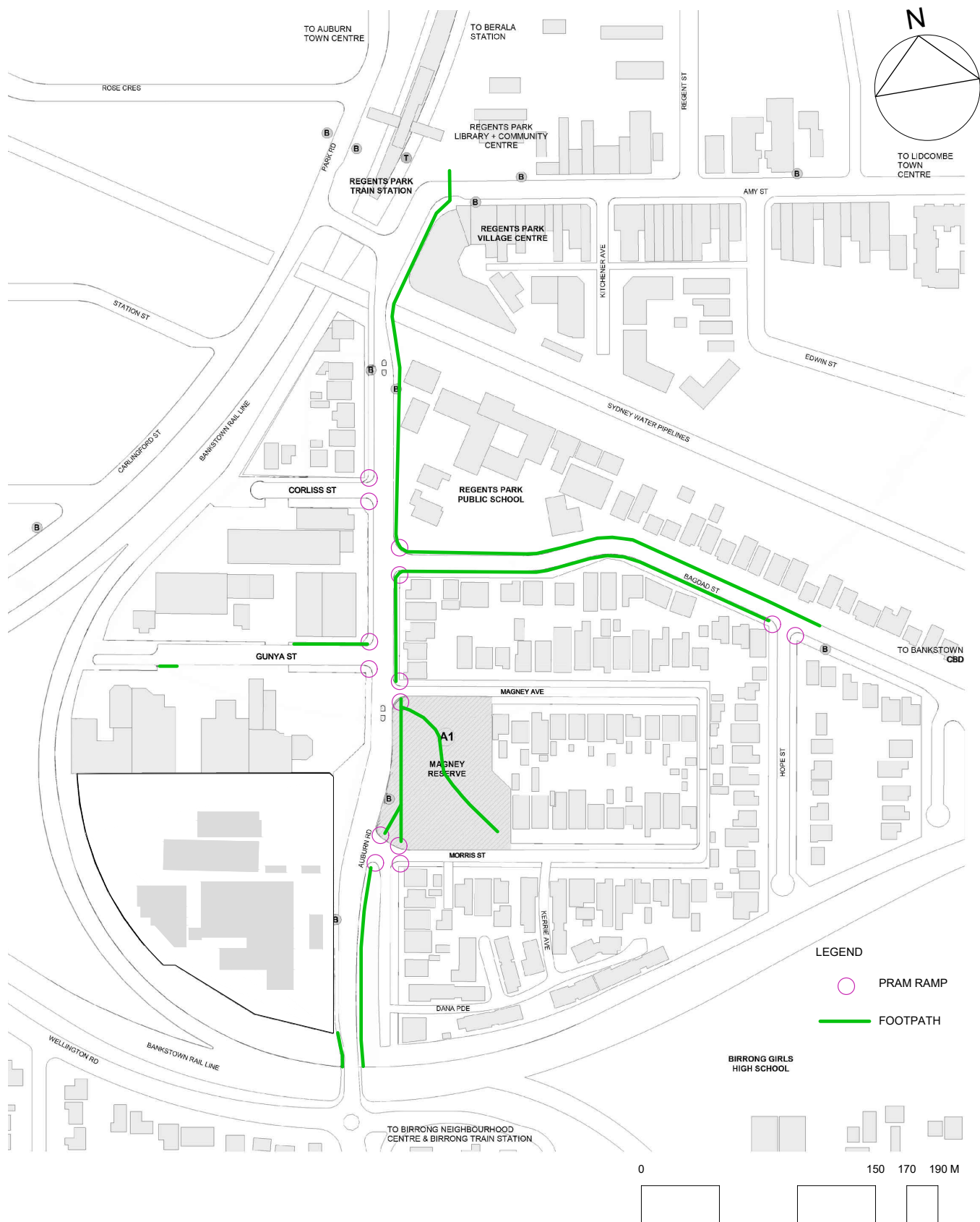


FIGURE 2K
EXISTING FOOTPATH NETWORK

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**.

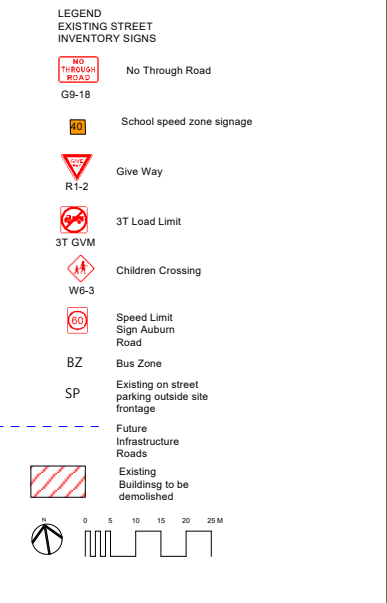
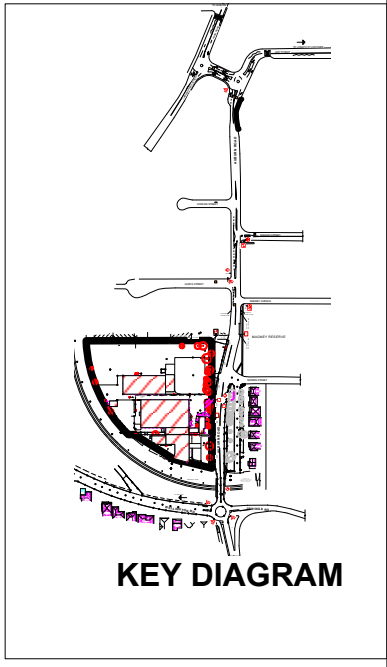
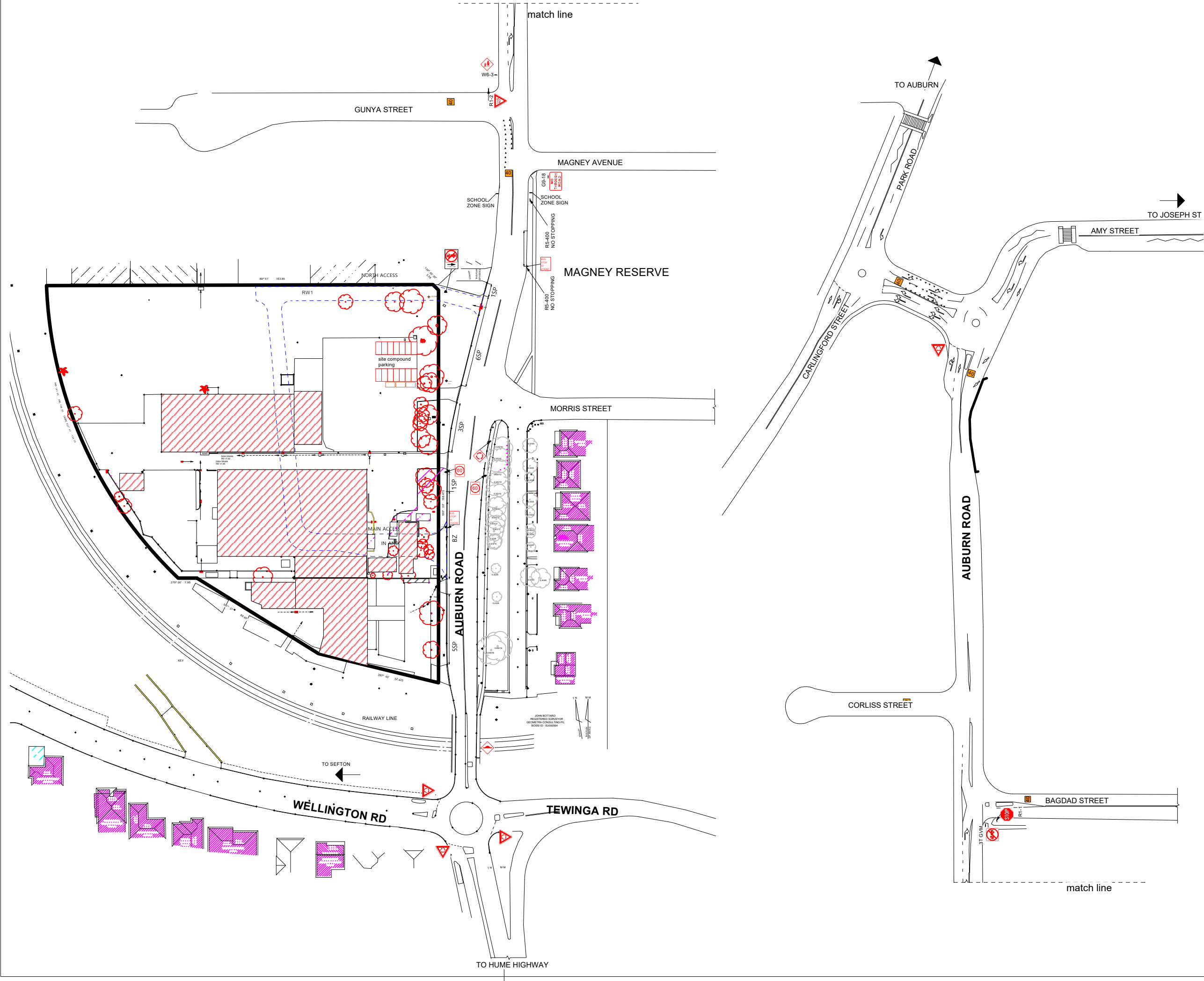
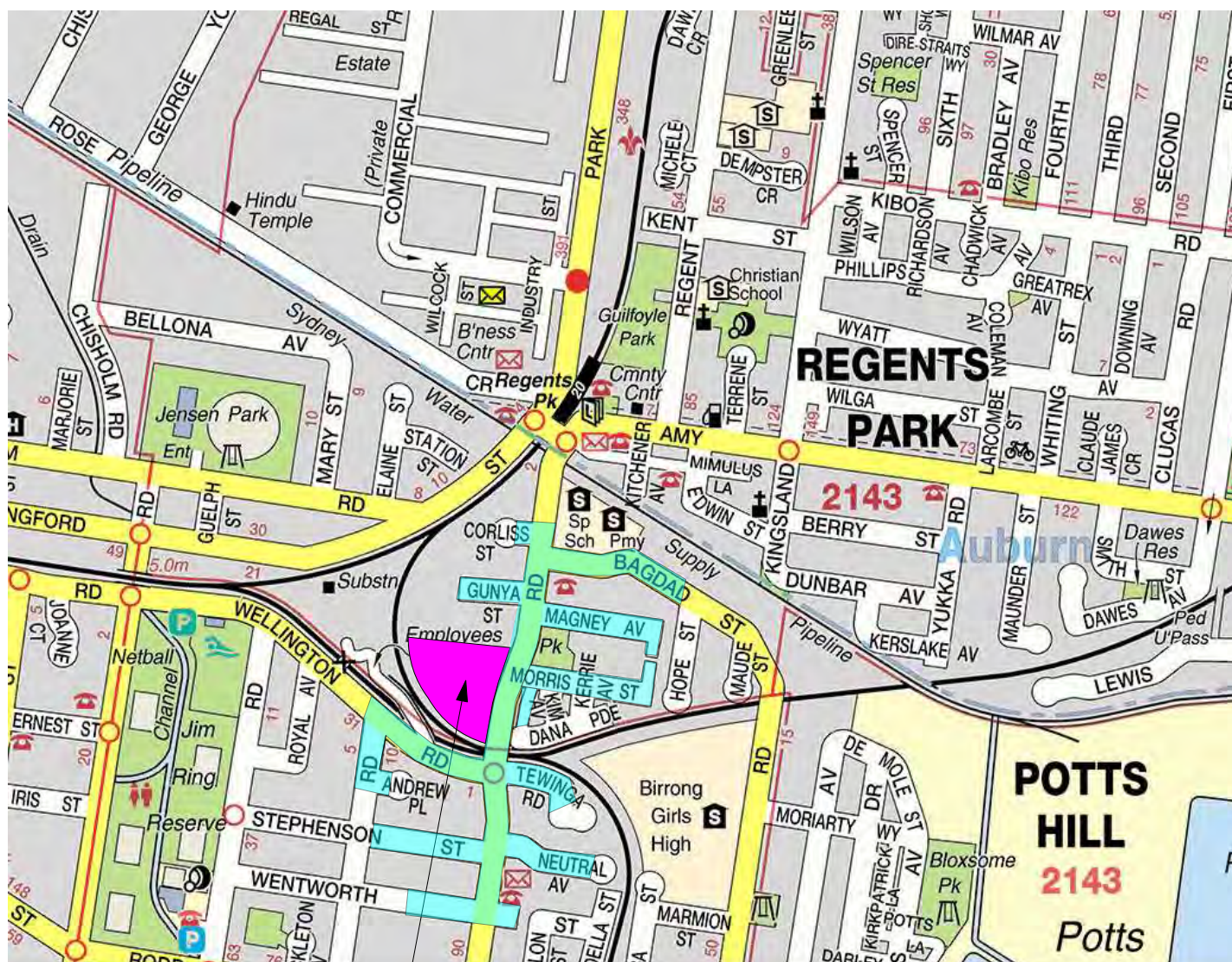
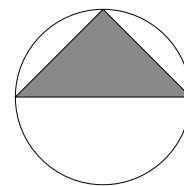
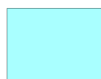


FIGURE 2M
STREET INVENTORY
SHEET 1

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



- ☒ Map Notes
- ☒ Travel from Map Notes Walking 400 metres - travel areas
- ☒ 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 20 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
Occupancy 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 Proximity 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 21,170m² for the Masterplan site composing of Stages 1 to 4. The site area for Stage 3 is 5646m² and corresponding uses include 142 residential units and a childcare centre for 106 childcare places. We understand that the corresponding GFA is 15051m². 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	11	
2 Bed	86	
3 Bed	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 **Sheet 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 **the Drawings numbered 1160-56-25 Sheets 1 to 13** 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-street car 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.**

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 4000m² 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. The loading bays are located between buildings C and D (This will service building C), north of building E and north of building A. The loading docks are shown on the General Arrangement Plan on **Drawing No 1160-6-25 Sheet 1 located in Appendix E.**

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 C170* 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

Geography of Usual Residence	Residence ID	Method of Travel to Work									Total
		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	
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
Bankstown - 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
Punchbowl	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 Lewis	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 - Silverwater	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
Bankstown - 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
Blacktown (East) - Kings Park	116011303	8	0.58%	0	0	0	0	0	0	0	10
Greystanes - Pemulwuy	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
Eastwood - 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 rows or columns to differ by small amounts from table totals.

(a) Includes employed persons with a usual residence in another State or Territory.

Data excludes Overseas Visitors.

(4.1 continued.)

Table 4.1b Journey to Work for Workers

Geography: Place of Work (POW)	Place of Work ID	Method of Travel to Work									
		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 - Greenw ich	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) - Earlw ood	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**.

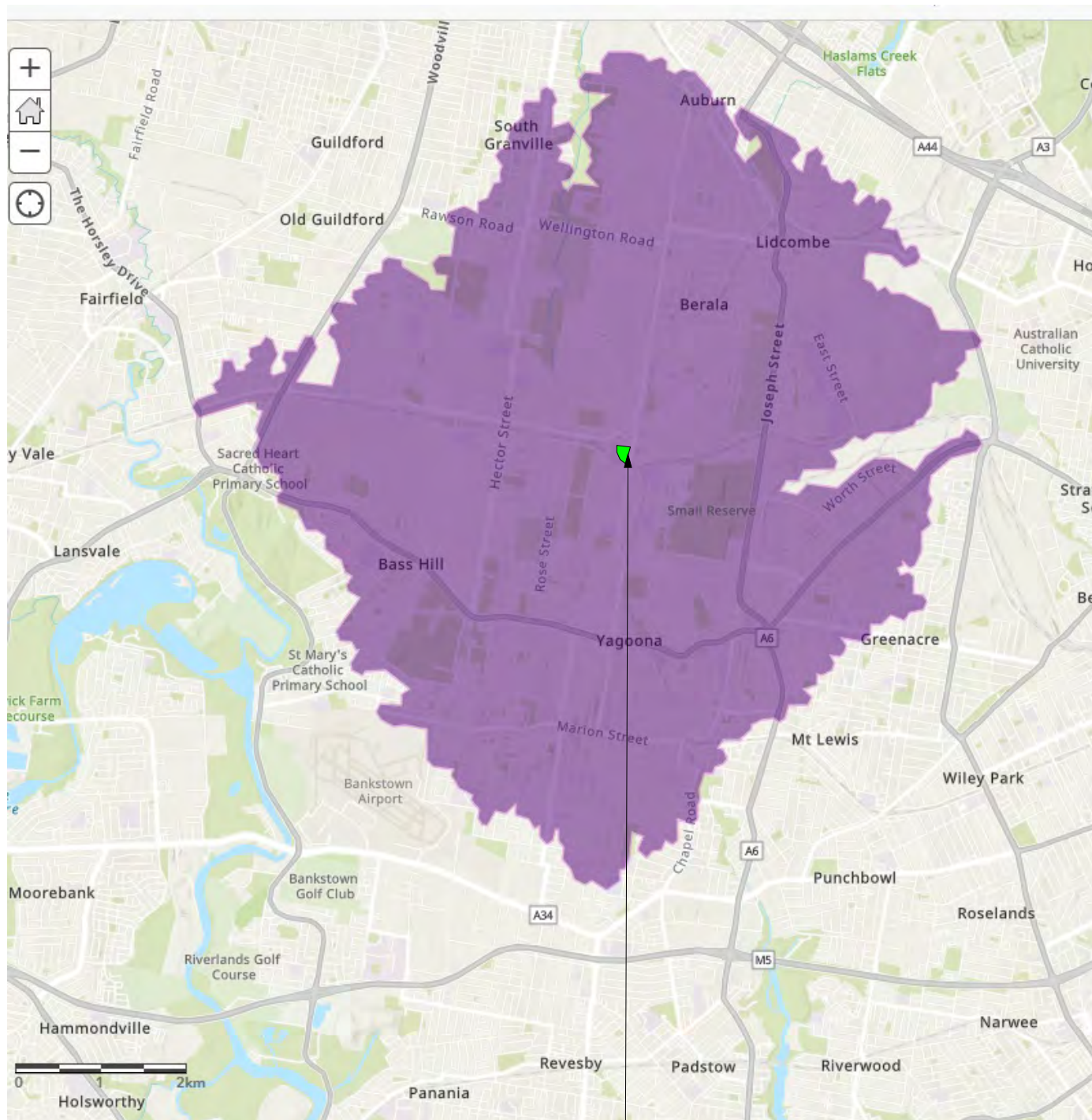
Table 4.4.3 Traffic Generation

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

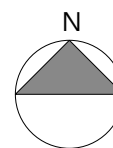


FIGURE 2P
10 MINUTE CAR
TRAVEL TIME DURING
AM/PM PEAK HOURS

4.5 Traffic Assignment to Road Network

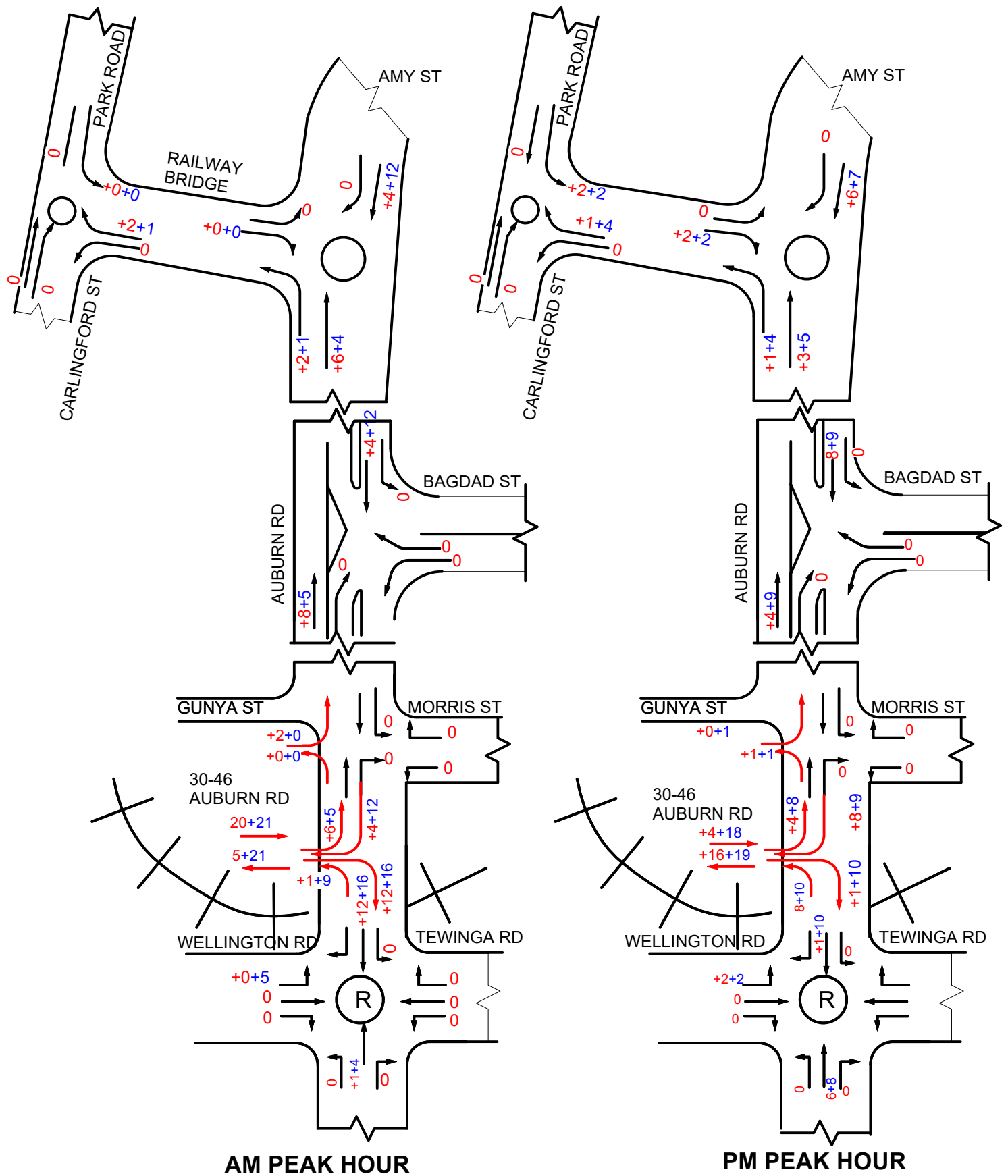
The numerical distribution of AM and PM 'car driver journey to work trips' from 30-46 Auburn Road to the road network are shown in **Figures 3A and 3B for Stage 3**.

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**.

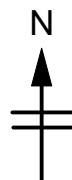
The traffic generation impacts and the assignment to the road network is show in **Figures 3A and 3B** and do not warrant further SIDRA modelling of these intersections as the future development traffic volumes will not change the level of service. Consideration of the entire development was undertaken 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**.



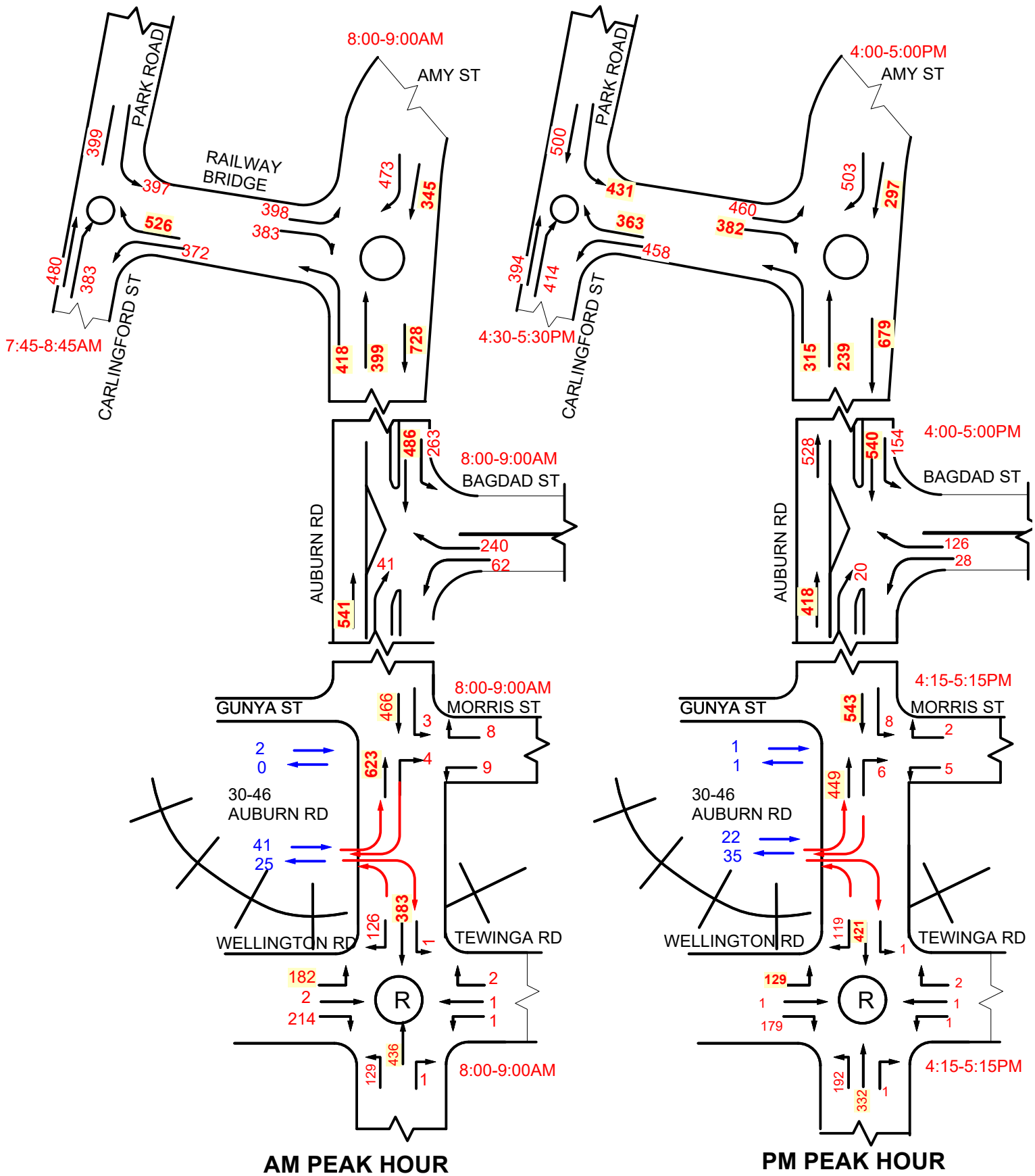
LEGEND

- +20 ADDITIONAL PEAK HOUR VOLUMES
GENERATED BY
THE PROPOSED RESIDENTIAL APARTMENTS
SITE AT 30-46 AUBURN ROAD
- +21 GENERATED BY CHILDCARE CENTRE

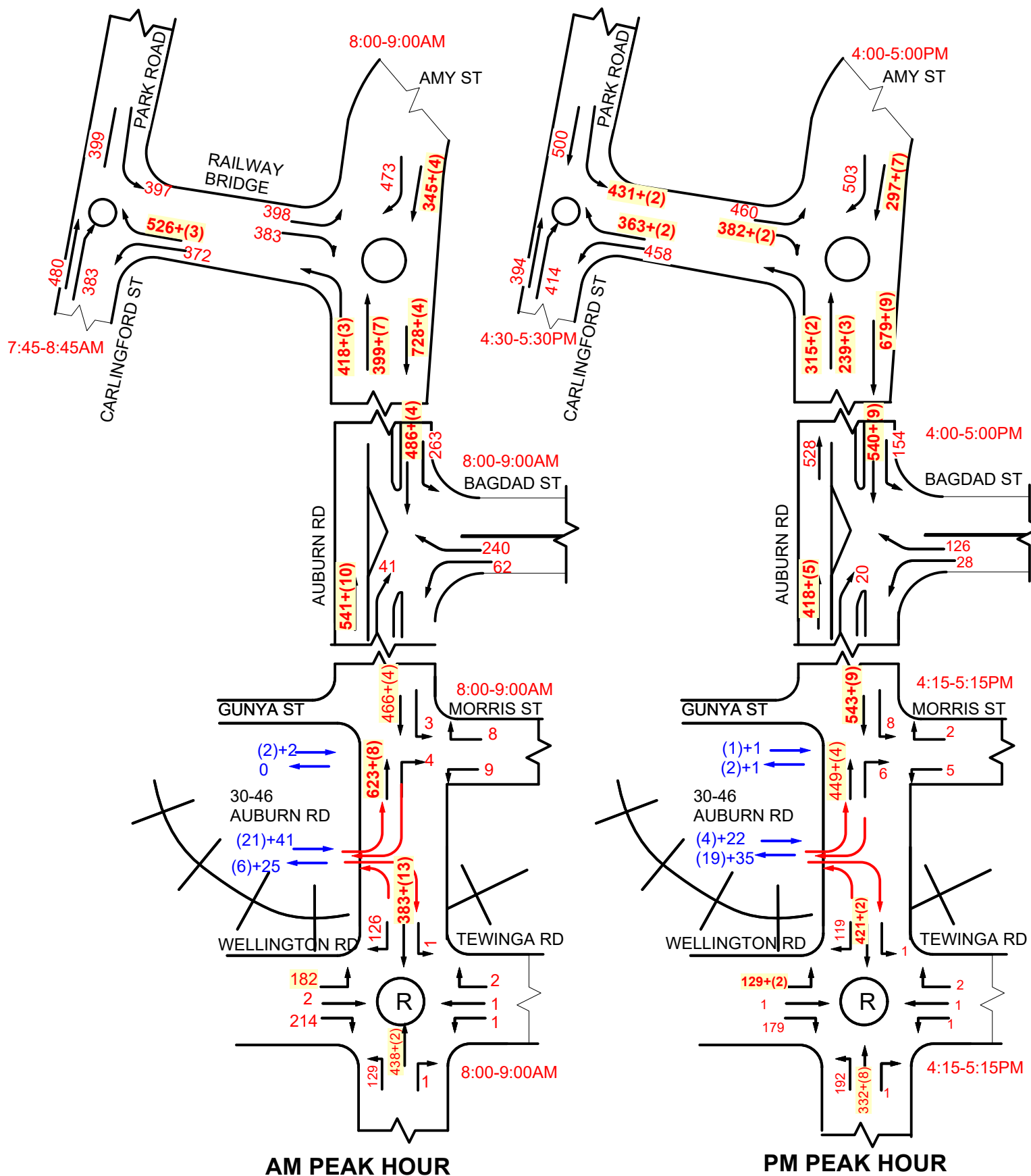


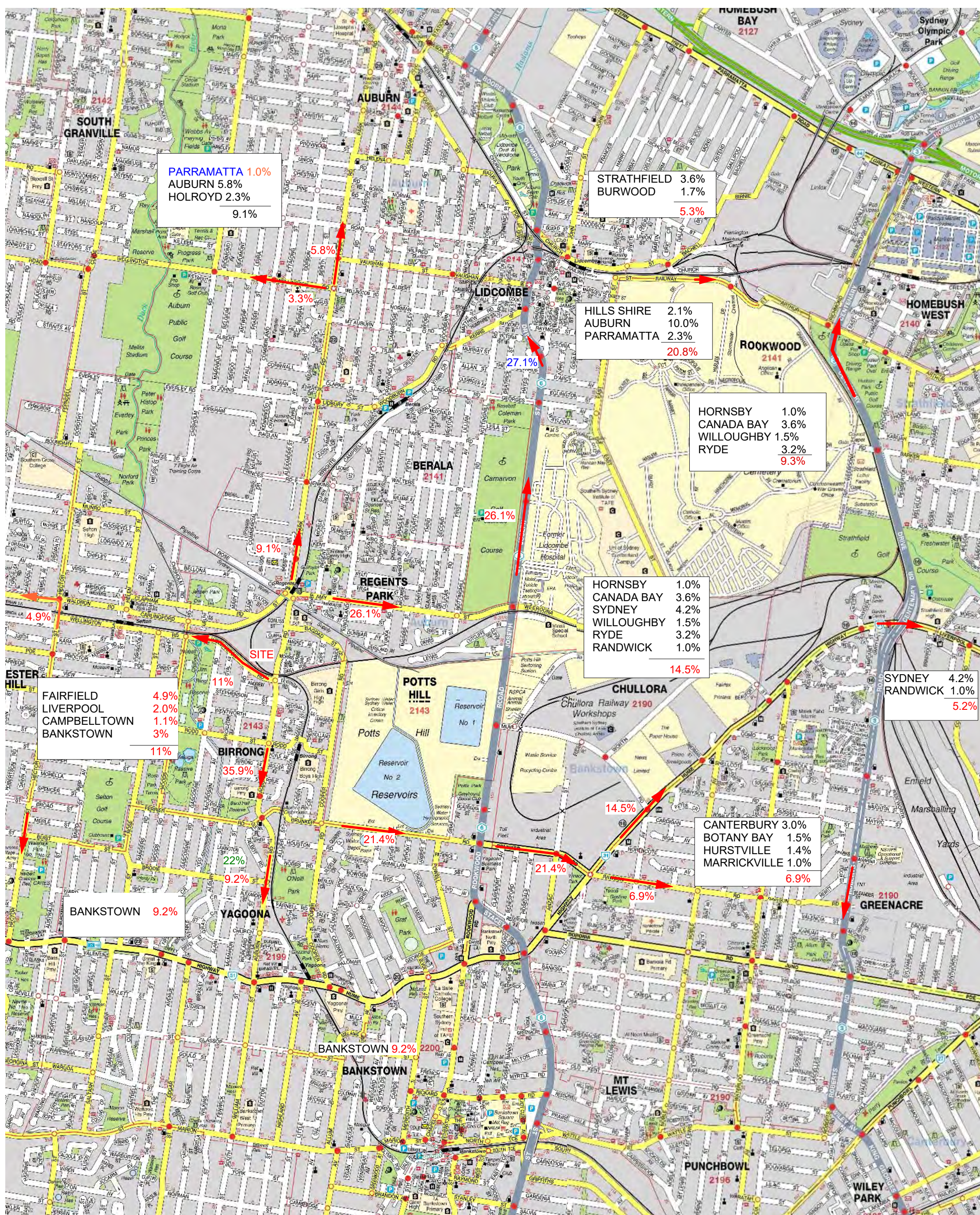
STAGE 3 DEVELOPMENT
142 APARTMENTS PLUS
106 PLACE CHILDCARE CENTRE

FIGURES 3A + 3B



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





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

APPENDIX A

APPENDIX B

Curtis Traffic Surveys

Job: 2308011m
 Day, date: 02/08/23
 Location: Auburn Rd
 Weather: Fine
 Client: Lyle Marshall & Partners

North bound congestion from 8:00

			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

Job:

Day, date

Location:

Weather:

Client:

Vehicle & pedestrian count

2308011m

02/08/23

Auburn Rd

Fine

Lyle Marshall & Partners

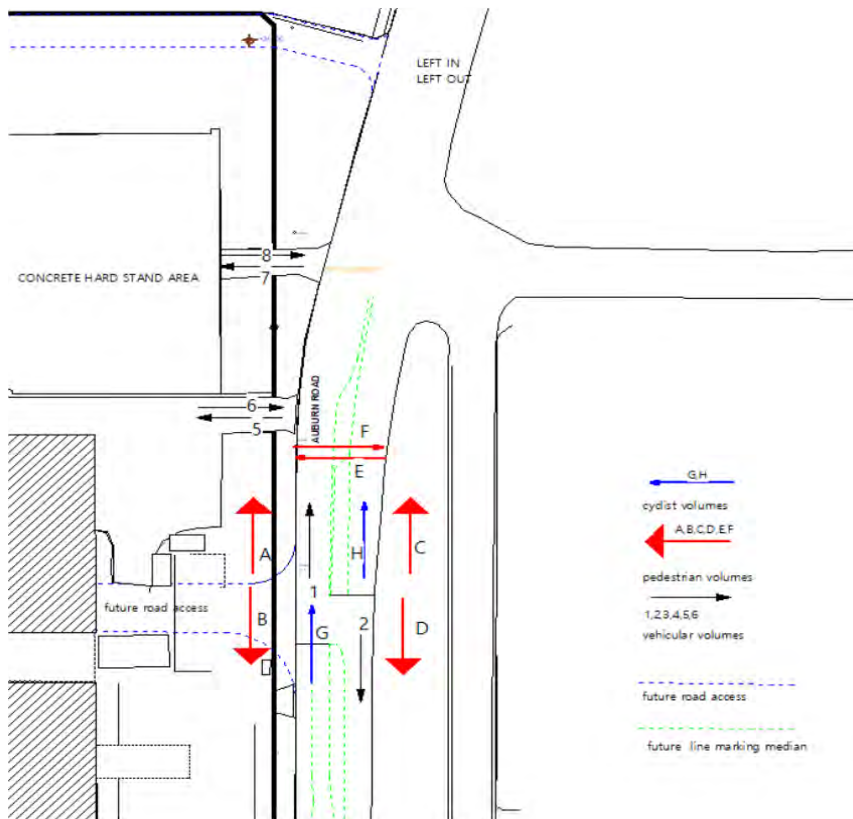
North boi

Pedestrians

west side east side across Auburn Rd

Time Period			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

Job: 2308011m
 Day, date: 01/08/23
 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 7 stand gate 8 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
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

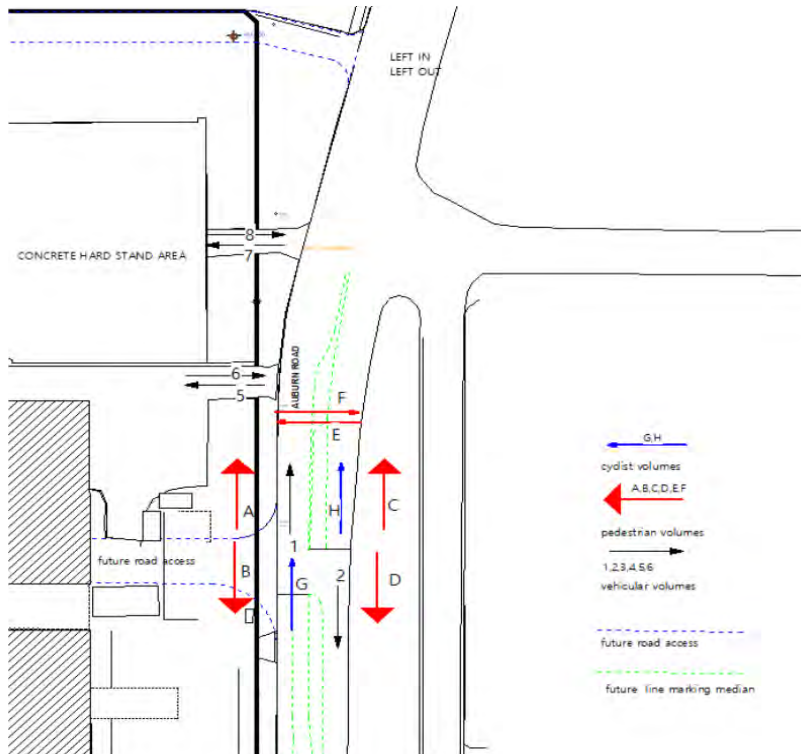
Vehicle & pedestrian count

Job: 2308011m
 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

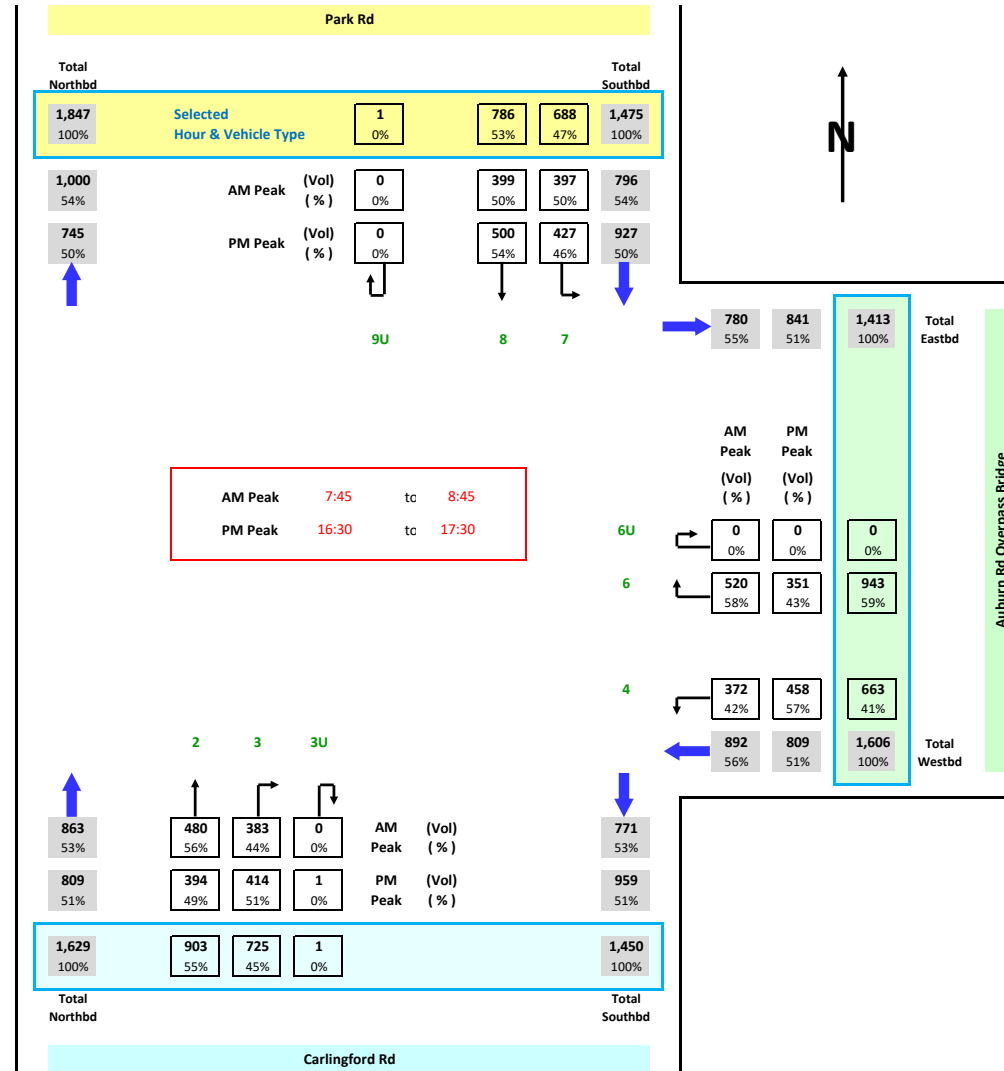


Job No. : AUNSW5968
Client : LYLE MARSHALL & PARTNERS PTY LTD
Suburb : Regents Park
Location : 1. Carlingford Rd / Park Rd / Auburn Rd Overpass Bridge

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

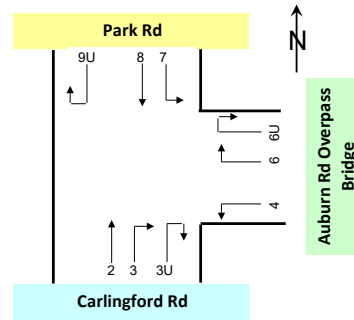


Hour Starting: AM Totals
Vehicle Type: All Vehicles



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

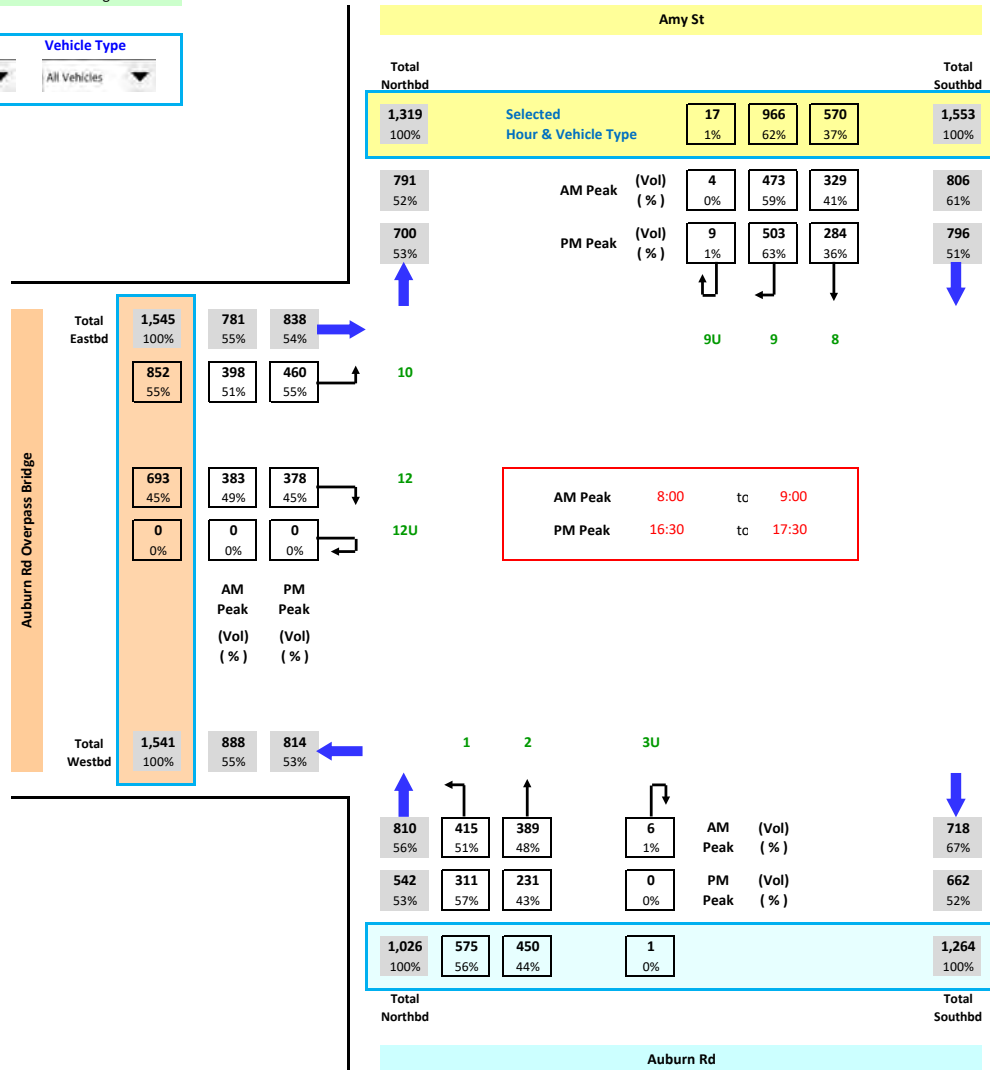
Approach		Carlingford Rd			Auburn Rd Overpass Bridge			Park Rd			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
	7:00 to 8:00	754	51	805	679	49	728	580	51	631	2,164
	7:15 to 8:15	813	49	862	744	51	795	626	55	681	2,338
	7:30 to 8:30	804	45	849	806	57	863	686	52	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

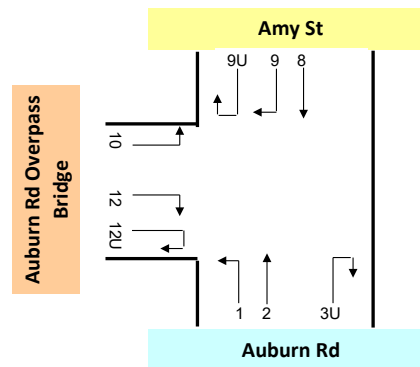


Hour Starting: PM Totals
Vehicle Type: All Vehicles



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
		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

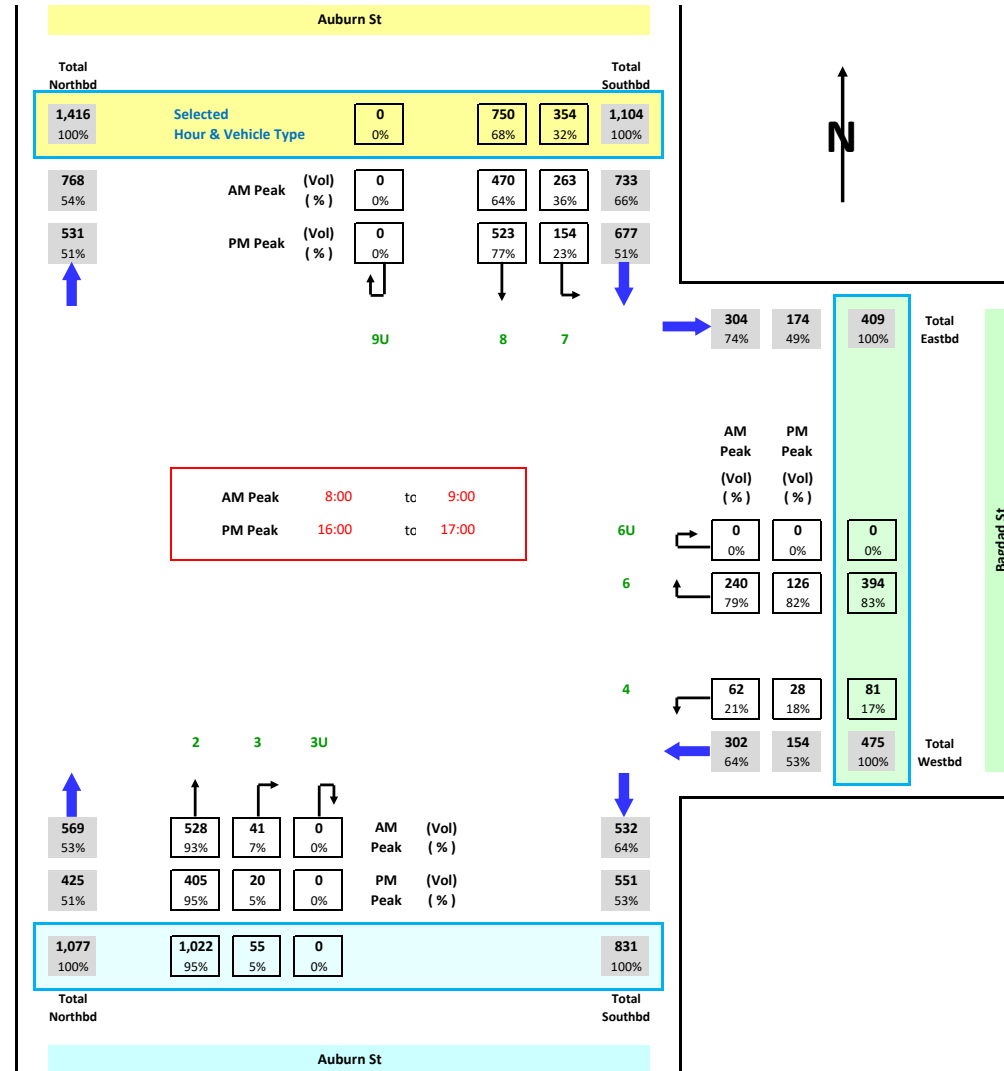
	Approach	Auburn Rd				Amy St			Auburn Rd Overpass Bridge			Grand Total
		Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
	Time Period											
	7:00 to 8:00	617	23	640		484	42	526	580	63	643	1,809
	7:15 to 8:15	701	23	724		559	47	606	635	63	698	2,028
	7:30 to 8:30	772	27	799		641	52	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

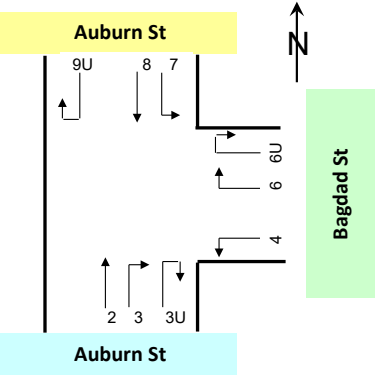


Hour Starting	Vehicle Type
AM Totals	All Vehicles



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

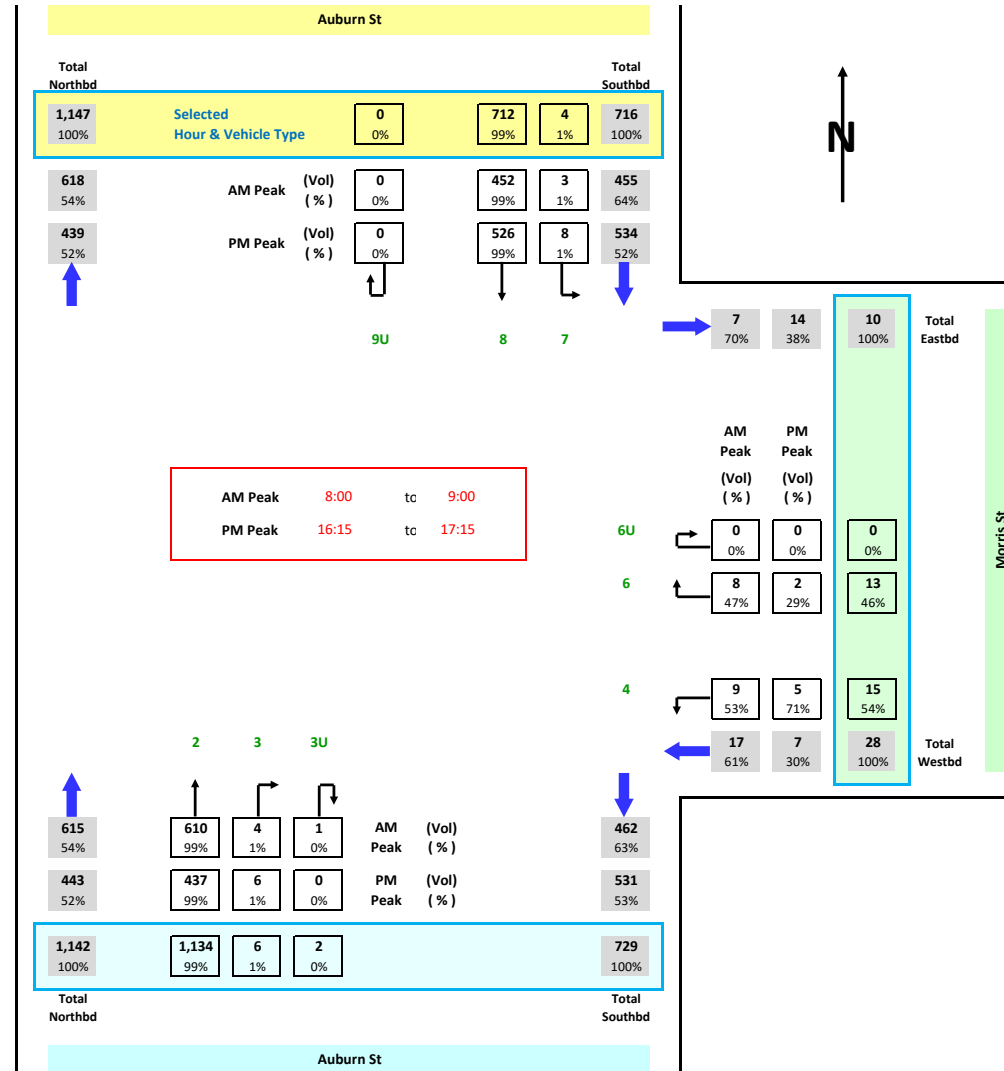
Approach		Auburn St			Bagdad St			Auburn St			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
7:00 to 8:00		488	20	508	168	5	173	355	16	371	1,052
7:15 to 8:15		542	19	561	201	7	208	441	19	460	1,229
7:30 to 8:30		578	19	597	256	8	264	553	23	576	1,437
7:45 to 8:45		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

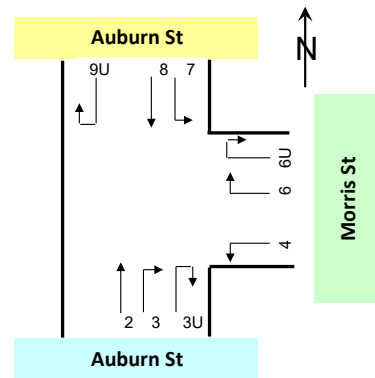


Hour Starting	Vehicle Type
AM Totals	All Vehicles



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

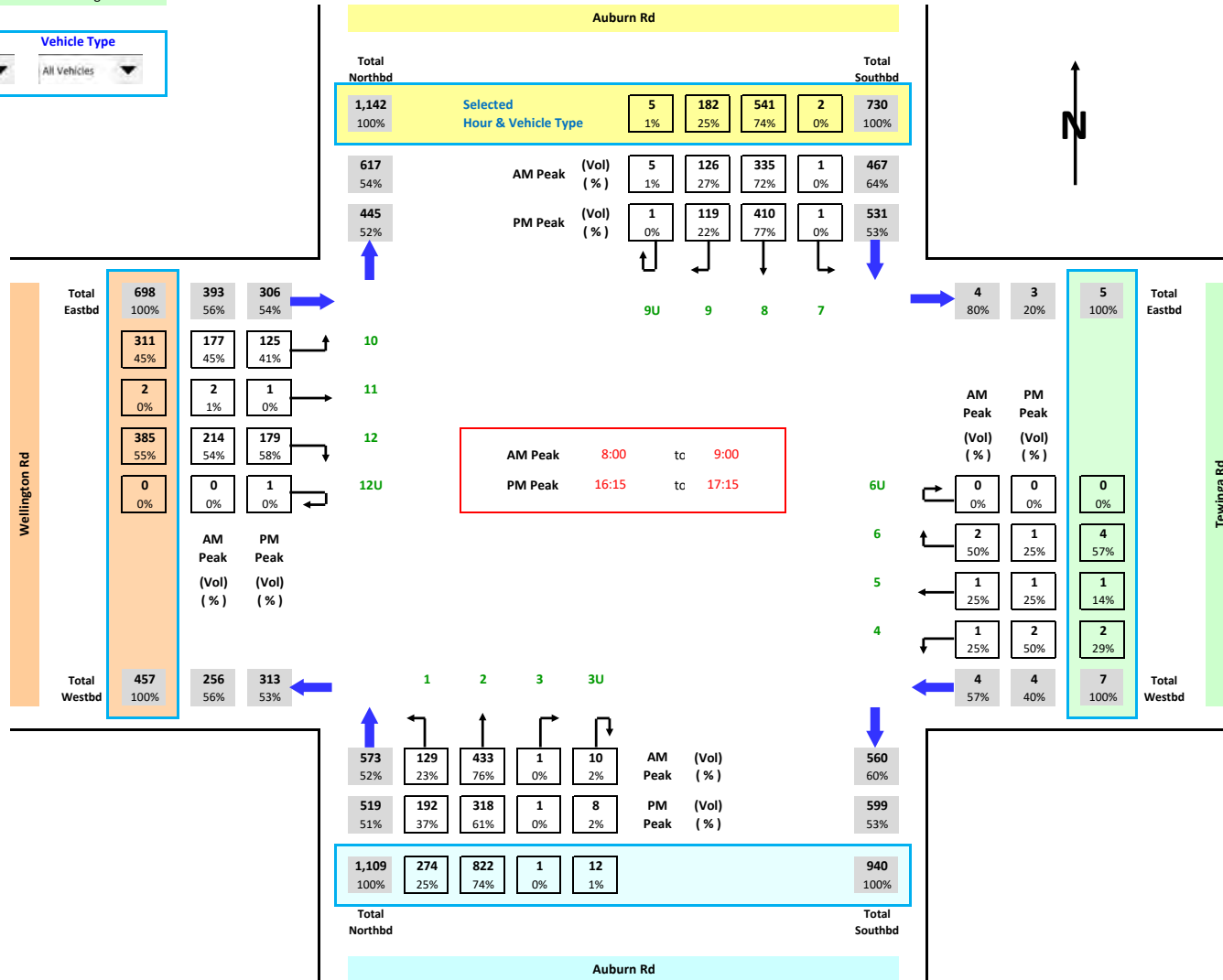
Approach		Auburn St			Morris St			Auburn St			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
7:00 to 8:00		507	20	527	11	0	11	245	16	261	799
7:15 to 8:15		575	20	595	12	0	12	288	17	305	912
7:30 to 8:30		611	18	629	18	0	18	331	18	349	996
7:45 to 8:45		624	15	639	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

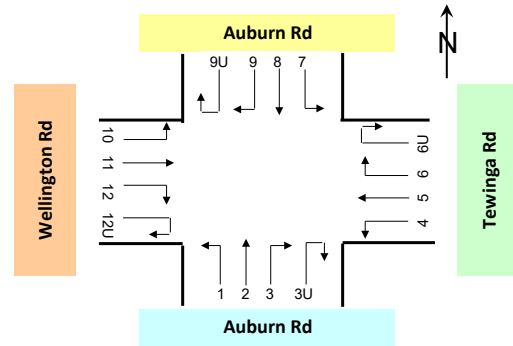


Hour Starting: AM Totals
Vehicle Type: All Vehicles



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

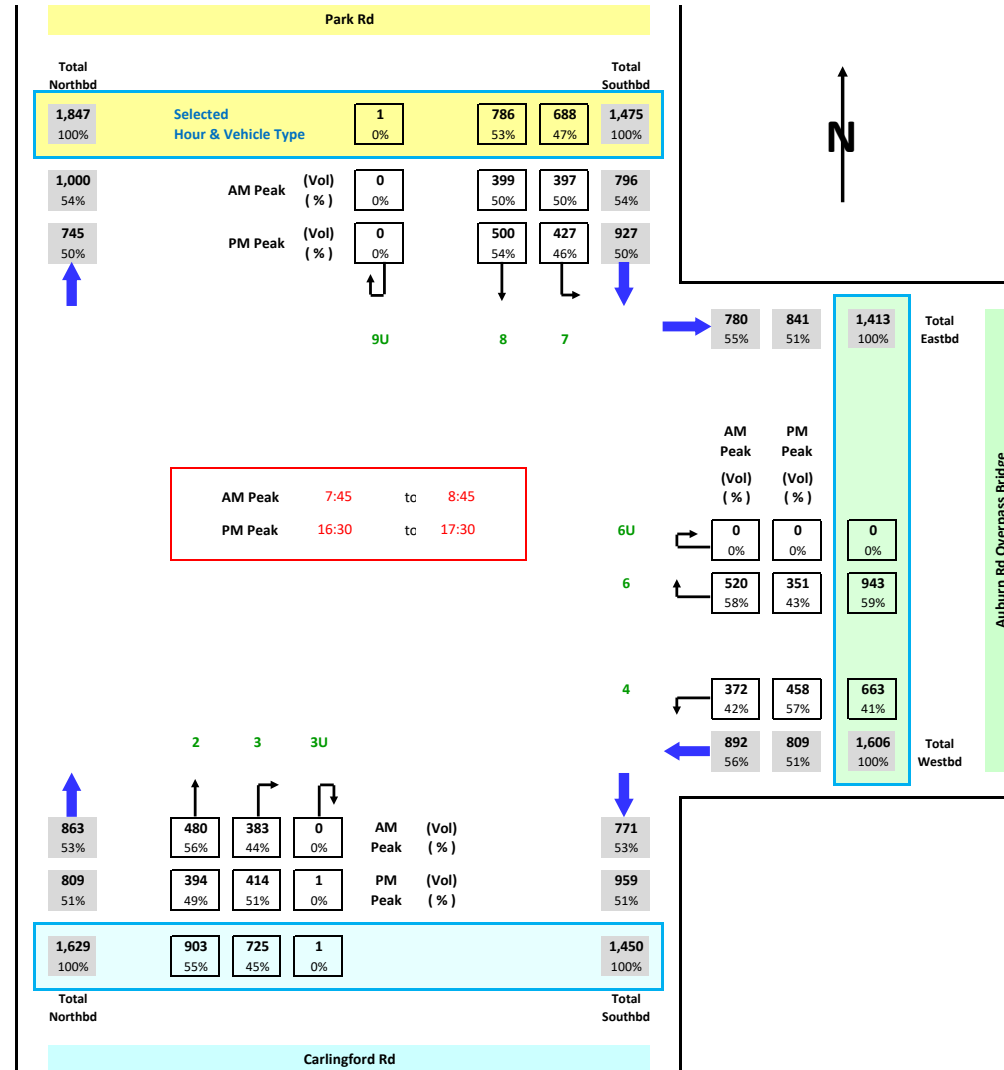
APPENDIX C

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

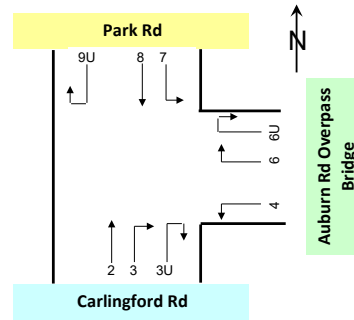


Hour Starting: AM Totals
Vehicle Type: All Vehicles



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

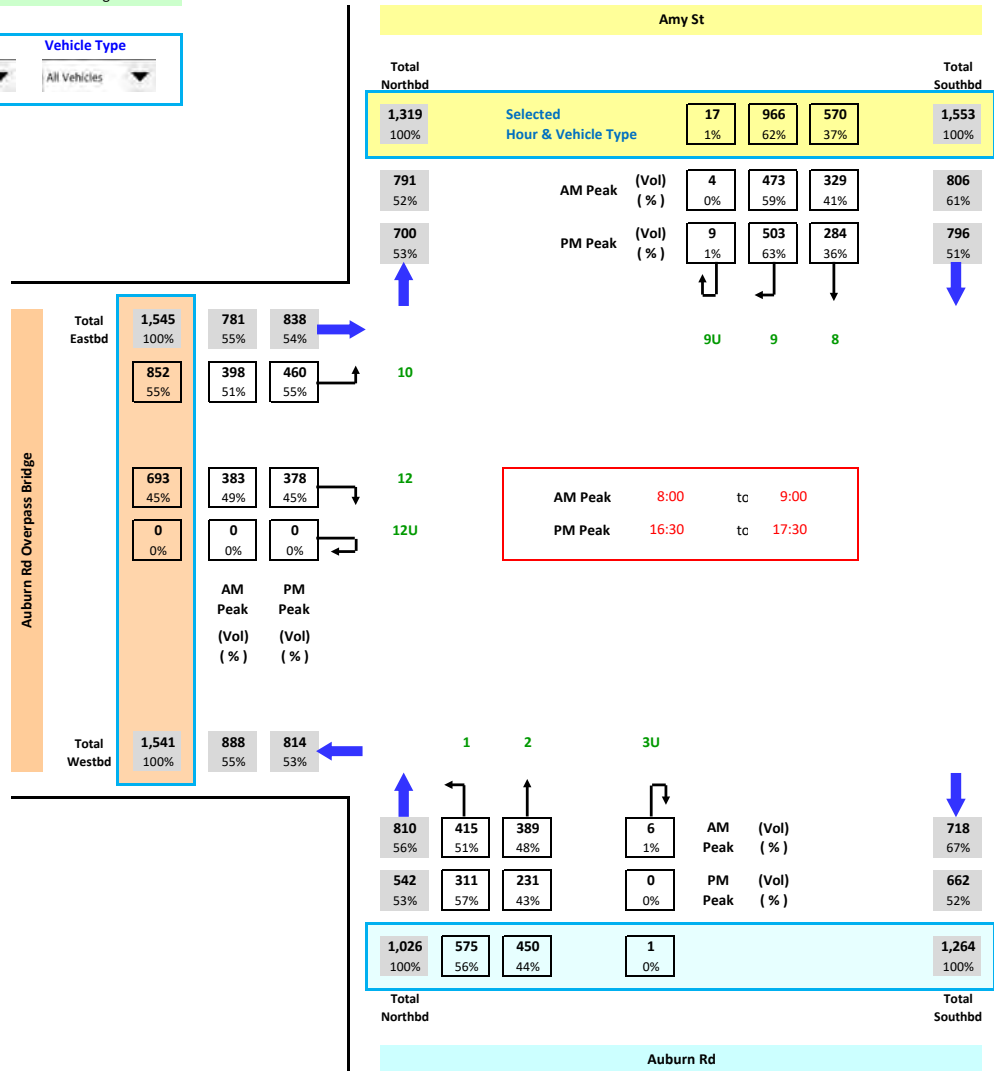
Approach		Carlingford Rd			Auburn Rd Overpass Bridge			Park Rd			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
7:00 to 8:00		754	51	805	679	49	728	580	51	631	2,164
7:15 to 8:15		813	49	862	744	51	795	626	55	681	2,338
7:30 to 8:30		804	45	849	806	57	863	686	52	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

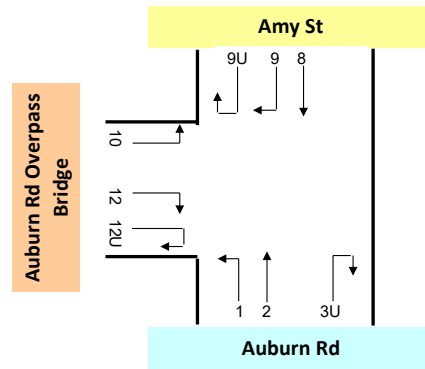


Hour Starting: PM Totals
Vehicle Type: All Vehicles



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
		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

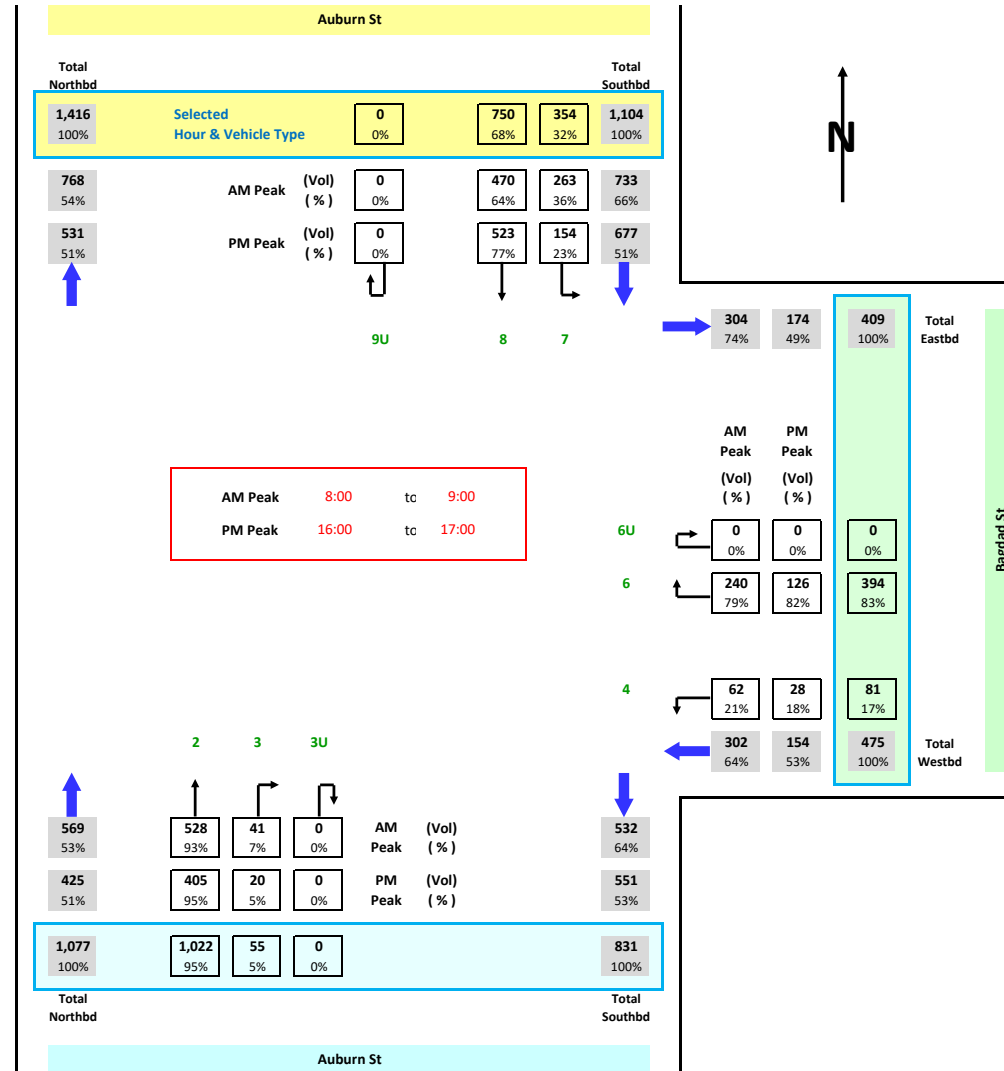
	Approach	Auburn Rd				Amy St			Auburn Rd Overpass Bridge			Grand Total
		Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
	Time Period											
	7:00 to 8:00	617	23	640		484	42	526	580	63	643	1,809
	7:15 to 8:15	701	23	724		559	47	606	635	63	698	2,028
	7:30 to 8:30	772	27	799		641	52	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

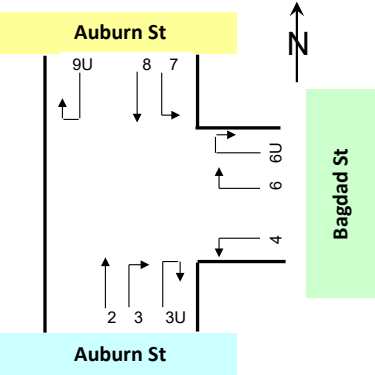


Hour Starting	Vehicle Type
AM Totals	All Vehicles



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

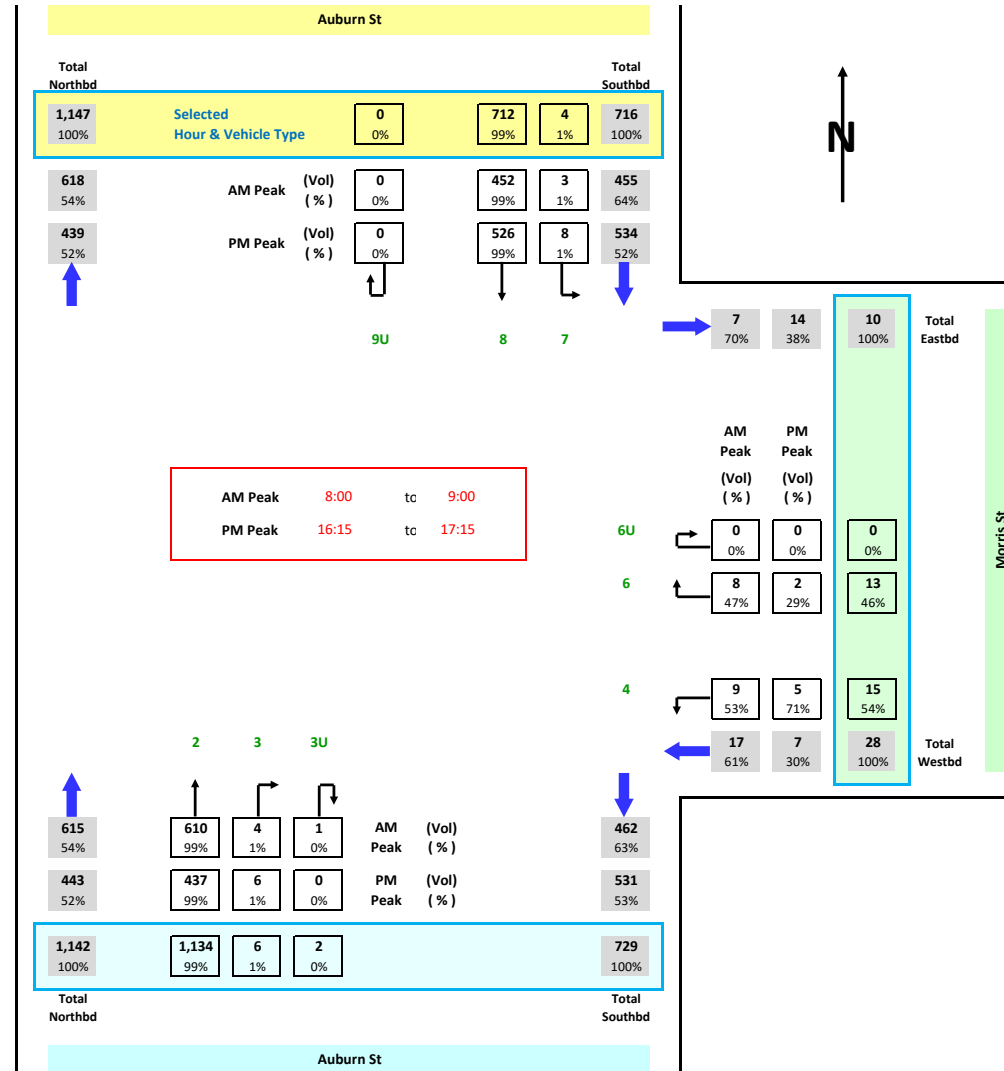
Approach		Auburn St			Bagdad St			Auburn St			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
7:00 to 8:00		488	20	508	168	5	173	355	16	371	1,052
7:15 to 8:15		542	19	561	201	7	208	441	19	460	1,229
7:30 to 8:30		578	19	597	256	8	264	553	23	576	1,437
7:45 to 8:45		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

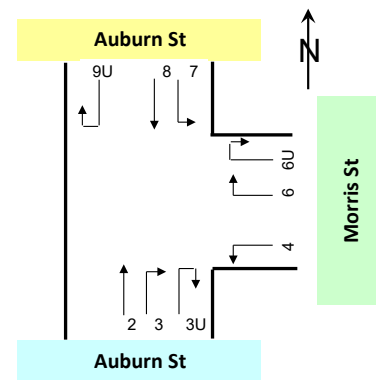


Hour Starting	Vehicle Type
AM Totals	All Vehicles



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

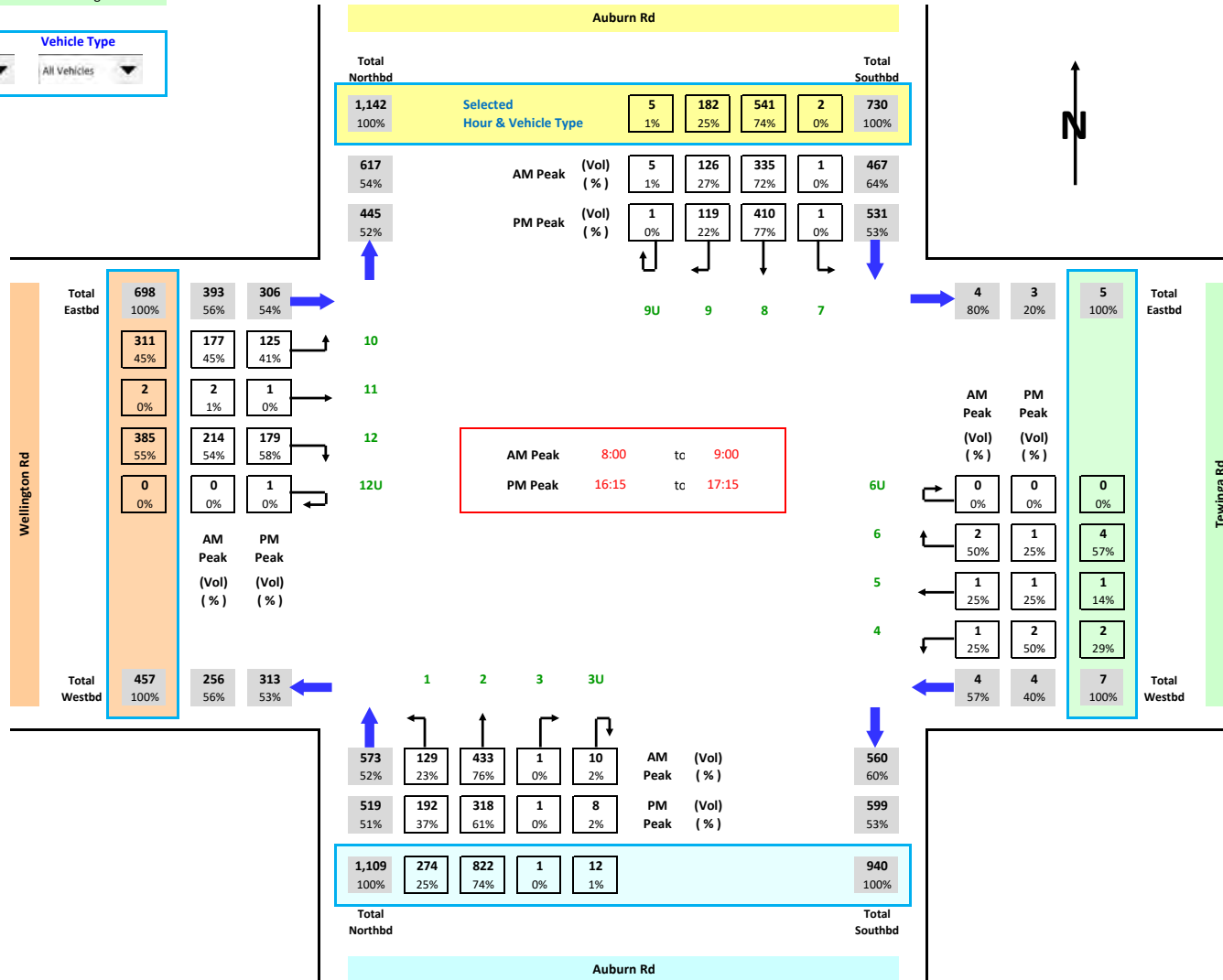
Approach		Auburn St			Morris St			Auburn St			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
7:00 to 8:00		507	20	527	11	0	11	245	16	261	799
7:15 to 8:15		575	20	595	12	0	12	288	17	305	912
7:30 to 8:30		611	18	629	18	0	18	331	18	349	996
7:45 to 8:45		624	15	639	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

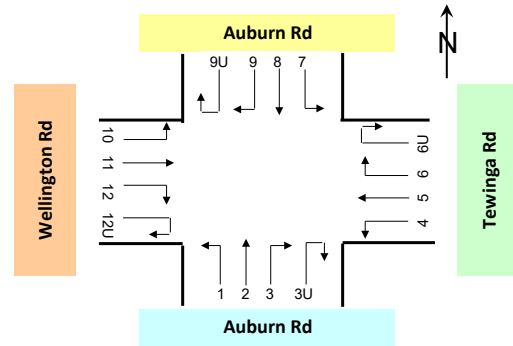


Hour Starting: AM Totals
Vehicle Type: All Vehicles



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

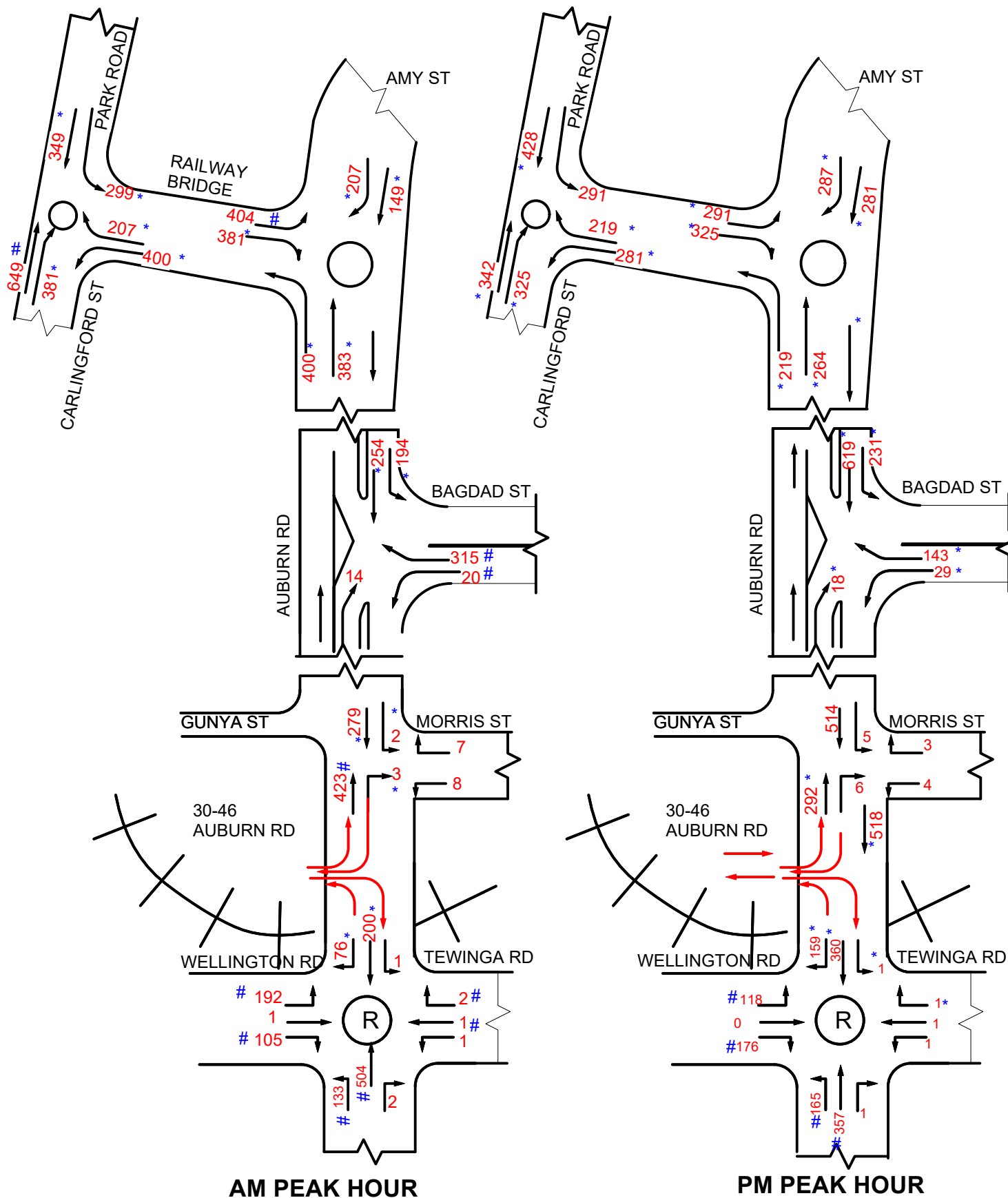
Day/Date : Thu 23rd Feb 2023
Weather : Partly rain
Description : Classified Intersection Count
 : Peak Hour Summary



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

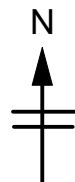
4.30 - 5.30PM PEAK HOUR

* DECREASE FROM 2017 VOLUME

INCREASE

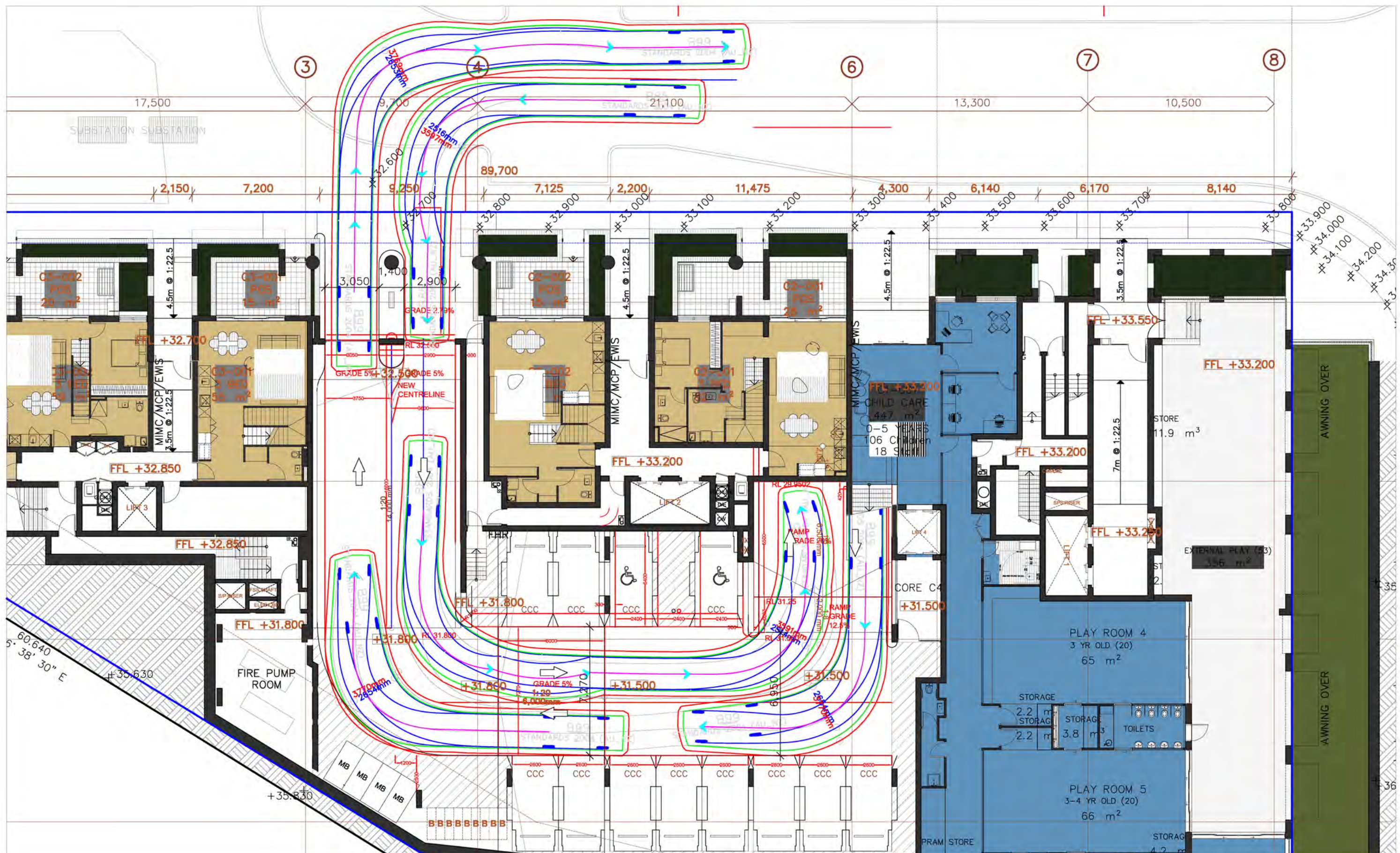
EXISTING PEAK HOUR VOLUMES

2021 EXISTING STFM VOLUMES



FIGURES 2C + 2D

APPENDIX E



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

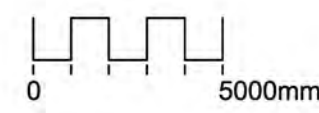
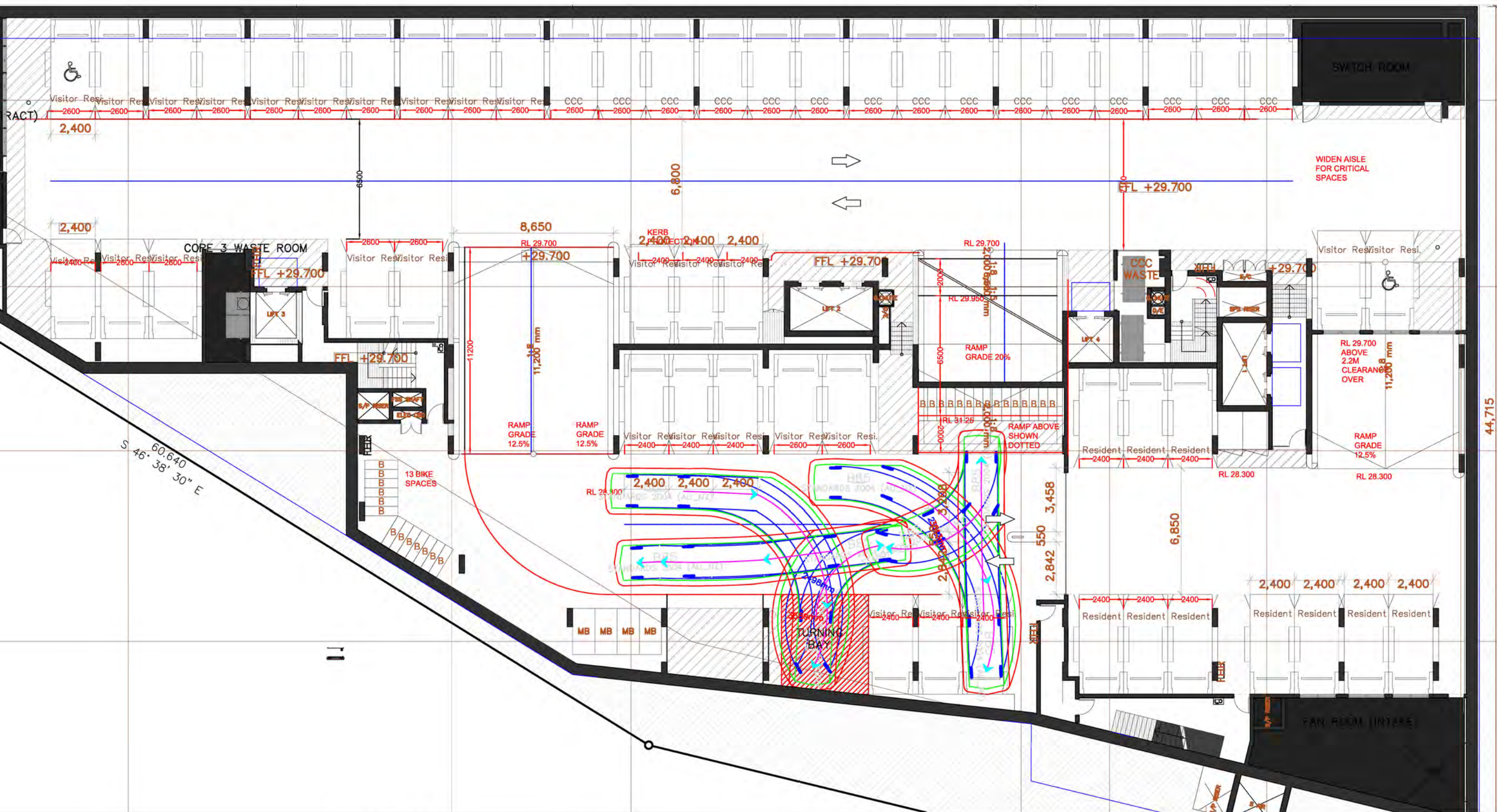


FIGURE 1
DD-A-103 GROUND
LEVEL 0
SCALE 1:200(A3)
LMP REVIEW
27-03-2025



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

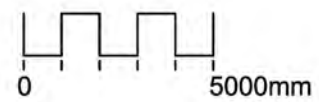


FIGURE 2B
TURNING BAY CHECK
B85 VEHICLE

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

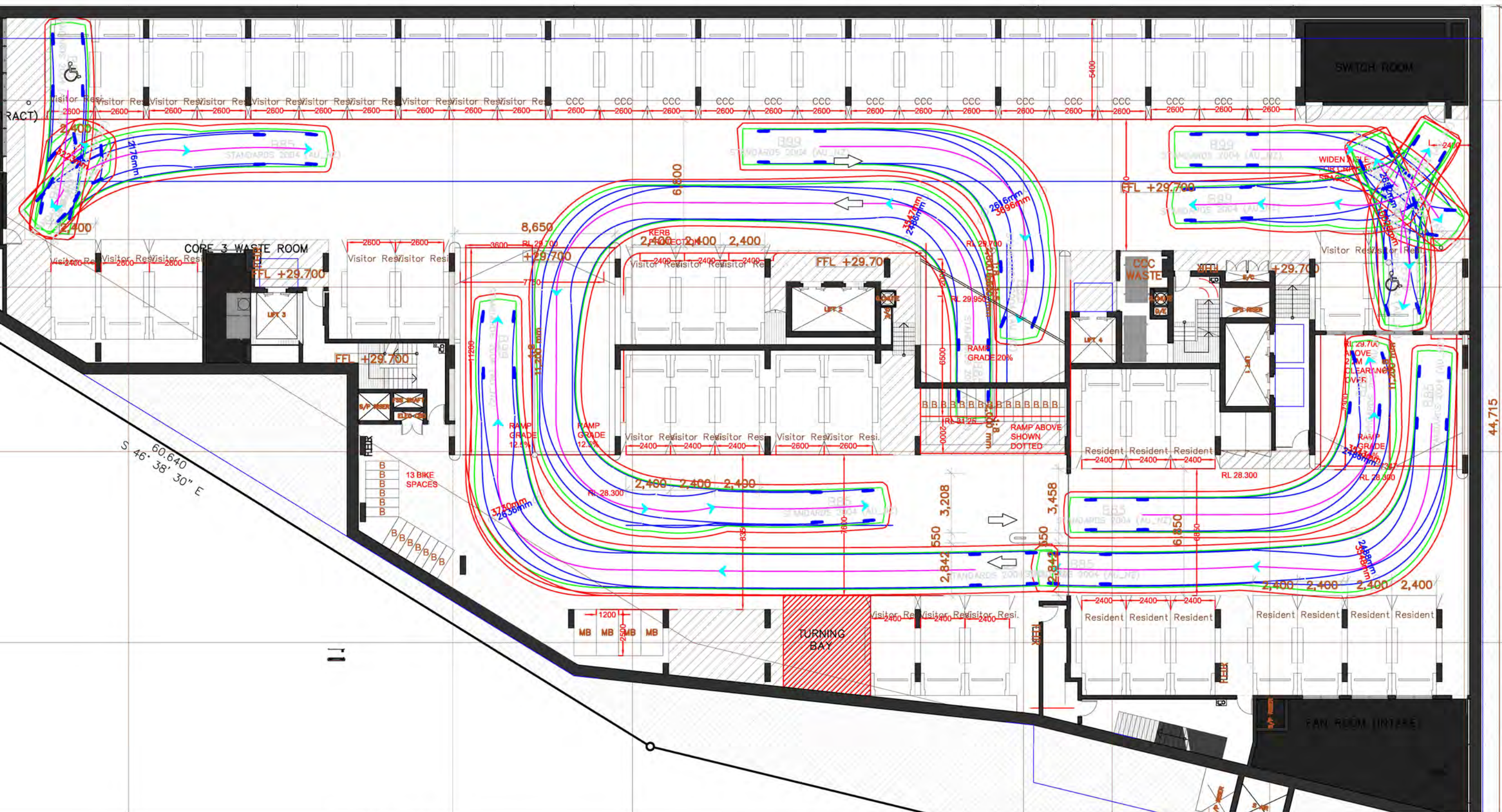
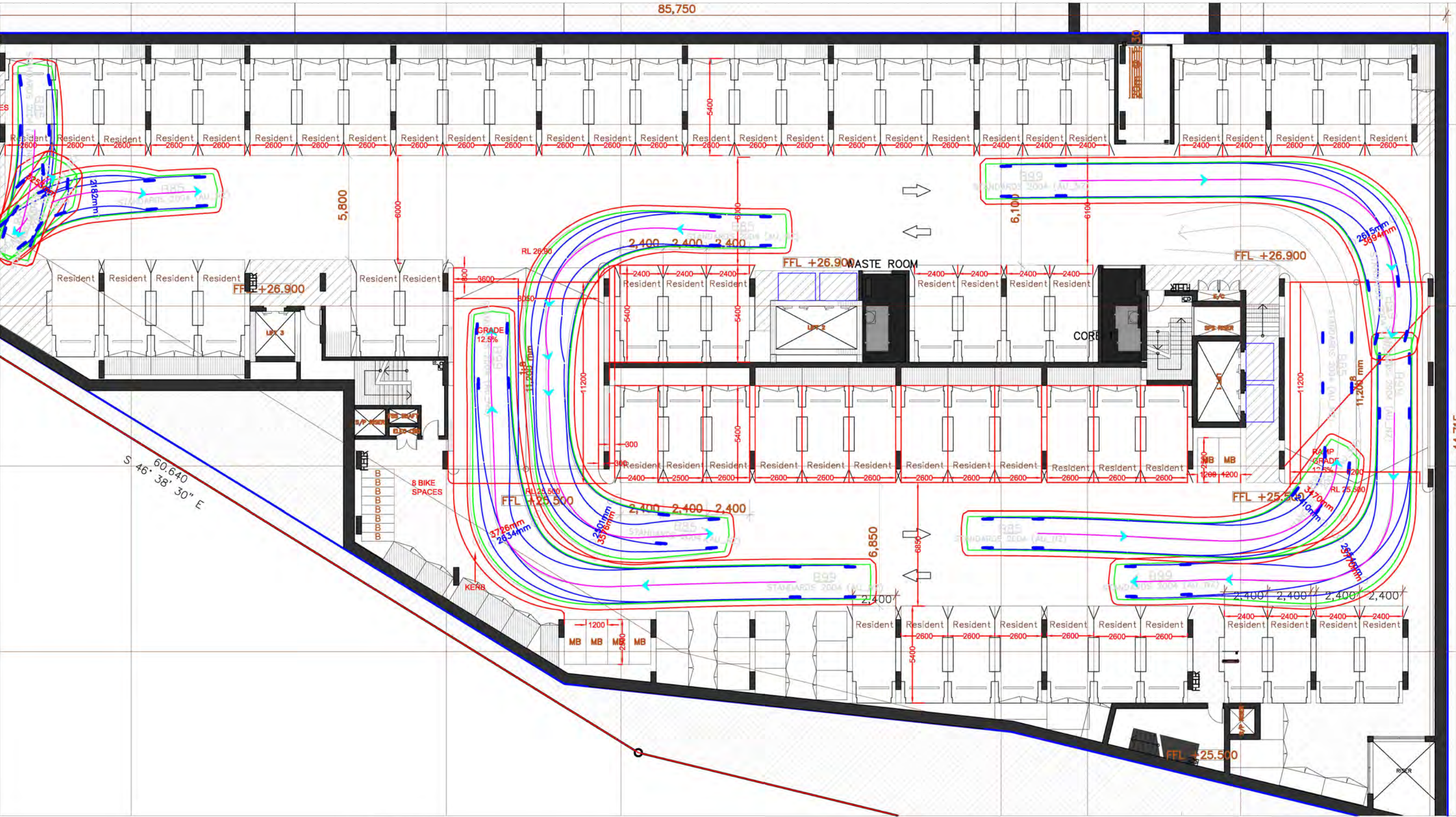
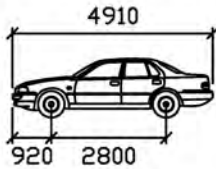


FIGURE 2A

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

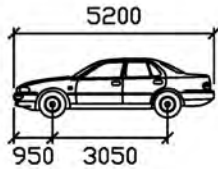


VEHICLE PROFILE



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

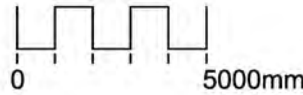
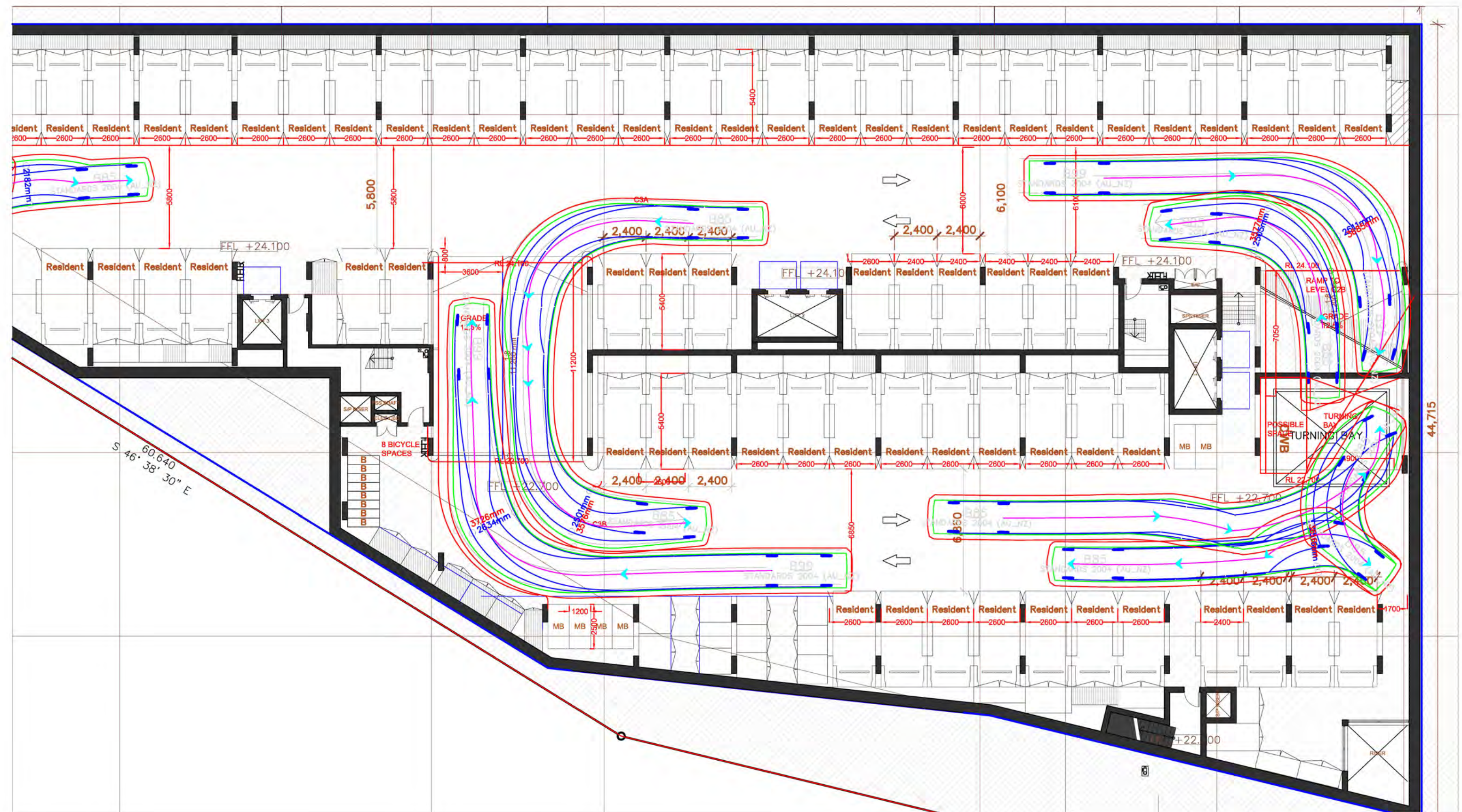


FIGURE 3

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



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

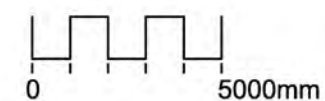
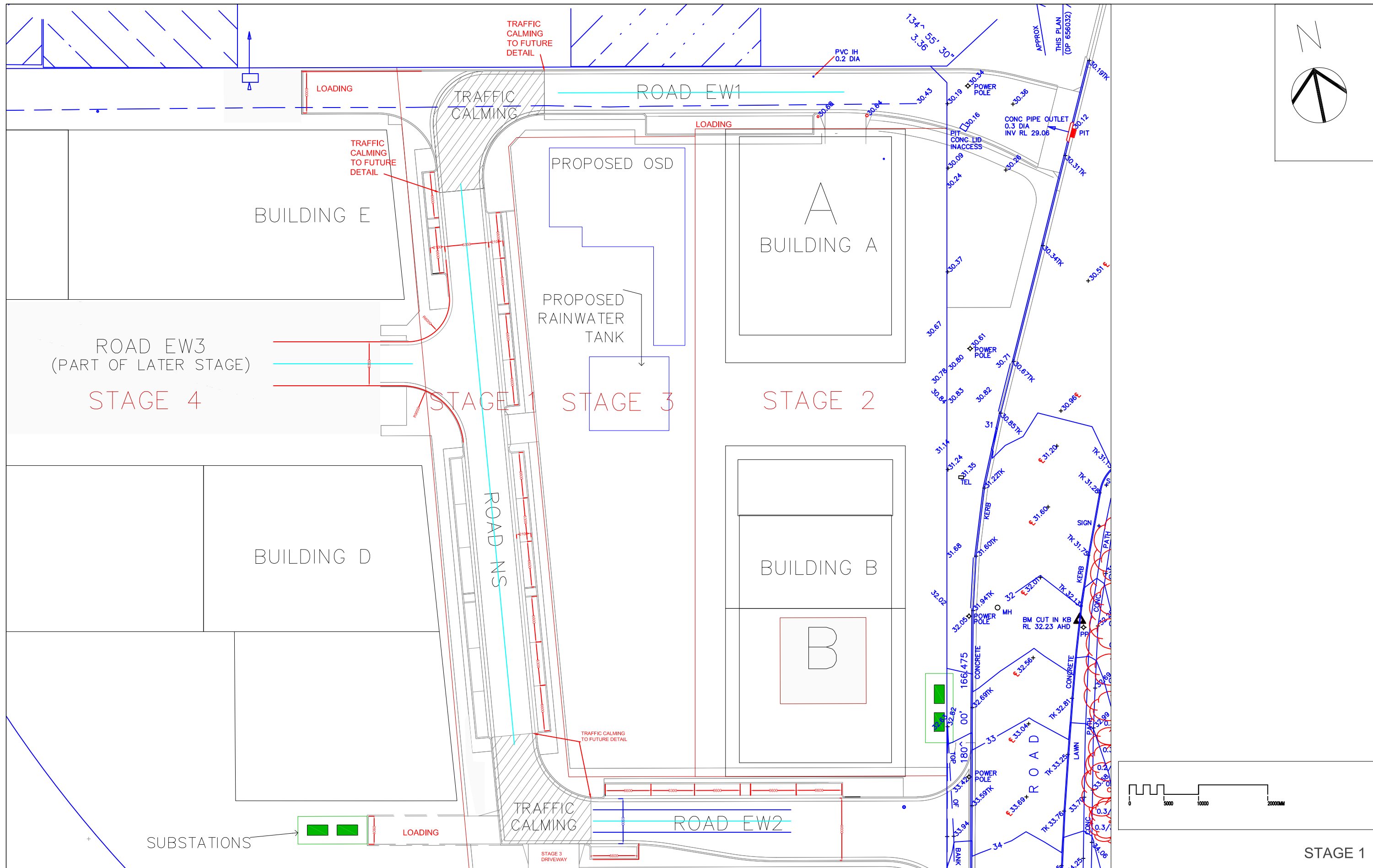


FIGURE 4
DD-A-100
BASEMENT LEVEL C3
SCALE 1:200(A3)
LMP REVIEW
27-03-2025

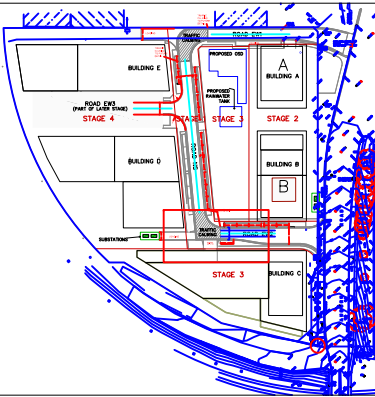
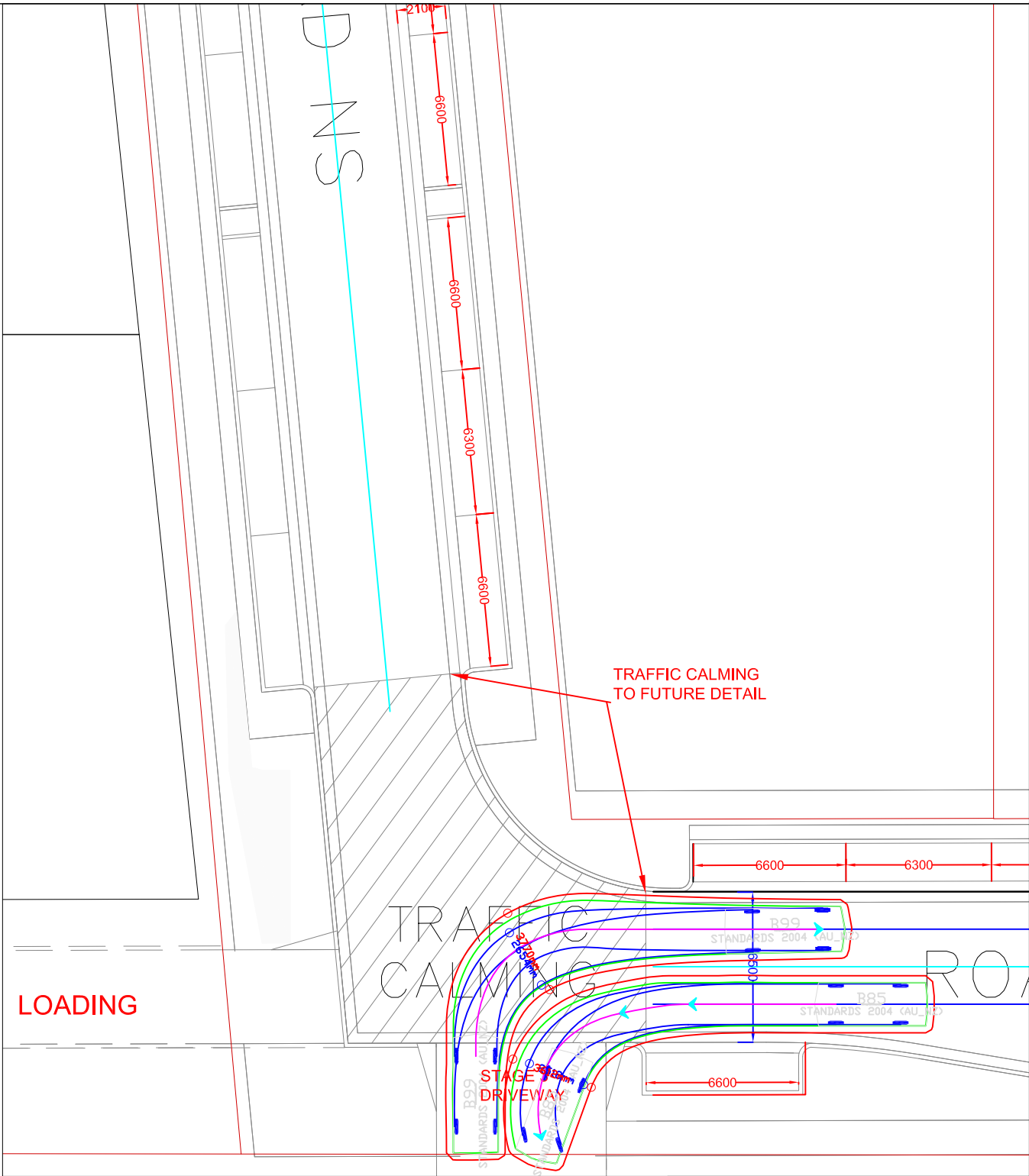
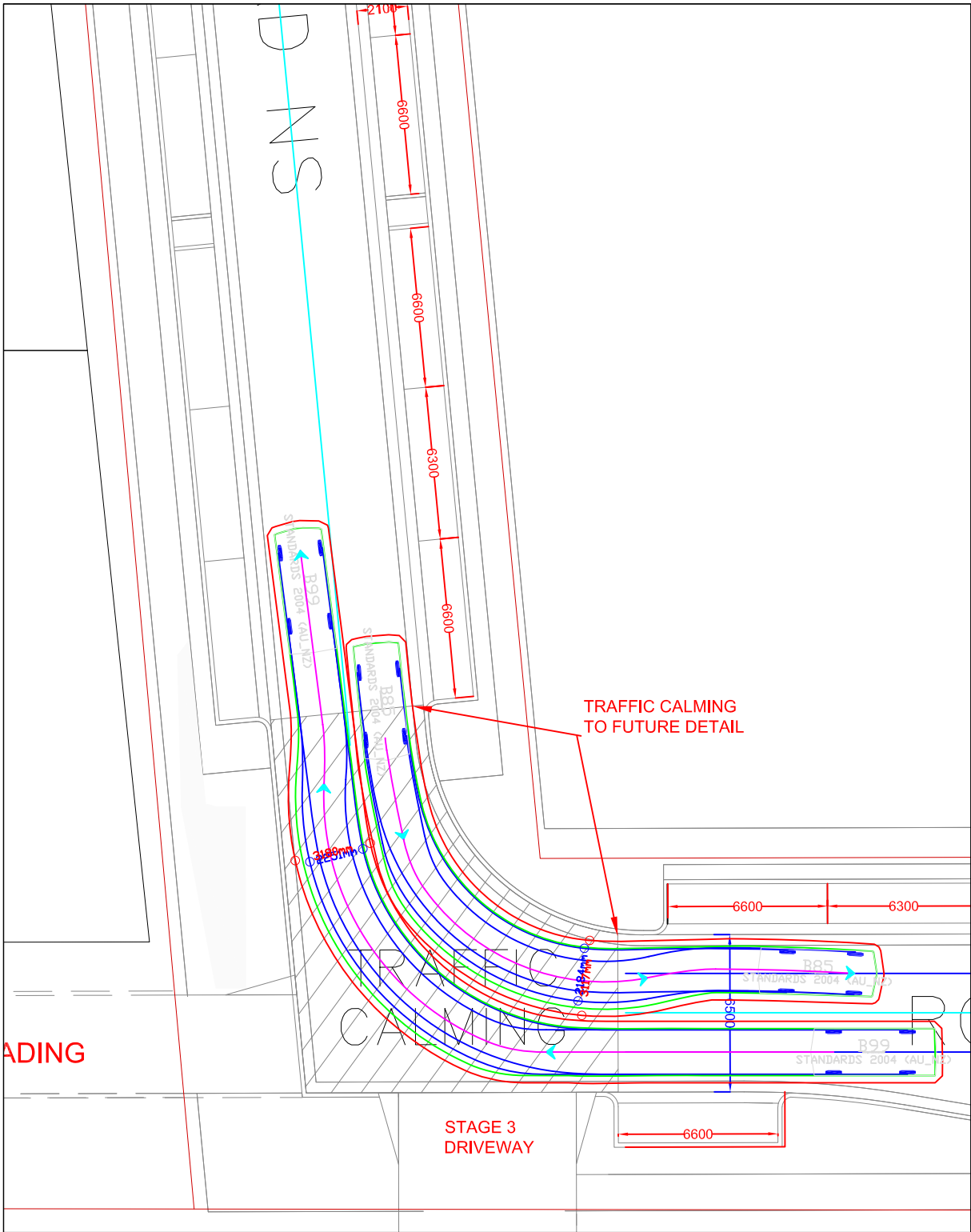


No.			SURVEY BY:		CLIENT:		SCALE:		PASSED:		DATE FIRST ISSUED:	
			GEOMETRA CONSULTING		30 AUBURN ROAD PTY LTD		1:500(A3)		EME		10-11-2025	
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			20/1-5 JACOBS STREET BANKSTOWN NSW 2200		GENERAL LAYOUT PLAN STAGE 1		DRAWN		1		1160-6-25	
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Lyle Marshall & Partners Pty Ltd
consulting engineers, transport and environmental planners & architects
NOMINATED ARCHITECT: ERICA MARSHALL-EVANS : NO. 6513
Suite 15 Level 1 phone: (02) 9436 0086
265-271 Pennant Hills Road email: lyle@lylemarshall.com.au
Thornleigh NSW 2120 web: www.lylemarshall.com.au

The Association of Consulting Engineers Australia

Client:		30 AUBURN ROAD PTY LTD	
30-46 AUBURN ROAD REGENTS PARK STAGE 1		GENERAL LAYOUT PLAN STAGE 1	



KEY DIAGRAM
SCALE 1:2000

VEHICLE PROFILES

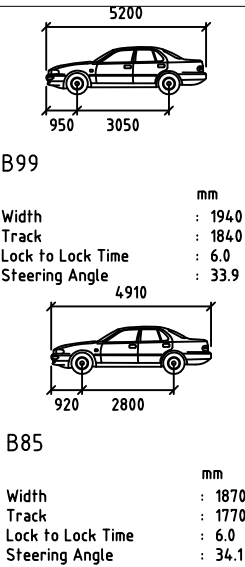
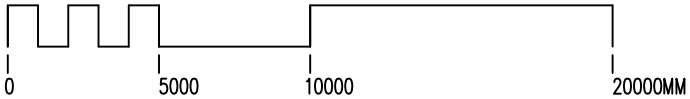


FIGURE 1-B99 LHT EASTBOUND
AND B99 RHT NORTHBOUND
WITHIN RW2

FIGURE 2-B99 RHT RW2
EASTBOUND AND B85 LHT INTO
BUILDING C



STAGE 1

No.	Date	Issue Notes	SURVEY BY: GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au		 Lyle Marshall & Partners Pty Ltd consulting engineers, transport and environmental planners & architects NOMINATED ARCHITECT : ERICA MARSHALL-EVANS : NO. 6513 Suite 15 Level 1 phone: (02) 9436 0086 265-271 Pennant Hills Road email: lyle@lylemarshall.com.au Thornleigh NSW 2120 web: www.lylemarshall.com.au	 Client: 30 AUBURN ROAD PTY LTD 30-46 AUBURN ROAD REGENTS PARK STAGE 1 GENERAL LAYOUT PLAN STAGE 1 SWEPT PATH ANALYSIS	SCALE		PASSED	DATE FIRST ISSUED		
							1:200(A3)		EME		10-11-2025	
			DATUM: A.H.D				COPYRIGHT THIS DRAWING IS THE PROPERTY OF LYLE MARSHALL AND PARTNERS P/L AND MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED & IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT FOR THAT COMMISSION. UNAUTHORISED USE OF THIS DRAWING IS PROHIBITED.		DESIGN		Sheet No. 2 of 13	Drawing No. 1160-6-25
							DRAWN	EM				
							CHECK	CHK				

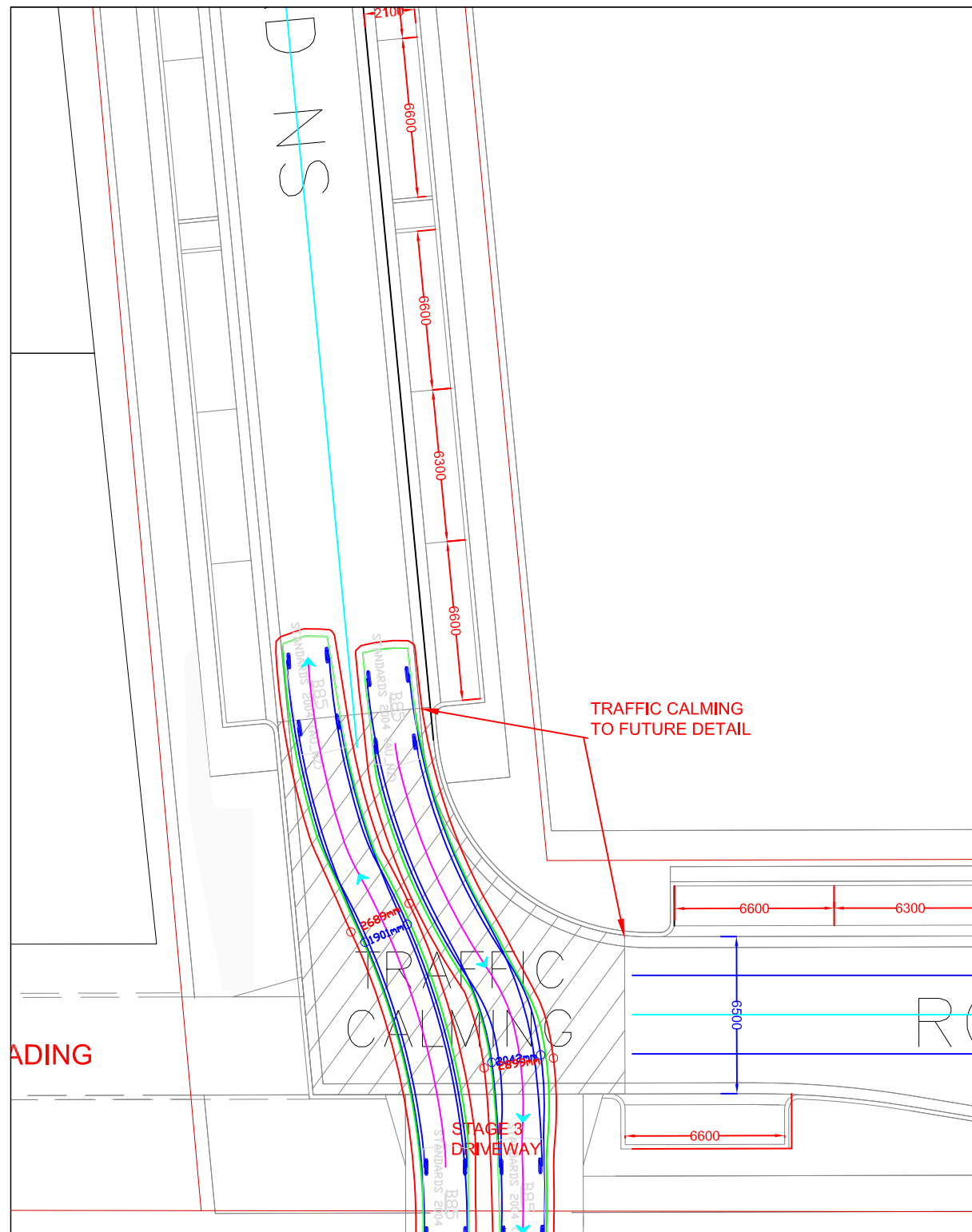


FIGURE 3-B85 NORTHBOUND
EXIT B99 ENTRY SOUTHBOUND
TO BUILDING C DRIVEWAY

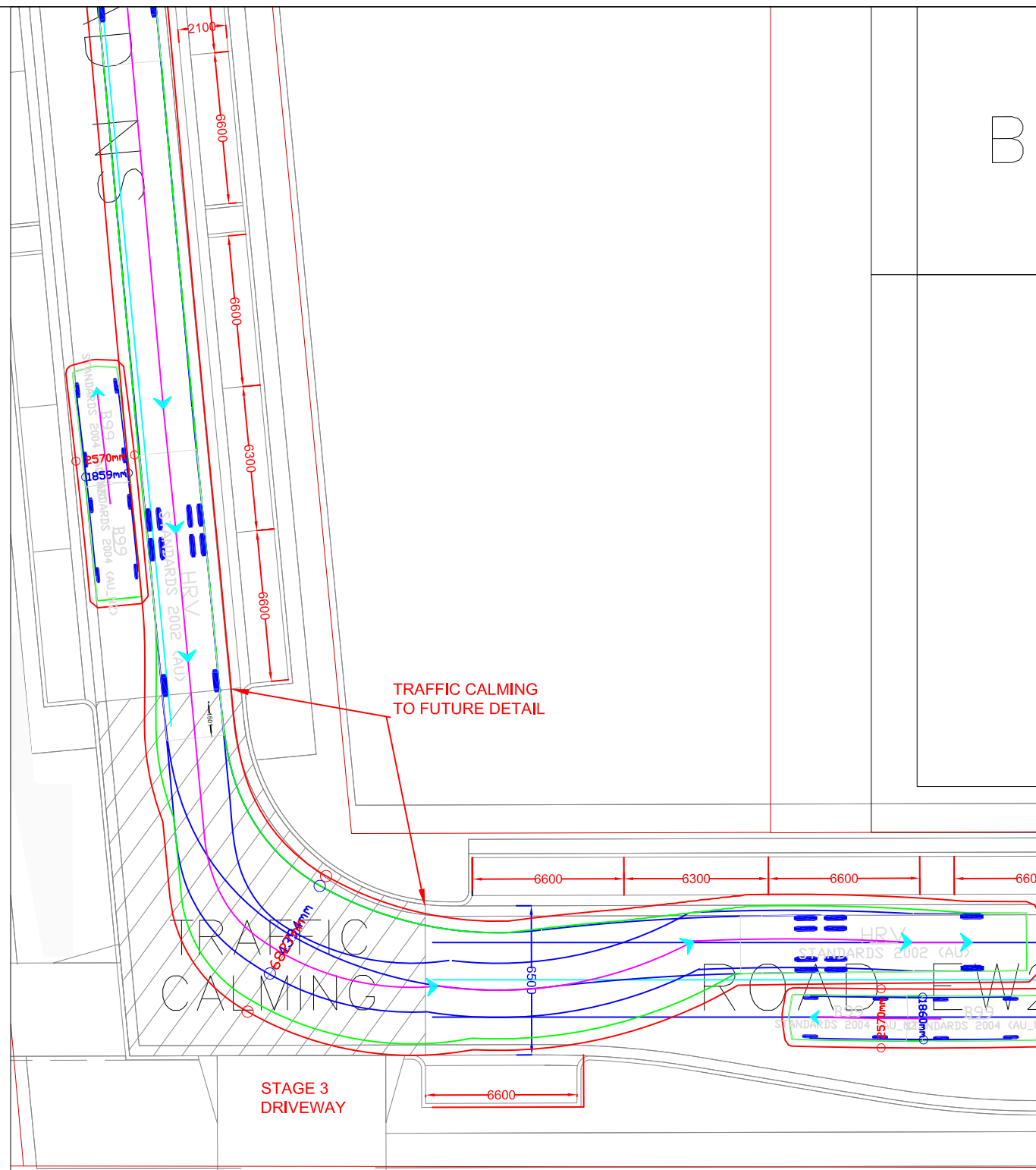
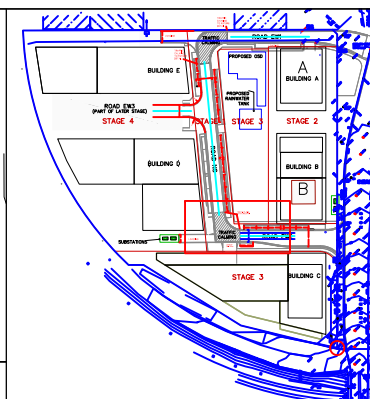
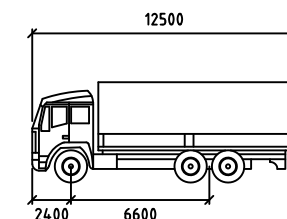


FIGURE 4-HRV LHT IN RW2 AND
B99 RHT IN RW2 NORTHBOUND



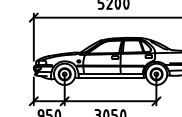
KEY DIAGRAM
SCALE 1:2000

VEHICLE PROFILES



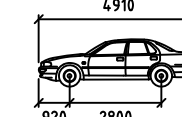
HRV

Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 35.2



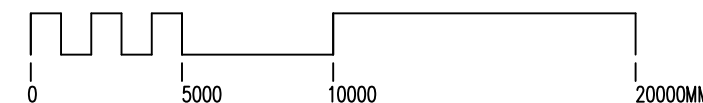
B99

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



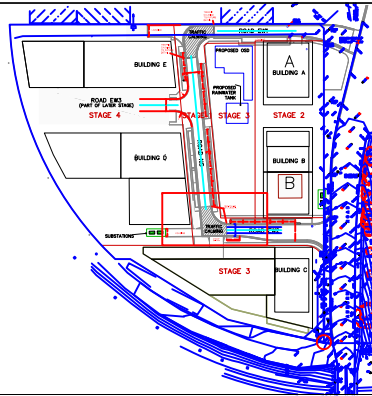
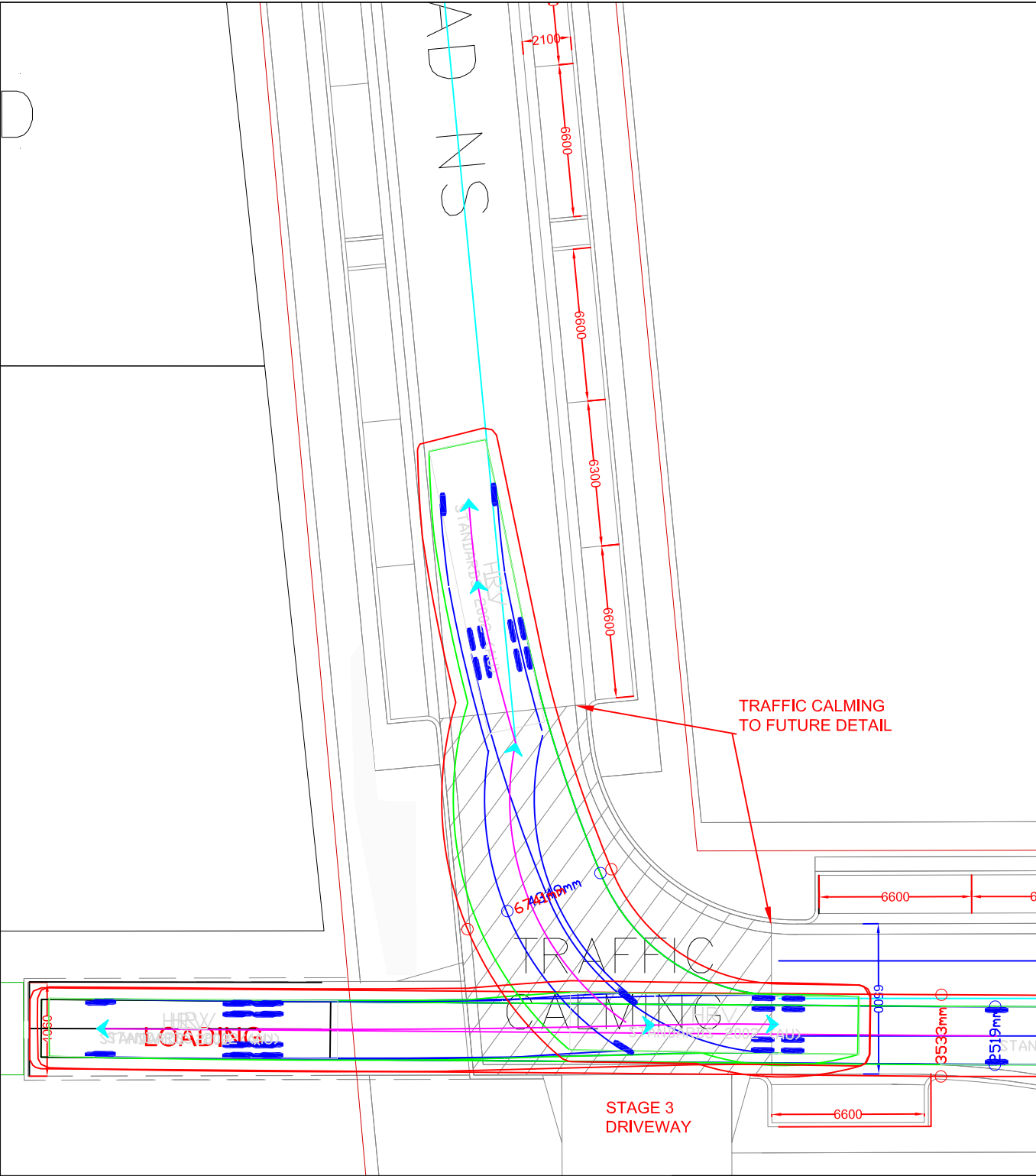
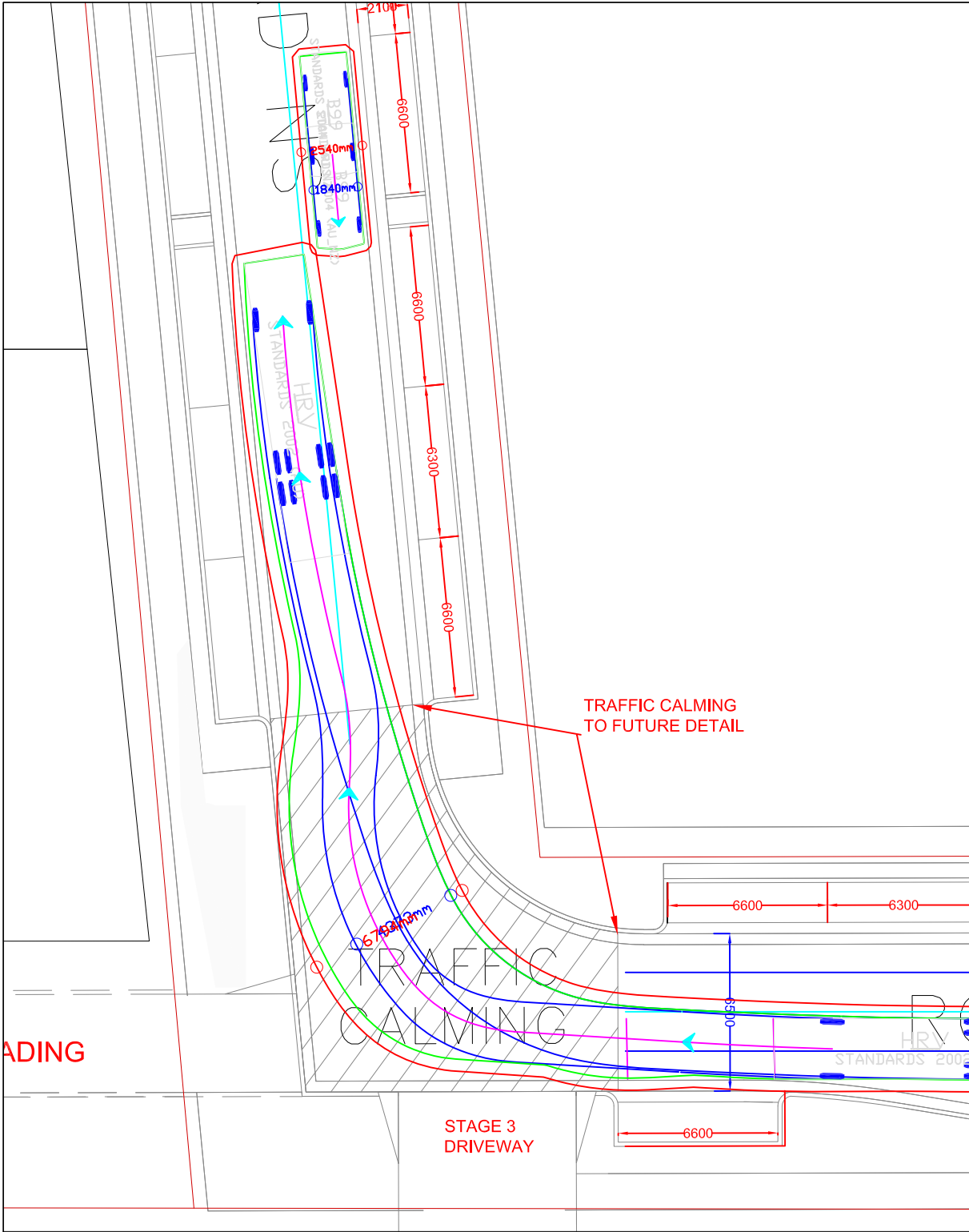
B85

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



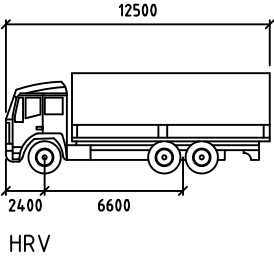
STAGE 1

No.	Date	Issue Notes	SURVEY BY:	GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au	DATUM:	A.H.D	COPYRIGHT THIS DRAWING IS THE PROPERTY OF LYLE MARSHALL AND PARTNERS P/L AND MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED & IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT FOR THAT COMMISSION. UNAUTHORISED USE OF THIS DRAWING IS PROHIBITED.	 Lyle Marshall & Partners Pty Ltd consulting engineers, transport and environmental planners & architects NOMINATED ARCHITECT: ERICA MARSHALL-EVANS : NO. 6513 Suite 15 Level 1 phone: (02) 9436 0086 265-271 Pennant Hills Road email: lyle@lylemarshall.com.au Thornleigh NSW 2120 web: www.lylemarshall.com.au	  The Association of Consulting Engineers Australia	Client: 30 AUBURN ROAD PTY LTD 30-46 AUBURN ROAD REGENTS PARK STAGE 1 GENERAL LAYOUT PLAN STAGE 1 SWEPT PATH ANALYSIS	SCALE 1:250(A3)	PASSED EME	DATE FIRST ISSUED 10-11-2025	DESIGN DRAWN CHECK	EM CHK	Sheet No. 3 of 13	Drawing No. 1160-6-25
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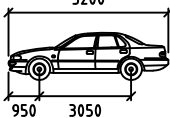


KEY DIAGRAM
SCALE 1:2000

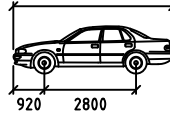
VEHICLE PROFILES



HRV
Width : 2500
Track : 2500
Lock to Lock Time : 6.0
Steering Angle : 35.2



B99
Width : 1940
Track : 1840
Lock to Lock Time : 6.0
Steering Angle : 33.9



B85
Width : 1870
Track : 1770
Lock to Lock Time : 6.0
Steering Angle : 34.1

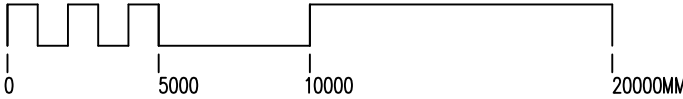
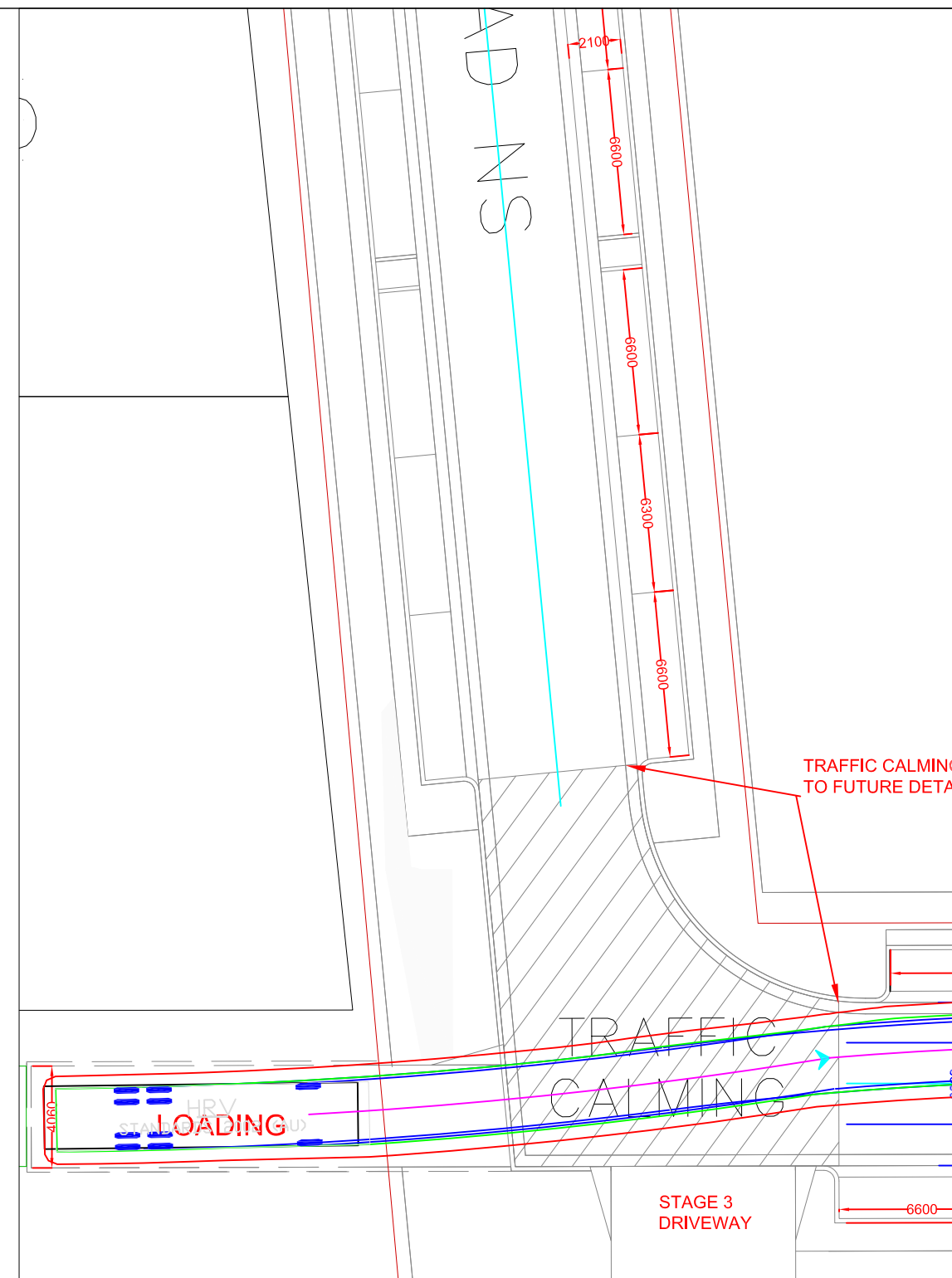
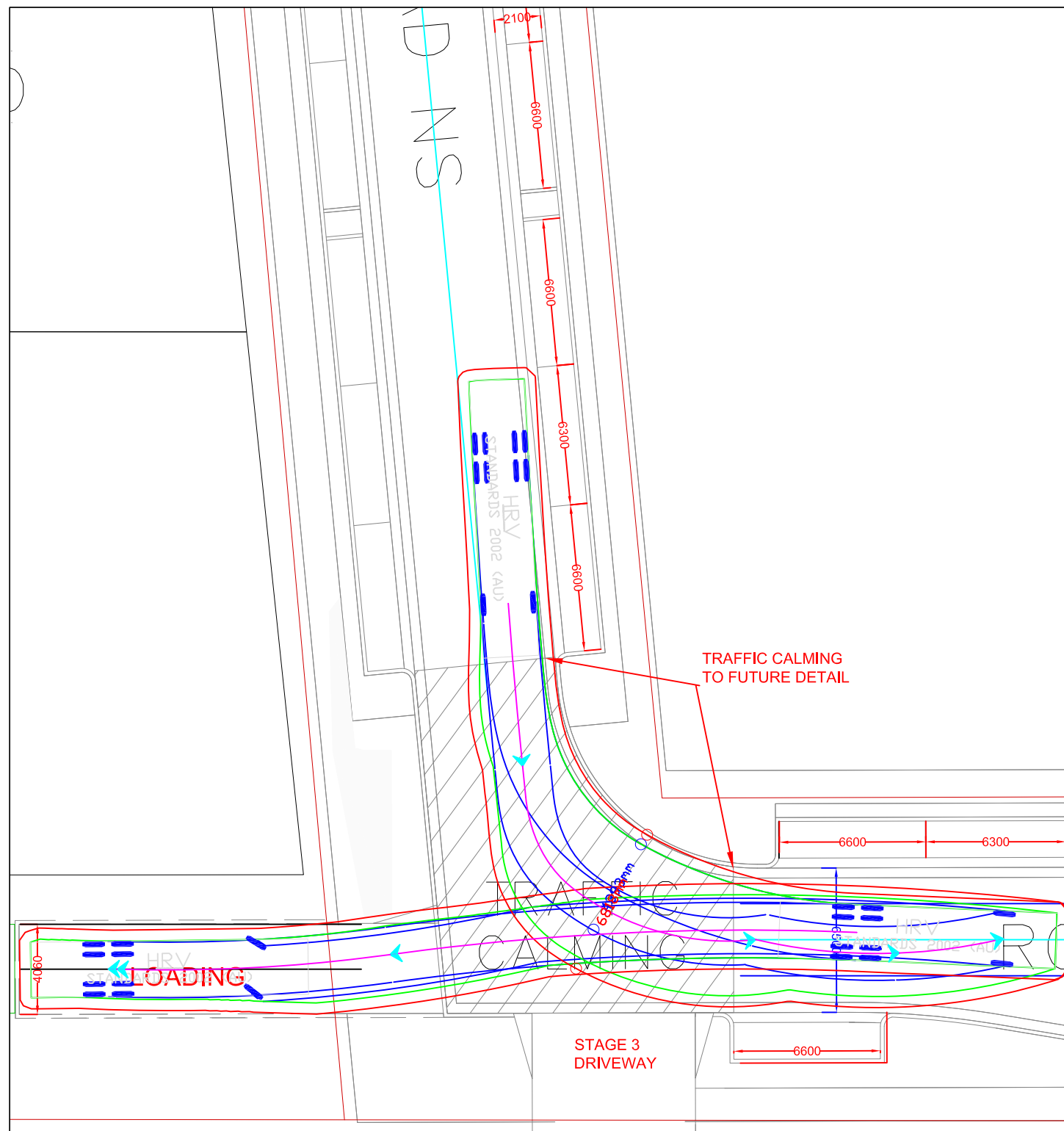


FIGURE 5-B99 SOUTH BOUND
RW2 AND HRV RHT RW2
NORTHBOUND

FIGURE 5AB-HRV WESTBOUND
FORWARDS INTO DOCK CD AND
REVERSE EXIT AND
NORTHBOUND INTO RW2

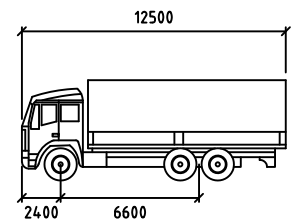
STAGE 1

No.	Date	Issue Notes	SURVEY BY:		 Lyle Marshall & Partners Pty Ltd consulting engineers, transport and environmental planners & architects NOMINATED ARCHITECT : ERICA MARSHALL-EVANS : NO. 6513 Suite 15 Level 1 phone: (02) 9436 0086 265-271 Pennant Hills Road email: lyle@lylemarshall.com.au Thornleigh NSW 2120 web: www.lylemarshall.com.au	 The Association of Consulting Engineers Australia	Client:		30 AUBURN ROAD PTY LTD		SCALE	PASSED	DATE FIRST ISSUED	
			DATUM:	COPYRIGHT			30-46 AUBURN ROAD REGENTS PARK STAGE 1		DESIGN		Sheet No.	Drawing No.		
			A.H.D	THIS DRAWING IS THE PROPERTY OF LYLE MARSHALL AND PARTNERS PTY LTD AND MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED & IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT FOR THAT COMMISSION. UNAUTHORISED USE OF THIS DRAWING IS PROHIBITED.			GENERAL LAYOUT PLAN STAGE 1		DRAWN	EM	4 of 13	1160-6-25		
						SWEPT PATH ANALYSIS		CHECK	CHK					



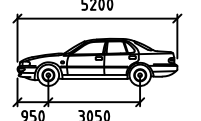
KEY DIAGRAM
SCALE 1:2000

VEHICLE PROFILES



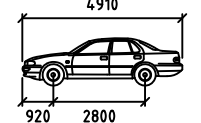
HRV

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Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 35.2



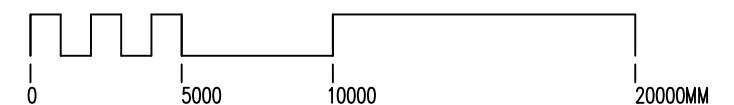
B99

	mm
Width	: 194.0
Track	: 184.0
Lock to Lock Time	: 6.0
Steering Angle	: 33.9



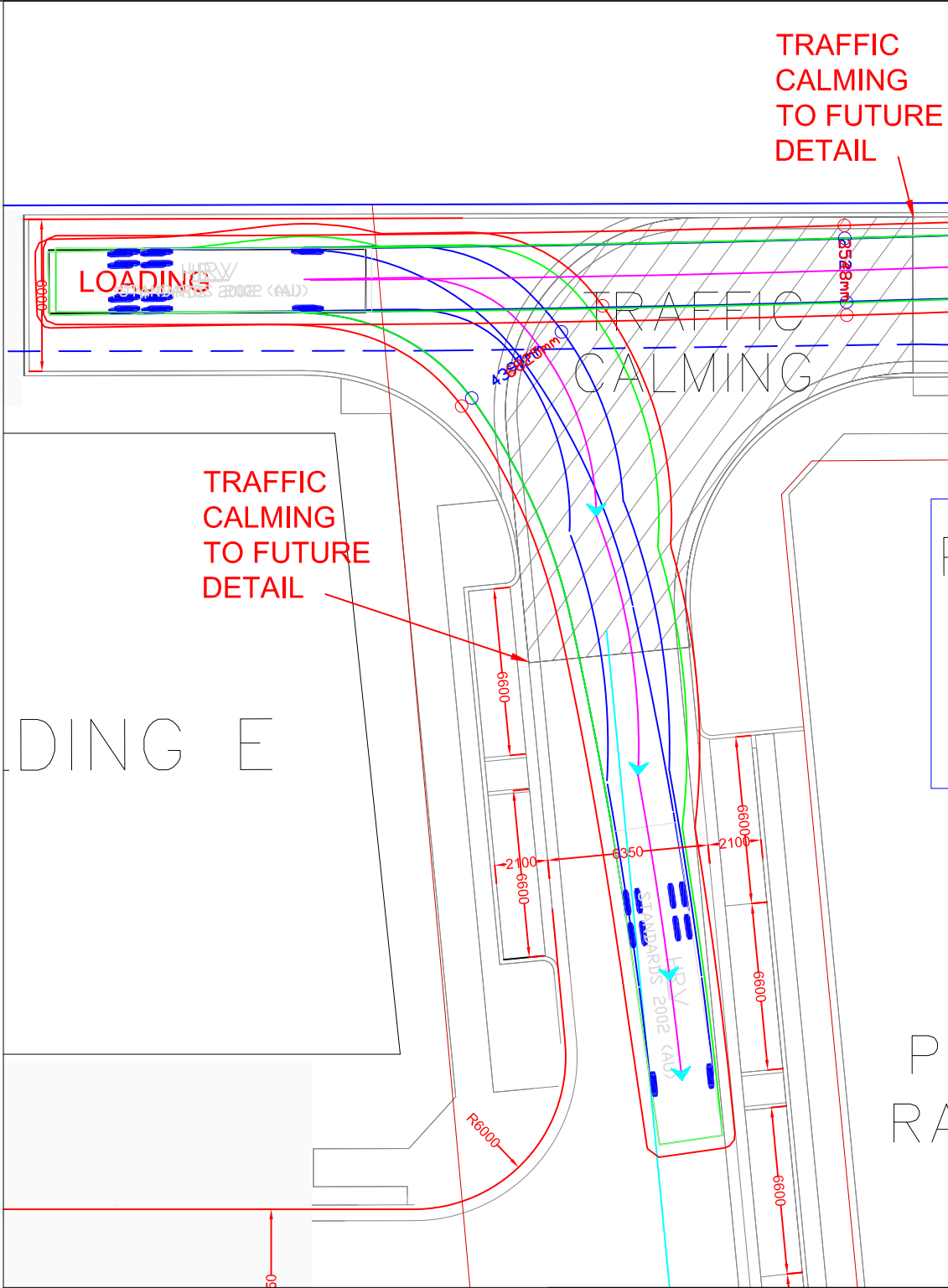
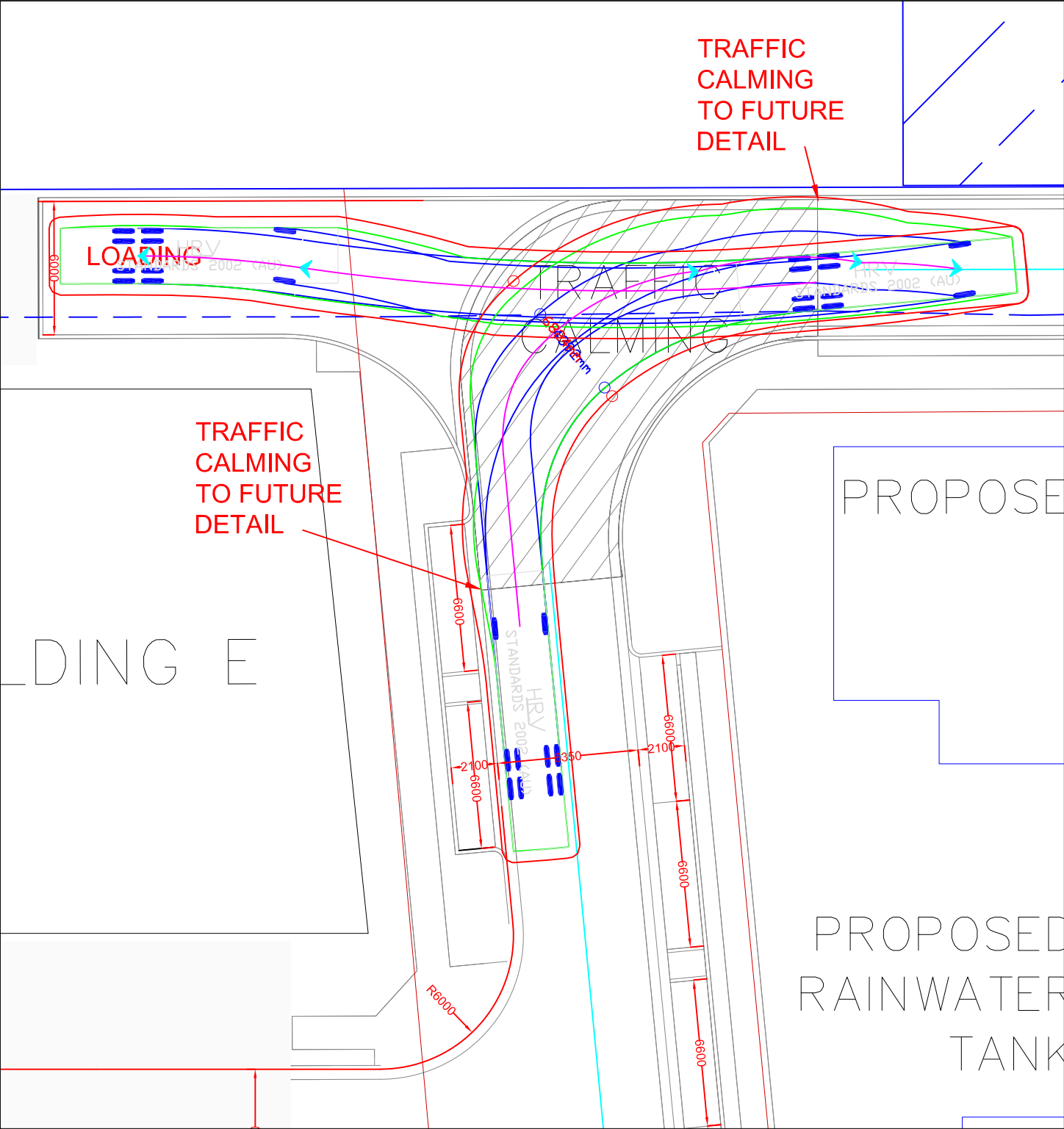
B85

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



STAGE 1

No.	Date	Issue Notes	SURVEY BY: GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au		 Lyle Marshall & Partners Pty Ltd consulting engineers, transport and environmental planners & architects NOMINATED ARCHITECT : ERICA MARSHALL-LEVANS : NO. 6513 Suite 15 Level 1 phone: (02) 9436 0086 265-271 Pennant Hills Road email: lyle@lylemarshall.com.au Thornleigh NSW 2120 web: www.lylemarshall.com.au	  The Association of Consulting Engineers Australia	Client: 30 AUBURN ROAD PTY LTD		SCALE	PASSED	DATE FIRST ISSUED	
				1:250(A3)			EME	10-11-2025				
			DATUM:	COPYRIGHT			30-46 AUBURN ROAD REGENTS PARK STAGE 1 GENERAL LAYOUT PLAN STAGE 1 SWEPT PATH ANALYSIS		DESIGN		Sheet No.	Drawing No.
			A.H.D	THIS DRAWING IS THE PROPERTY OF LYLE MARSHALL AND PARTNERS P/L AND MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED & IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT FOR THAT COMMISSION. UNAUTHORISED USE OF THIS DRAWING IS PROHIBITED.			phone:	(02) 9436 0086	DRAWN	EM	5	1160-6-25
					email:	lyle@lylemarshall.com.au	CHECK	CHK	of	13		



KEY DIAGRAM
SCALE 1:2000

VEHICLE PROFILES

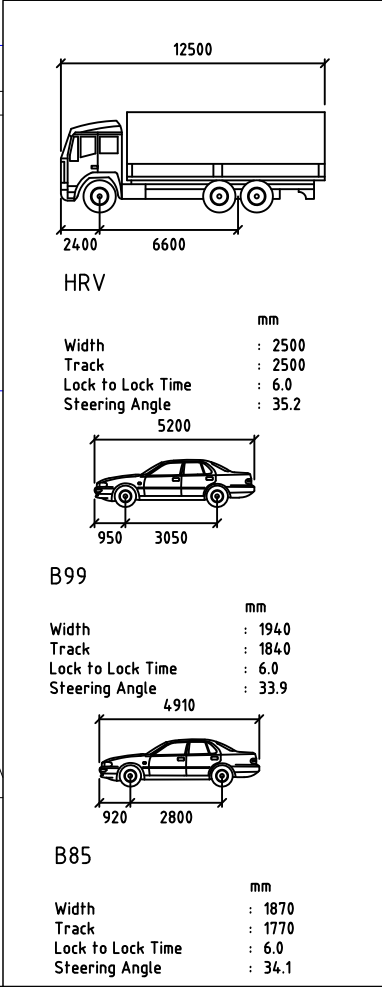
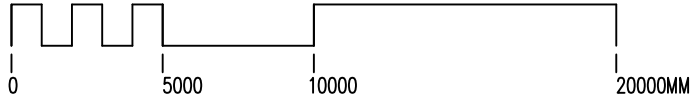


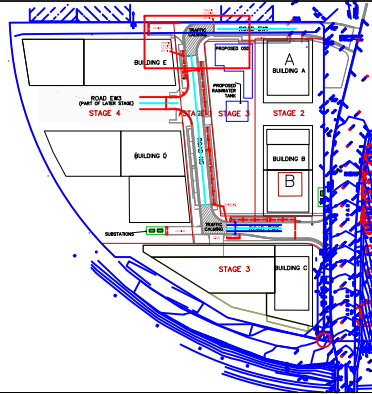
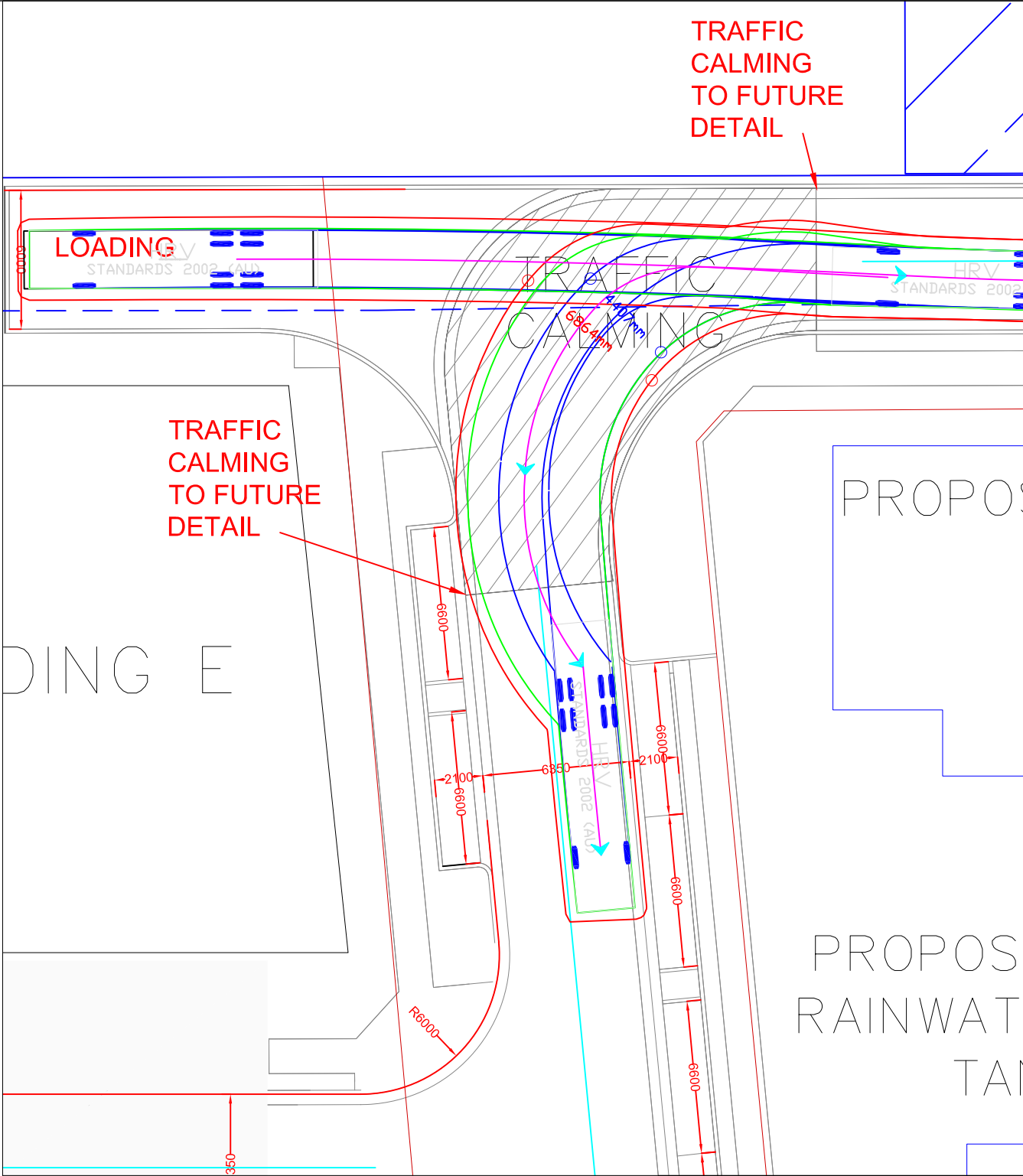
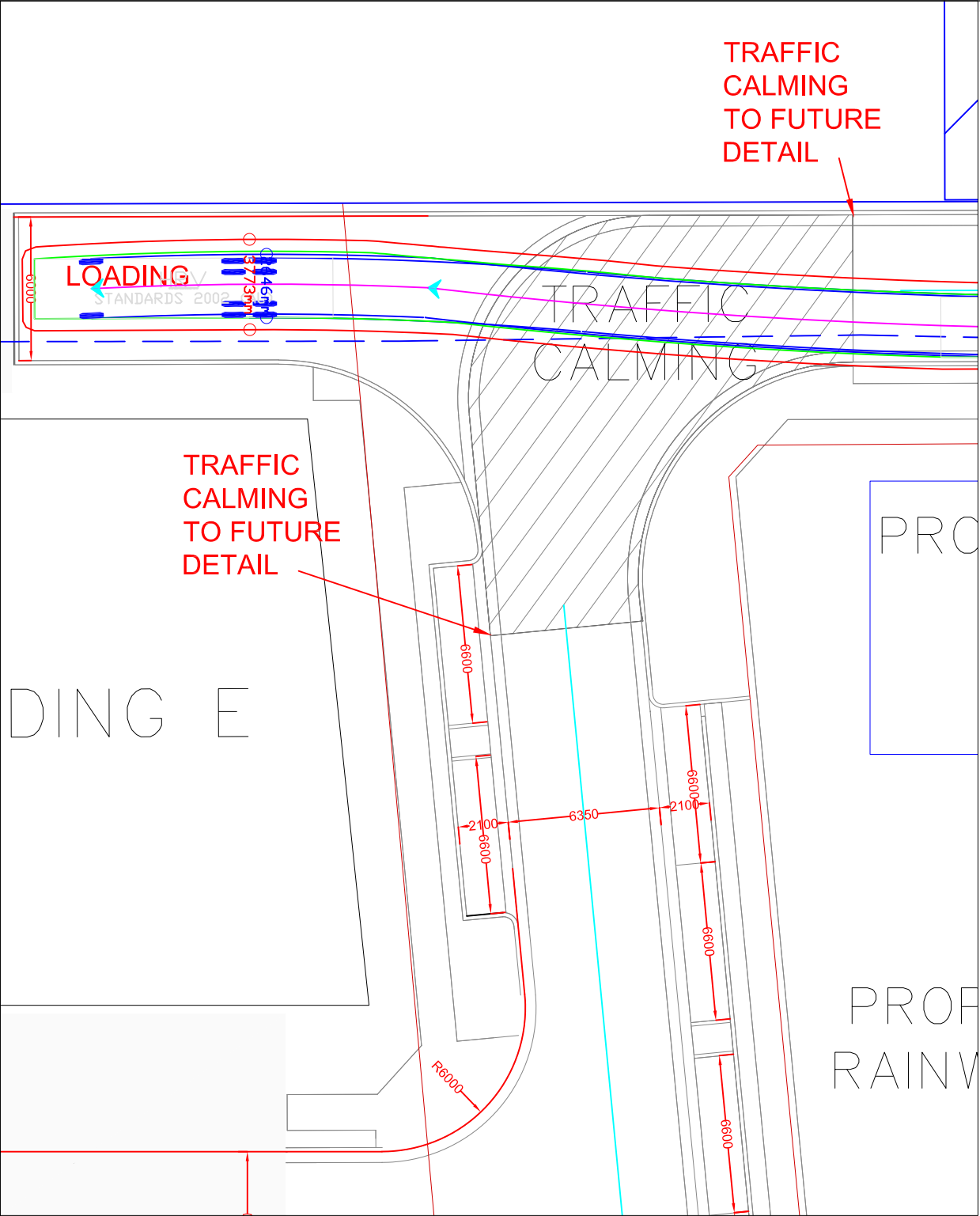
FIGURE 7A HRV RHT INTO RW2
REVERSE ENTRY INTO DOCK E

FIGURE 7B HRV RHT EXIT TO
RW2 SOUTHBOUND AND EXIT
FORWARDS STRAIGHT
EASTBOUND FROM DOCK E



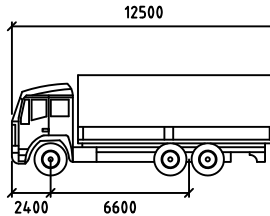
STAGE 1

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								30-46 AUBURN ROAD REGENTS PARK STAGE 1			1:250(A3)	EME	10-11-2025			
								GENERAL LAYOUT PLAN STAGE 1 SWEPT PATH ANALYSIS			DESIGN		Sheet No. 6 of 13	Drawing No. 1160-6-25		
			DATUM: A.H.D		COPYRIGHT THIS DRAWING IS THE PROPERTY OF LYLE MARSHALL AND PARTNERS PL AND MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED & IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT FOR THAT COMMISSION. UNAUTHORISED USE OF THIS DRAWING IS PROHIBITED.						DRAWN	EM	CHECK	CHK		



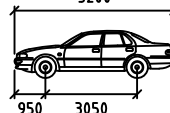
KEY DIAGRAM
SCALE 1:2000

VEHICLE PROFILES



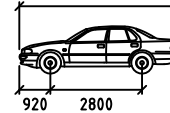
HRV

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Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 35.2



B99

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

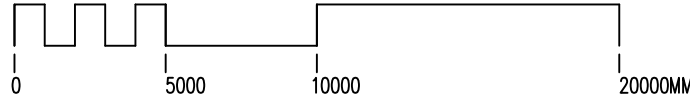


B85

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

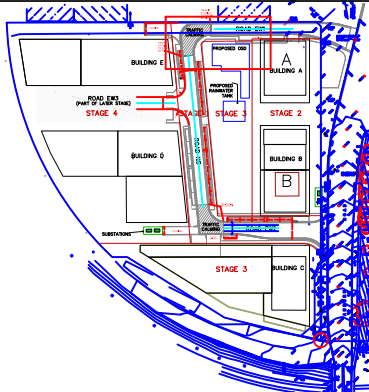
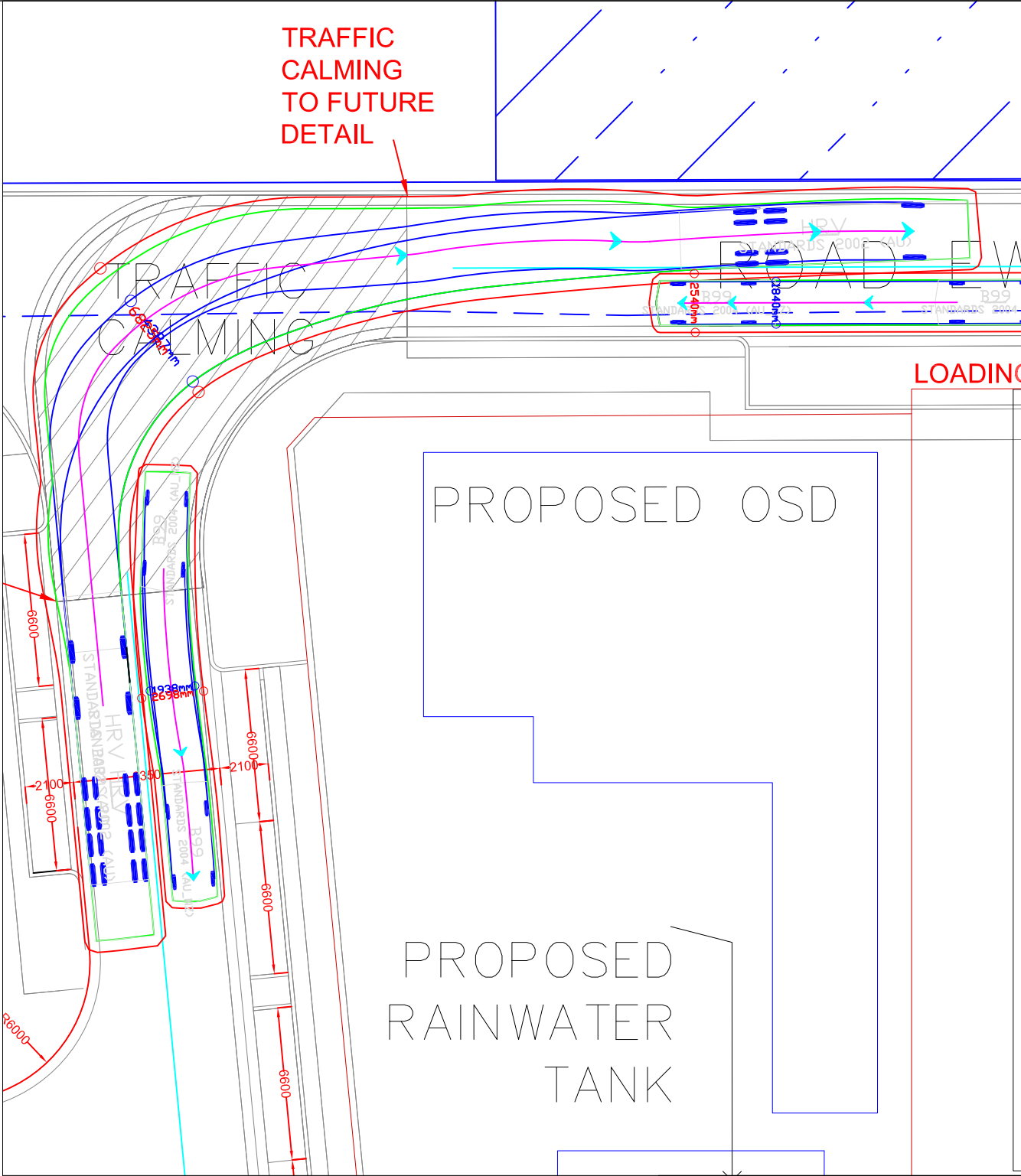
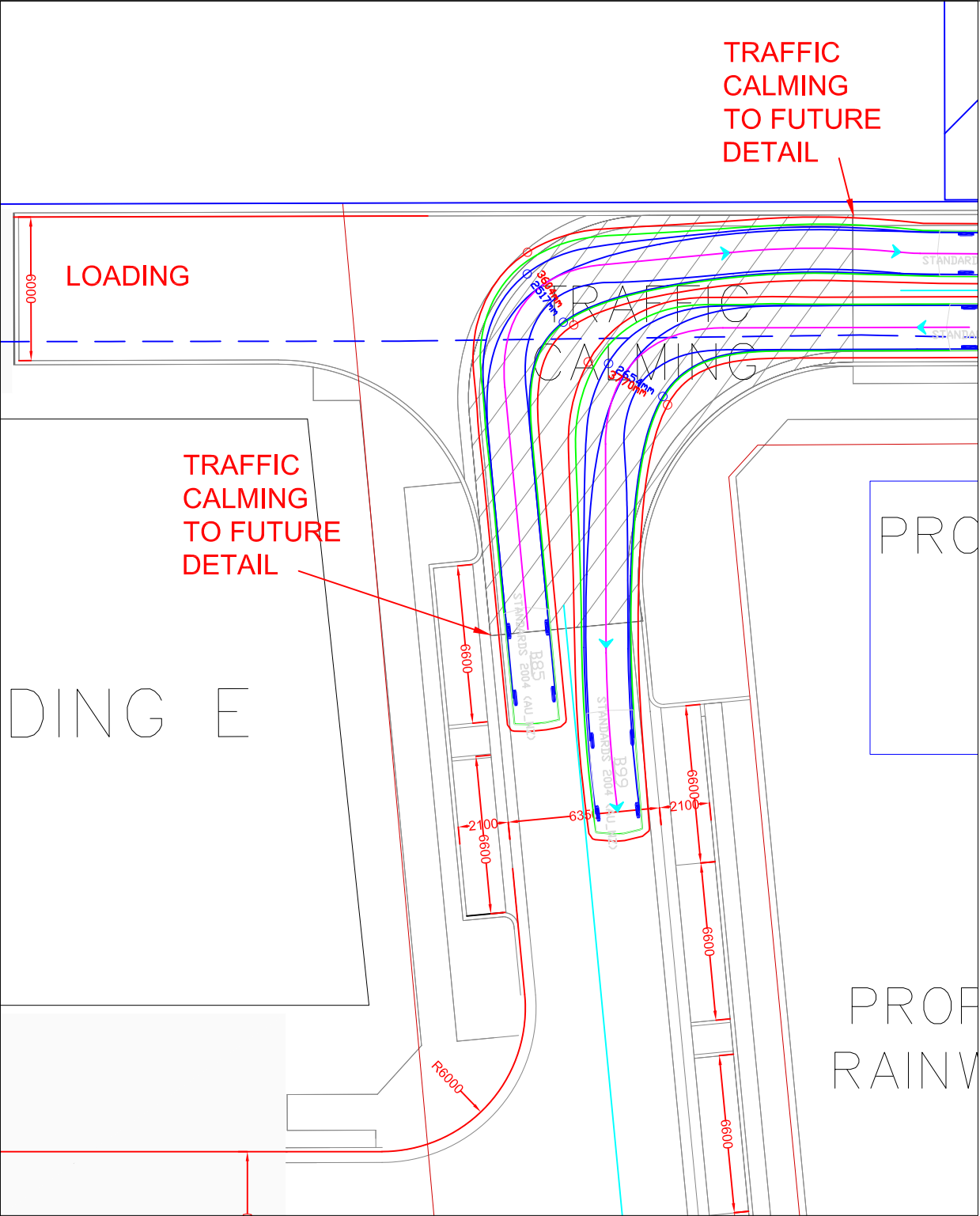
FIGURE 8A HRV FORWARDS
STRAIGHT WESTBOUND INTO
DOCK E

FIGURE 8B HRV REVERSE AND
EXIT LHT SOUTHBOUND IN RW2



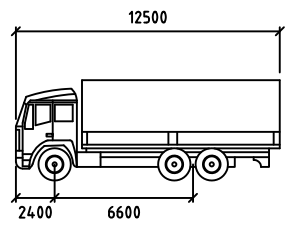
STAGE 1

No.	Date	Issue Notes	SURVEY BY:	GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au	DATUM:	A.H.D	COPYRIGHT THIS DRAWING IS THE PROPERTY OF LYLE MARSHALL & PARTNERS PTY LTD AND MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED & IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT FOR THAT COMMISSION. UNAUTHORISED USE OF THIS DRAWING IS PROHIBITED.	Lyle Marshall & Partners Pty Ltd consulting engineers, transport and environmental planners & architects NOMINATED ARCHITECT: ERICA MARSHALL-EVANS : NO. 6513 Suite 15 Level 1 265-271 Pennant Hills Road Thornleigh NSW 2120 phone: (02) 9436 0086 email: lyle@lylemarshall.com.au web: www.lylemarshall.com.au	Client: 30 AUBURN ROAD PTY LTD 30-46 AUBURN ROAD REGENTS PARK STAGE 1 GENERAL LAYOUT PLAN STAGE 1 SWEEP PATH ANALYSIS	SCALE 1:250(A3)	PASSED EME	DATE FIRST ISSUED 10-11-2025	DESIGN DRAWN CHECK	EM CHK	Sheet No. 7 of 13	Drawing No. 1160-6-25
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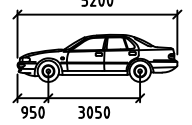


KEY DIAGRAM
SCALE 1:2000

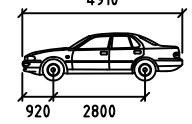
VEHICLE PROFILES



HRV
Width : 2500
Track : 2500
Lock to Lock Time : 6.0
Steering Angle : 35.2



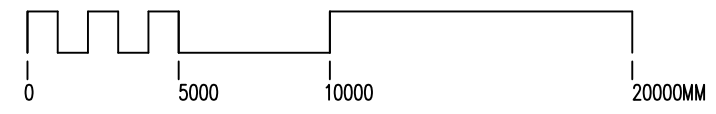
B99
Width : 1940
Track : 1840
Lock to Lock Time : 6.0
Steering Angle : 33.9



B85
Width : 1870
Track : 1770
Lock to Lock Time : 6.0
Steering Angle : 34.1

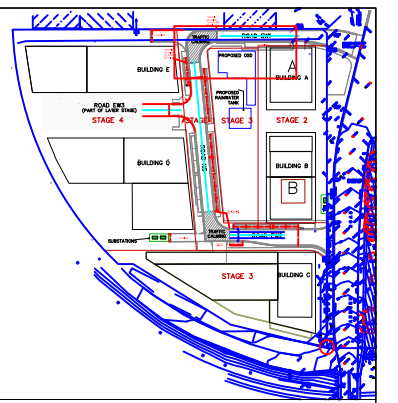
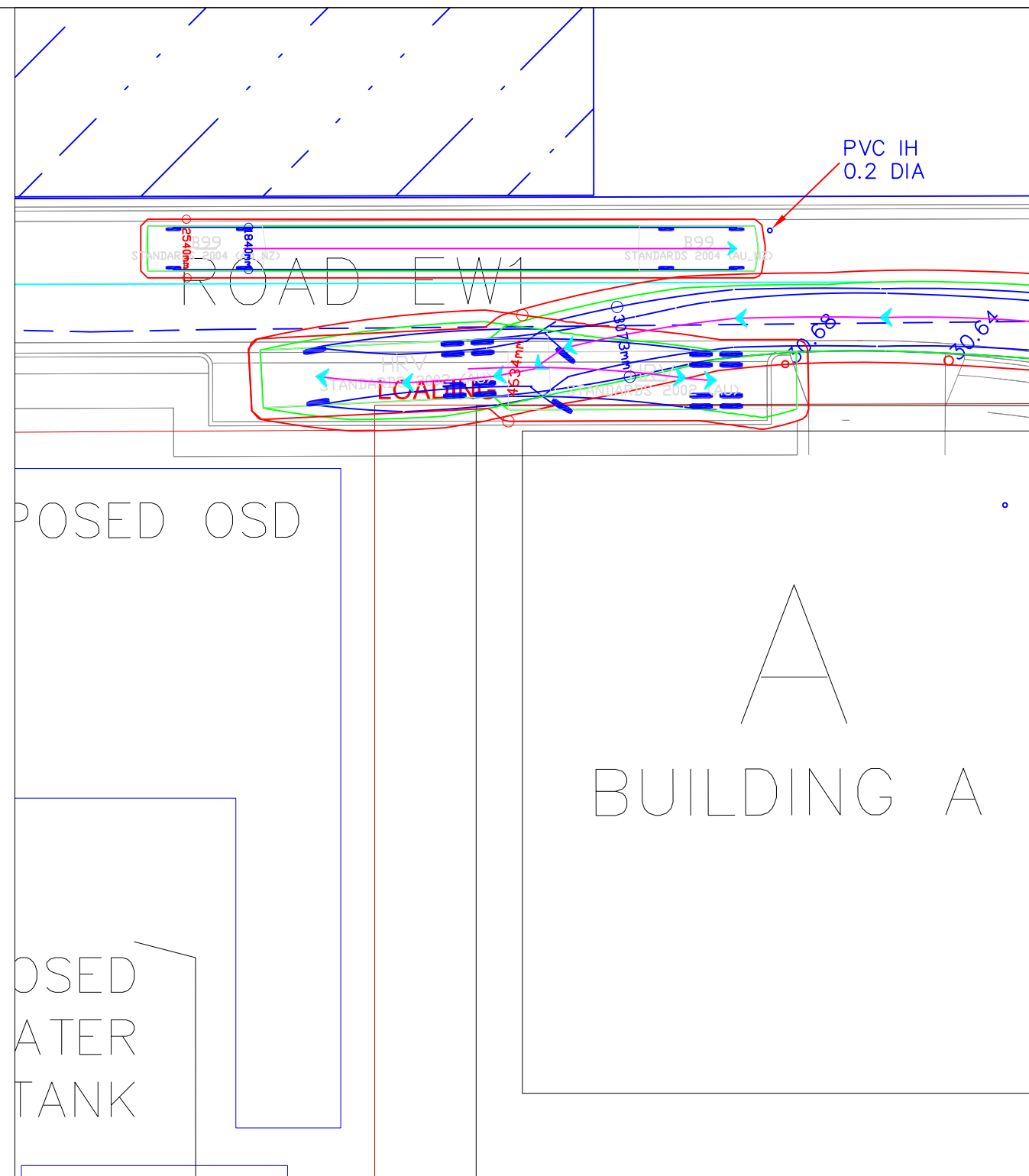
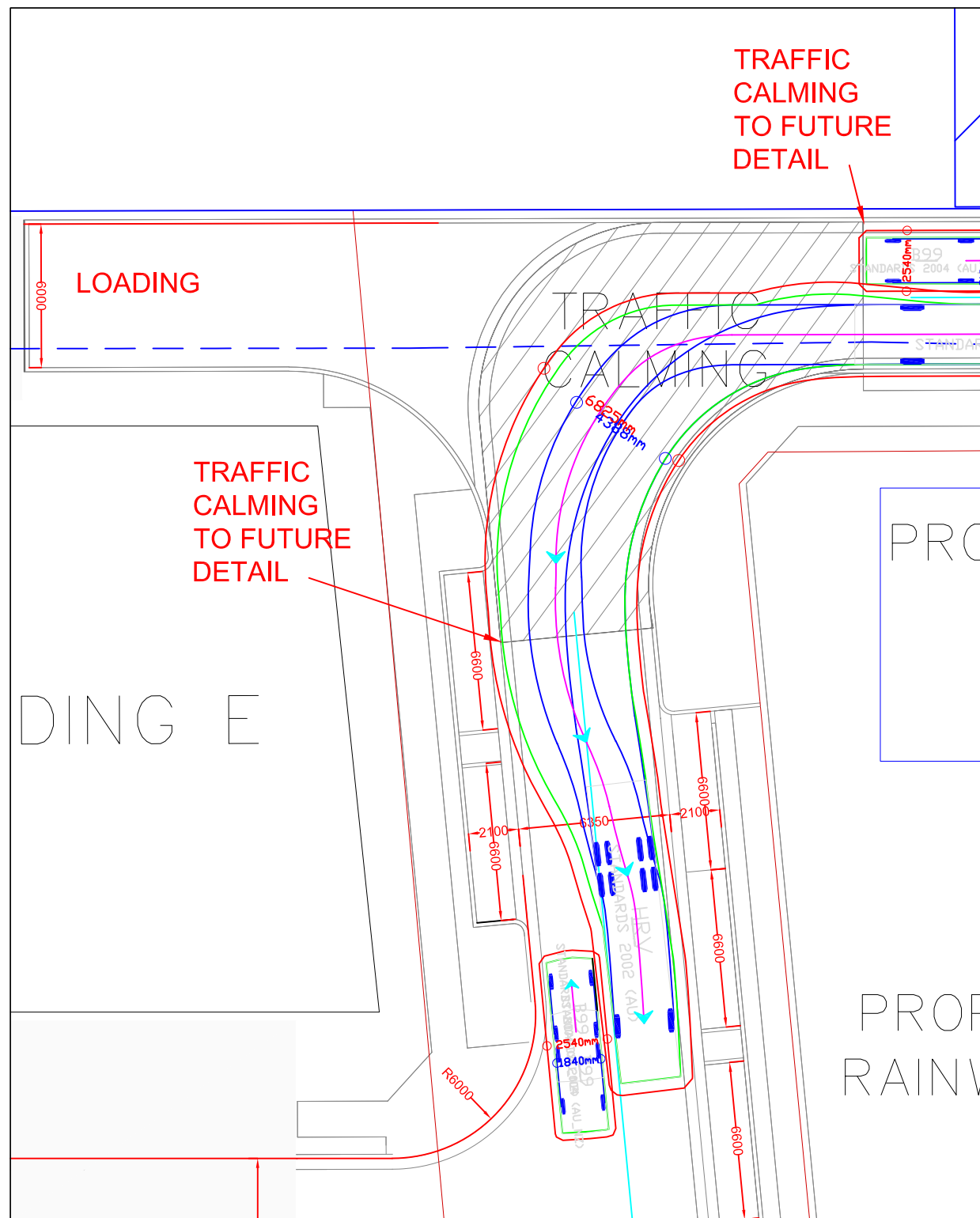
FIGURE 9 B85 RHT AND B99 LHT
IN RW2

FIGURE 10 HRV RHT AND B99 LHT
IN RW2



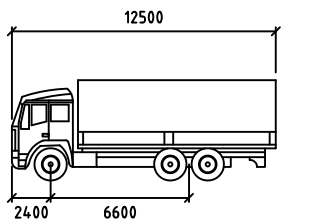
STAGE 1

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							GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au							1:250(A3)		EME	10-11-2025			
							DATUM:							30-46 AUBURN ROAD REGENTS PARK STAGE 1		DESIGN		Sheet No. 8 of 13	Drawing No. 1160-6-25	
							A.H.D							GENERAL LAYOUT PLAN STAGE 1		DRAWN				
												SWEPT PATH ANALYSIS		CHECK		CHK				



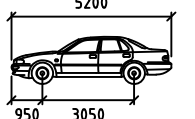
KEY DIAGRAM
SCALE 1:2000

VEHICLE PROFILES



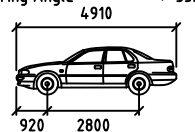
HRV

	mm
Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 35.2



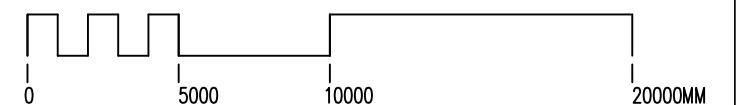
B99

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



B85

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



STAGE 1

No.	Date	Issue Notes	SURVEY BY: GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au		 Lyle Marshall & Partners Pty Ltd consulting engineers, transport and environmental planners & architects NOMINATED ARCHITECT : ERICA MARSHALL-LEVANS : NO. 6513 Suite 15 Level 1 phone: (02) 9436 0086 265-271 Pennant Hills Road email: lyle@lylemarshall.com.au Thornleigh NSW 2120 web: www.lylemarshall.com.au	  The Association of Consulting Engineers Australia	Client: 30 AUBURN ROAD PTY LTD		SCALE		PASSED	DATE FIRST ISSUED
							1:250(A3)	EME	10-11-2025			
			DATUM:	COPYRIGHT			30-46 AUBURN ROAD REGENTS PARK STAGE 1 GENERAL LAYOUT PLAN STAGE 1 SWEEP PATH ANALYSIS		DESIGN	Sheet No. 9 of 13	Drawing No. 1160-6-25	
			A.H.D	THIS DRAWING IS THE PROPERTY OF LYLE MARSHALL AND PARTNERS P/L AND MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED & IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT FOR THAT COMMISSION. UNAUTHORISED USE OF THIS DRAWING IS PROHIBITED.					DRAWN			EM
									CHECK			CHK

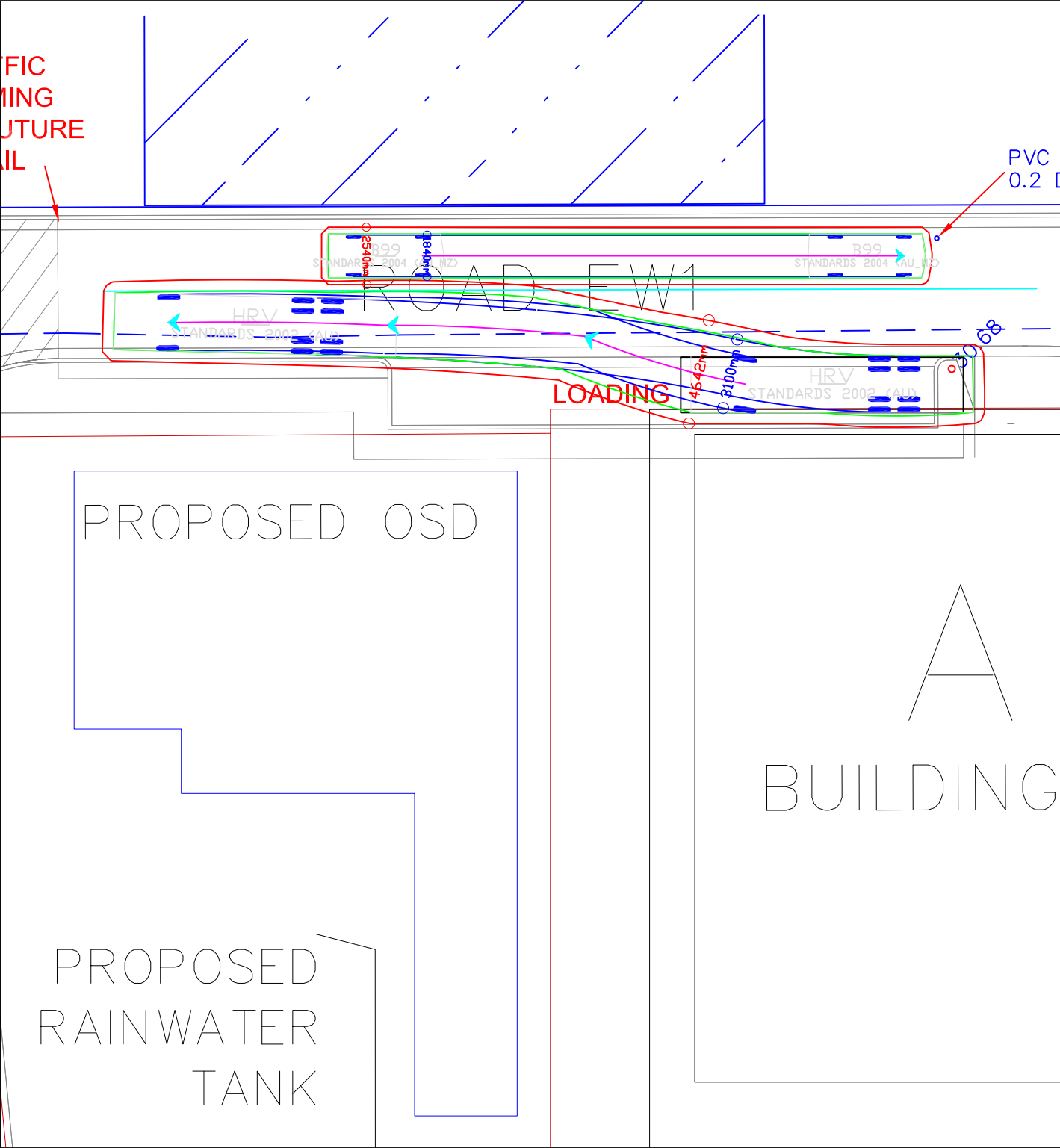


FIGURE 12B HRV EXITING
LOADING DOCK B AND B99
VEHICLE EASTBOUND

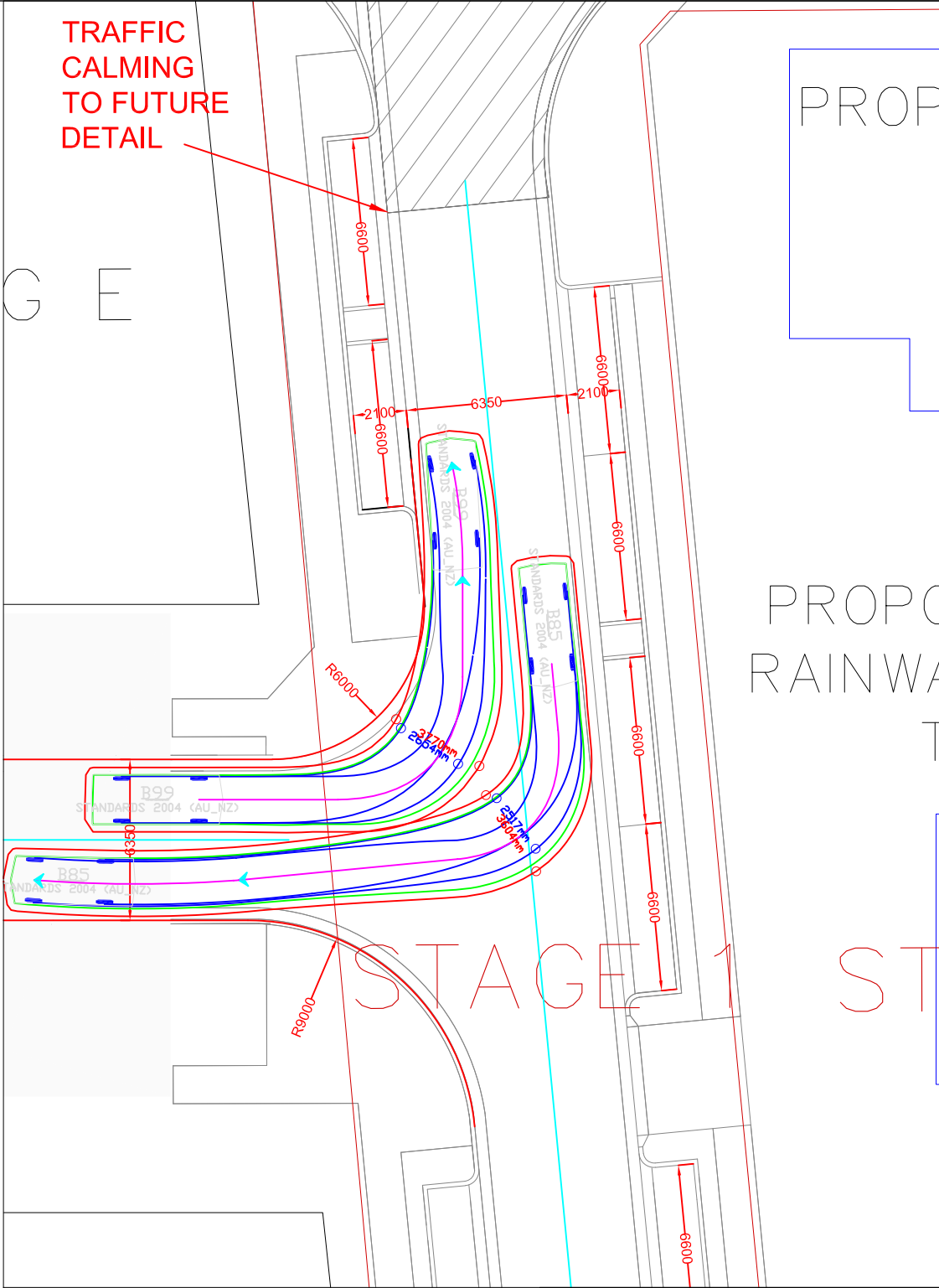
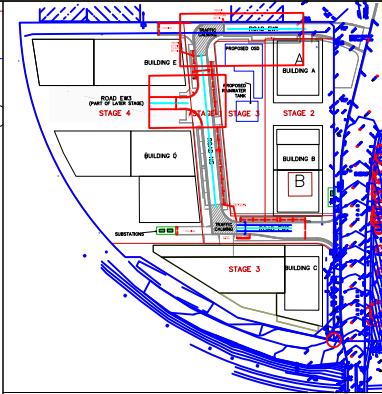
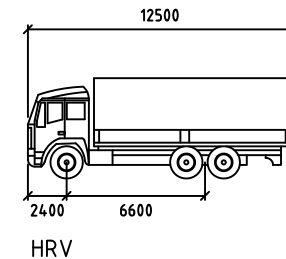


FIGURE 13 B99 LHT EXIT FROM
RW3 TO RW2 AND B85 RHT FROM
RW2 TO RW3

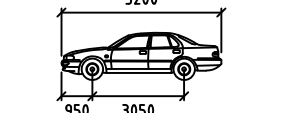


KEY DIAGRAM
SCALE 1:2000

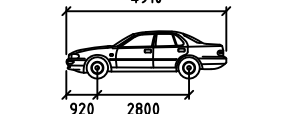
VEHICLE PROFILES



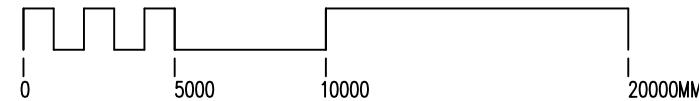
Width : 2500
Track : 2500
Lock to Lock Time : 6.0
Steering Angle : 35.2



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



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



STAGE 1

No.	Date	Issue Notes	SURVEY BY:	GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au	DATUM:	A.H.D	COPYRIGHT THIS DRAWING IS THE PROPERTY OF LYLE MARSHALL AND PARTNERS PTY LTD AND MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED & IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT FOR THAT COMMISSION. UNAUTHORIZED USE OF THIS DRAWING IS PROHIBITED.	 Lyle Marshall & Partners Pty Ltd consulting engineers, transport and environmental planners & architects NOMINATED ARCHITECT : ERICA MARSHALL-EVANS : NO. 6513 Suite 15 Level 1 265-271 Pennant Hills Road Thornleigh NSW 2120 phone: (02) 9436 0086 email: lyle@lylemarshall.com.au web: www.lylemarshall.com.au	 Client 30 AUBURN ROAD PTY LTD 30-46 AUBURN ROAD REGENTS PARK STAGE 1 GENERAL LAYOUT PLAN STAGE 1 SWEEP PATH ANALYSIS	SCALE 1:250(A3)	PASSED EME	DATE FIRST ISSUED 10-11-2025	DESIGN DRAWN CHECK	EM CHK	Sheet No. 10 of 13	Drawing No. 1160-6-25
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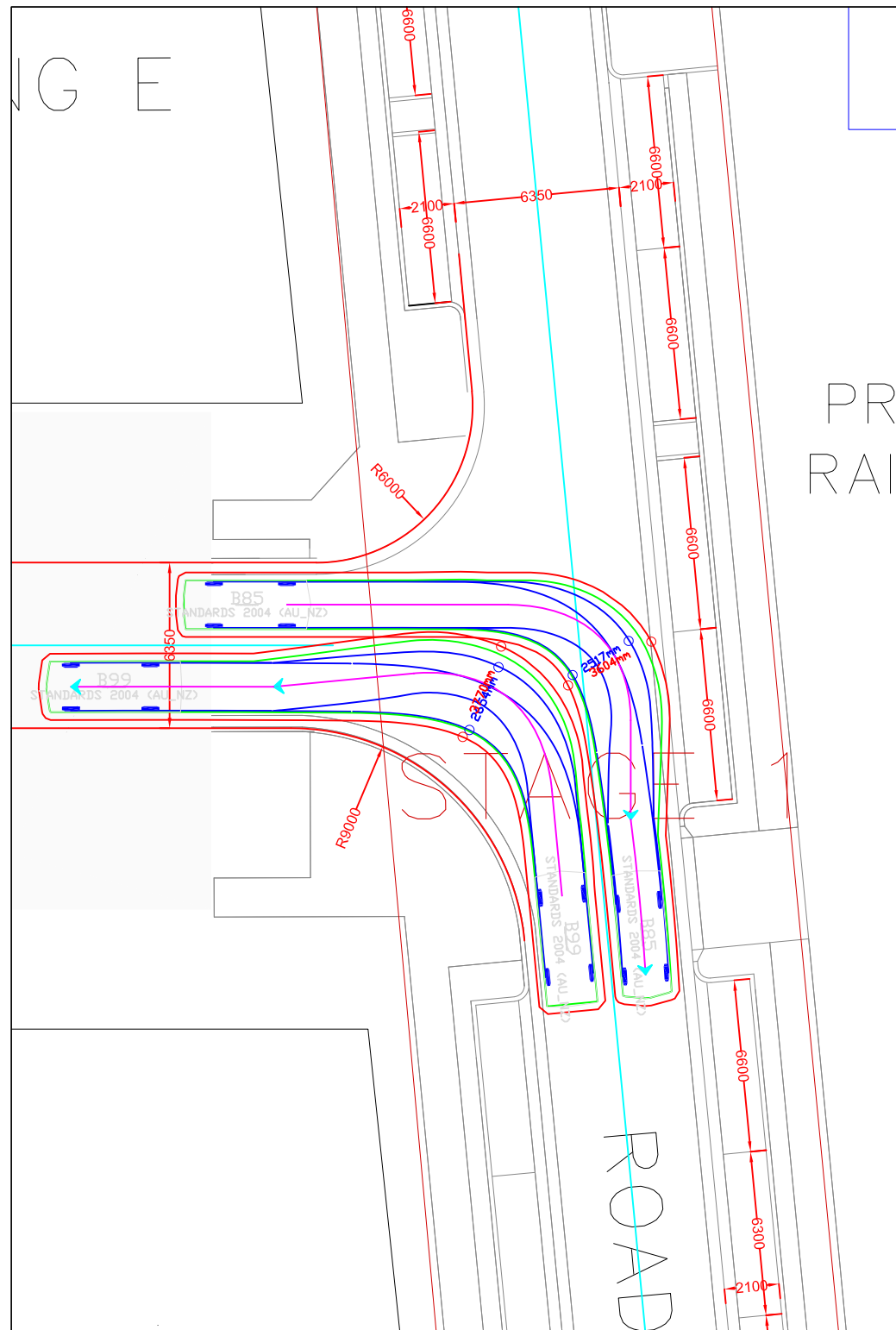


FIGURE 14 B99 LHT FROM RW2 TO RW3 AND B85 RHT FROM RW3 TO RW2

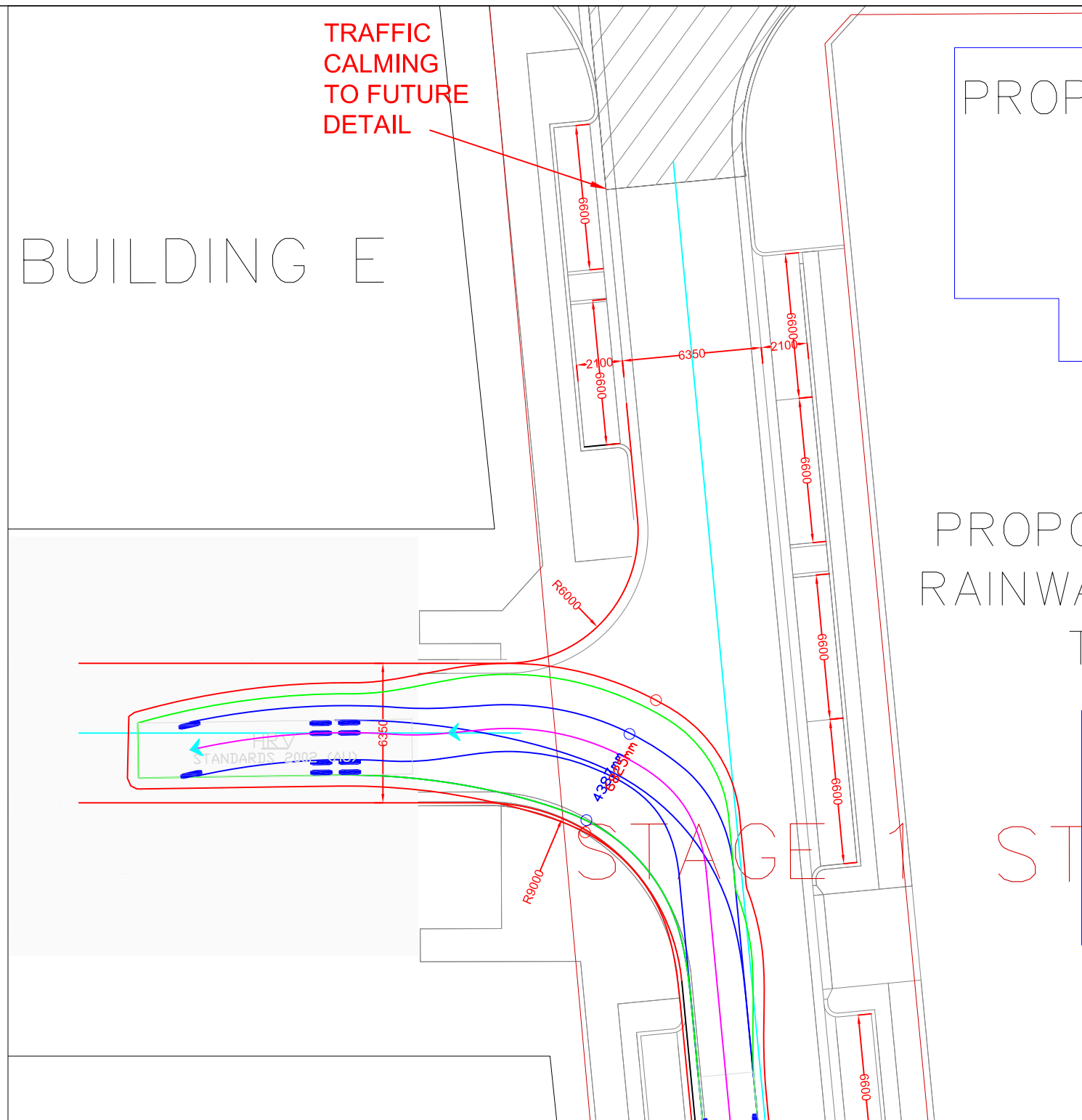
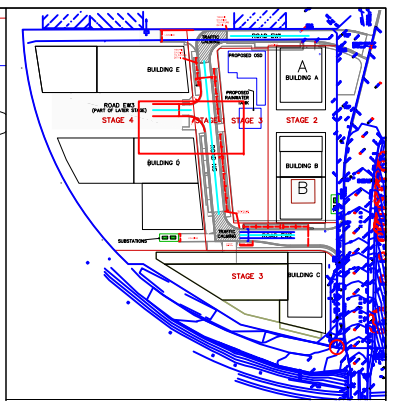
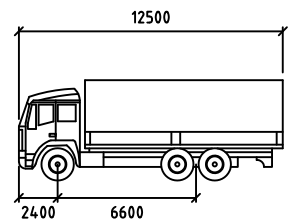


FIGURE 15A HRV LHT FROM RW2 TO RW3



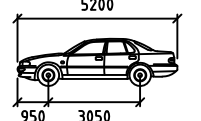
KEY DIAGRAM
SCALE 1:2000

VEHICLE PROFILES



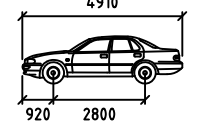
HRV

Width : 2500
Track : 2500
Lock to Lock Time : 6.0
Steering Angle : 35.2



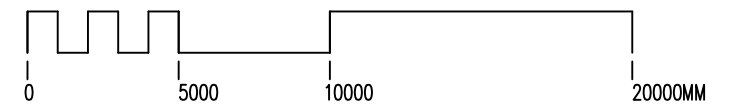
B99

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



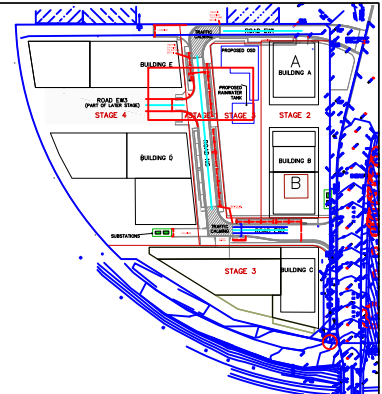
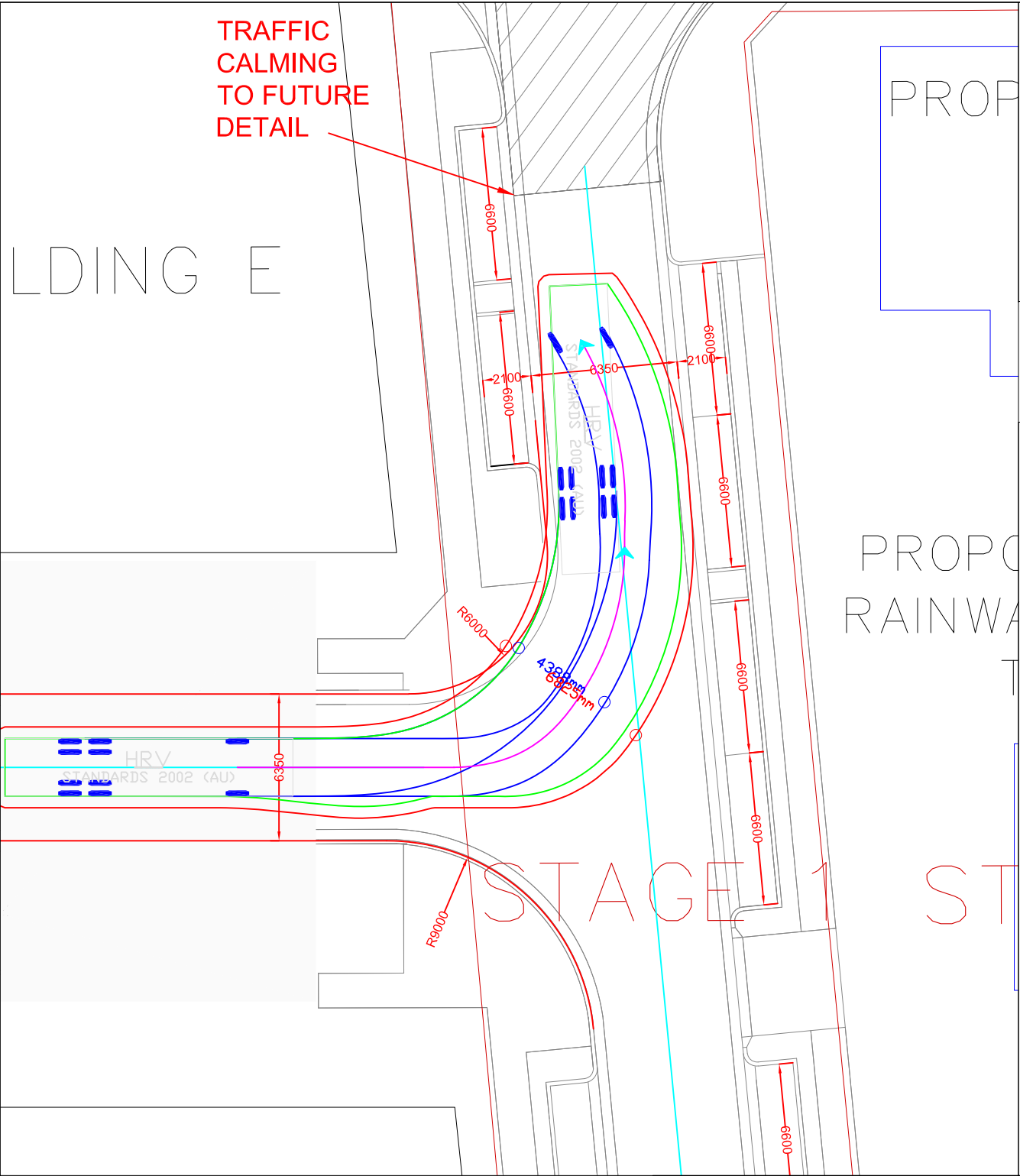
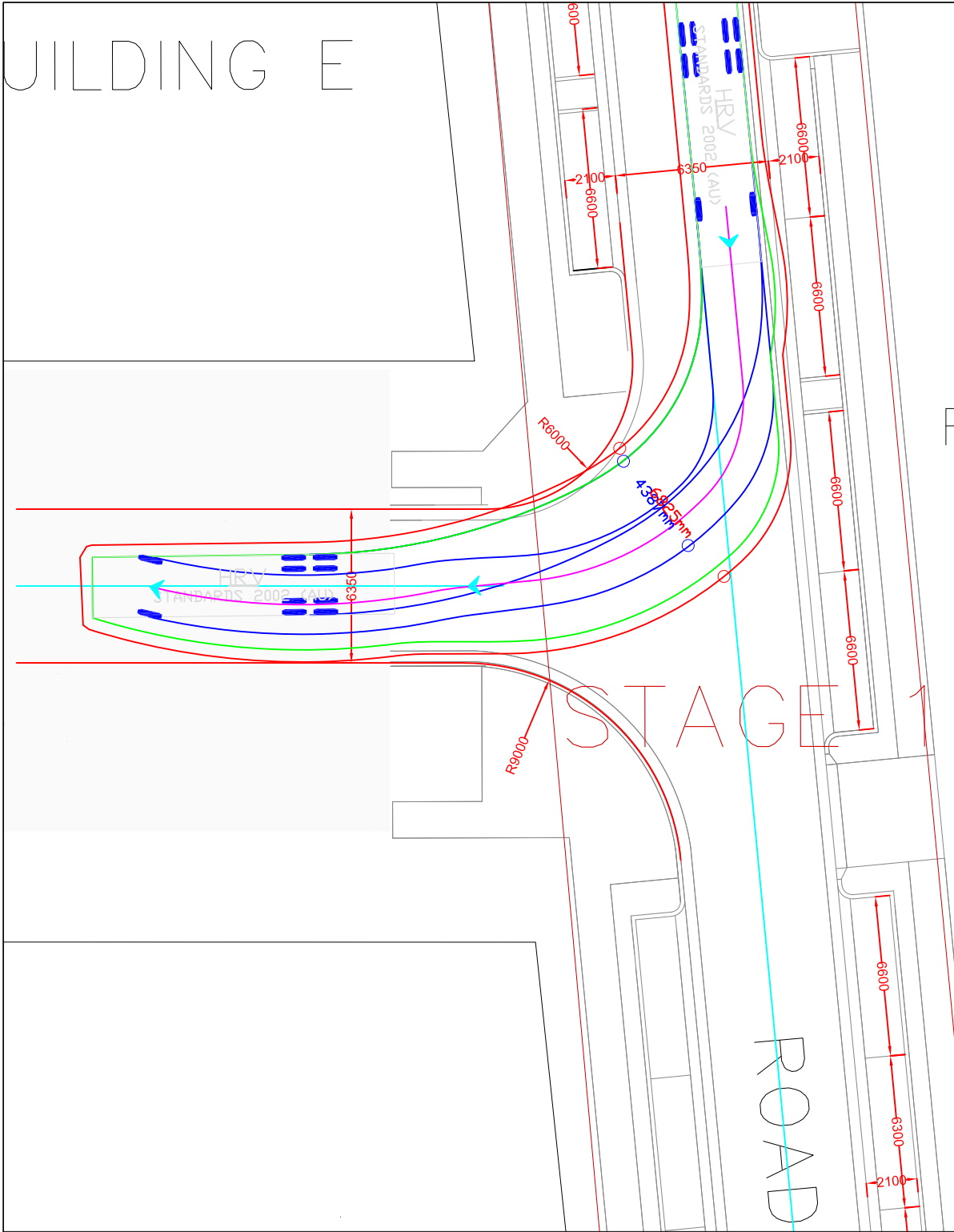
B85

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



STAGE 1

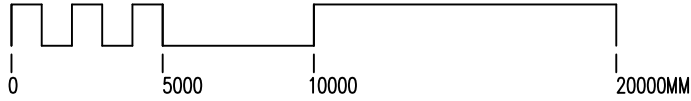
No.	Date	Issue Notes	SURVEY BY:	GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au	DATUM:	A.H.D	COPYRIGHT THIS DRAWING IS THE PROPERTY OF LYLE MARSHALL AND PARTNERS PTY LTD AND MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED & IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT FOR THAT COMMISSION. UNAUTHORIZED USE OF THIS DRAWING IS PROHIBITED.	 Lyle Marshall & Partners Pty Ltd consulting engineers, transport and environmental planners & architects NOMINATED ARCHITECT : ERICA MARSHALL-EVANS : NO. 6513 Suite 15 Level 1 265-271 Pennant Hills Road Thornleigh NSW 2120 phone: (02) 9436 0086 email: lyle@lylemarshall.com.au web: www.lylemarshall.com.au	 Client: 30 AUBURN ROAD PTY LTD 30-46 AUBURN ROAD REGENTS PARK STAGE 1 GENERAL LAYOUT PLAN STAGE 1 SWEEP PATH ANALYSIS	SCALE 1:250(A3)	PASSED EME	DATE FIRST ISSUED 10-11-2025	DESIGN DRAWN CHECK	EM CHK	Sheet No. 11 of 13	Drawing No. 1160-6-25
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KEY DIAGRAM	
SCALE 1:2000	
VEHICLE PROFILES	
HRV	
Width	: 2500 mm
Track	: 2500 mm
Lock to Lock Time	: 6.0
Steering Angle	: 35.2
B99	
Width	: 1940 mm
Track	: 1840 mm
Lock to Lock Time	: 6.0
Steering Angle	: 33.9
B85	
Width	: 1870 mm
Track	: 1770 mm
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

FIGURE 15B HRV RHT FROM RW2 TO RW3

FIGURE 16A HRV LHT FROM RW3 TO RW2 NORTHBOUND



STAGE 1

No. Date Issue Notes			SURVEY BY: GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au		lyle marshall & partners pty ltd 30 AUBURN ROAD PTY LTD consulting engineers, transport and environmental planners & architects NOMINATED ARCHITECT: ERICA MARSHALL-EVANS : NO. 6513 Suite 15 Level 1 265-271 Pennant Hills Road Thornleigh NSW 2120 phone: (02) 9436 0086 email: lyle@lylemarshall.com.au web: www.lylemarshall.com.au ACEA The Association of Consulting Engineers Australia		Client 30 AUBURN ROAD PTY LTD 30-46 AUBURN ROAD REGENTS PARK STAGE 1 GENERAL LAYOUT PLAN STAGE 1 SWEPT PATH ANALYSIS SCALE 1:250(A3) PASSED EME DATE FIRST ISSUED 10-11-2025 DESIGN EM DRAWN CHK Sheet No. 12 of 13 Drawing No. 1160-6-25					
			DATUM:		COPYRIGHT THIS DRAWING IS THE PROPERTY OF LYLE MARSHALL AND PARTNERS P/L AND MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED & IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT FOR THAT COMMISSION. UNAUTHORISED USE OF THIS DRAWING IS PROHIBITED.							
			A.H.D									

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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Project: M:\LMA Jobs\SIDRA\1160-5-22 Auburn Rd Regents Park\1160-5-22 AUBURN RD REGENTS PARK\4-04-10-2023.sip9

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				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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Project: M:\LMA Jobs\SIDRA\1160-5-22 Auburn Rd Regents Park\1160-5-22 AUBURN RD REGENTS PARK4-04-10-2023.sip9

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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Project: M:\LMA Jobs\SIDRA\1160-5-22 Auburn Rd Regents Park\1160-5-22 AUBURN RD REGENTS PARK\4-04-10-2023.sip9

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				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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Project: M:\LMA Jobs\SIDRA\1160-5-22 Auburn Rd Regents Park\1160-5-22 AUBURN RD REGENTS PARK4-04-10-2023.sip9

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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Project: M:\LMA Jobs\SIDRA\1160-5-22 Auburn Rd Regents Park\1160-5-22 AUBURN RD REGENTS PARK\4-04-10-2023.sip9

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				
			veh/h		veh/h					veh	m			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.

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back	Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]	m			
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)

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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 HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] veh 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.

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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)

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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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				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.

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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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh]	[Dist] m				
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.

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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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh]	[Dist] m				
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.

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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)

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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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				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.

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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)

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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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							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.

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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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back	Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			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	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	42.7
Approach			999	1.5	999	1.5	0.768	12.7	LOS B	3.4	24.3	0.96	0.91	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	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	15.4
Approach			996	3.1	996	3.1	1.067	53.4	LOS E ¹¹	15.1	108.4	0.91	1.78	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	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	38.1
Approach			970	4.2	970	4.2	0.624	9.4	LOS A	2.3	16.7	0.83	0.80	38.5
All Vehicles			2965	2.9	2965	2.9	1.067	25.3	LOS C	15.1	108.4	0.90	1.17	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.

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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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back	Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back	Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
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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Project: M:\LMA Jobs\SIDRA\1160-5-22 Auburn Rd Regents Park\1160-5-22 AUBURN RD REGENTS PARK4-04-10-2023.sip9

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
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. Queue 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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Veh. veh	Dist]									
			veh/h	%	veh/h	%	v/c	sec			m				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	LOSE 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.

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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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
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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Project: M:\LMA Jobs\SIDRA\1160-5-22 Auburn Rd Regents Park\1160-5-22 AUBURN RD REGENTS PARK4-04-10-2023.sip9

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h		veh/h		v/c	sec		veh	m				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. Queue 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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							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)

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APPENDIX G

APPENDIX G

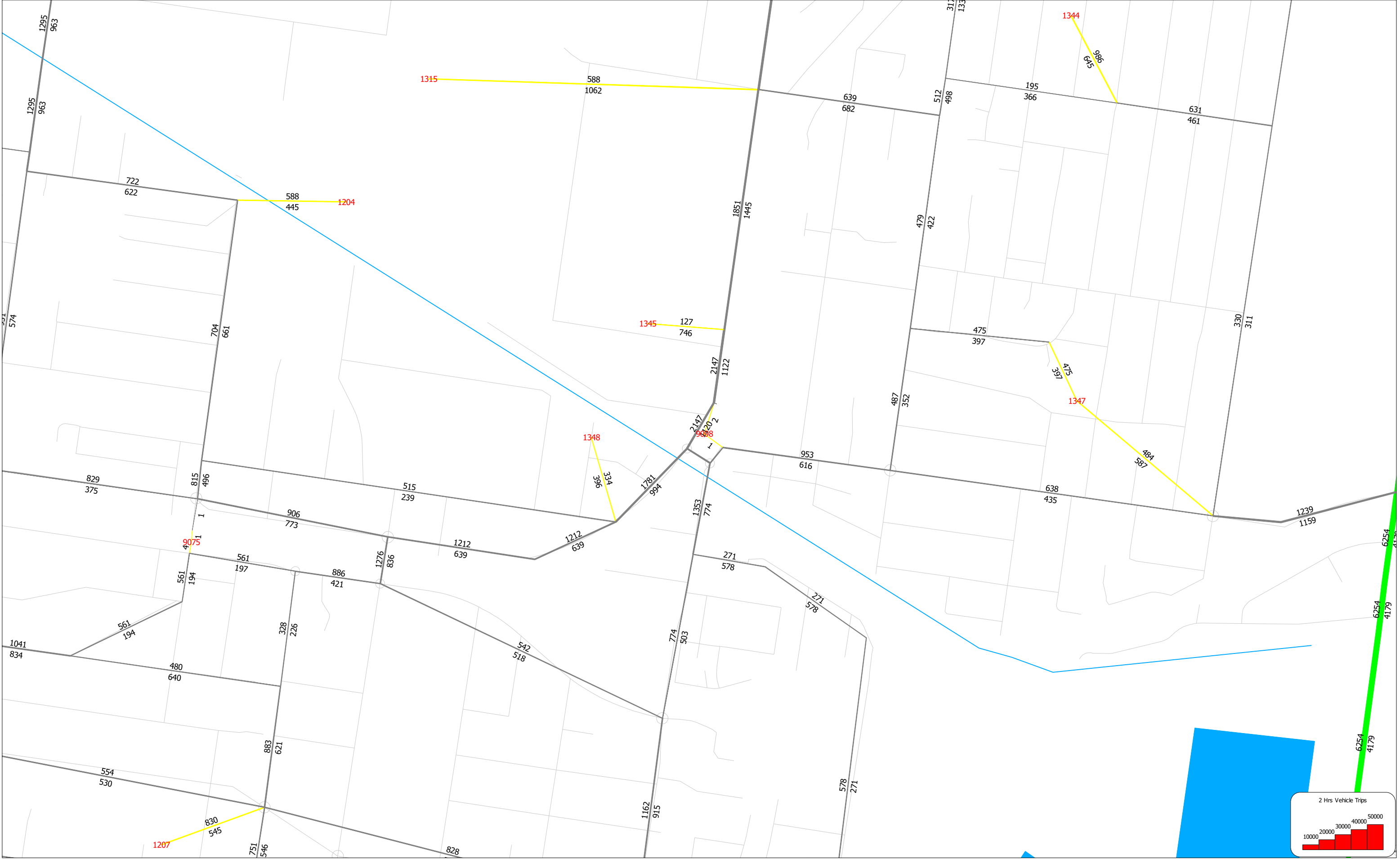
TRAVEL TIME SURVEYS

WEDNESDAY 23/07/2014

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

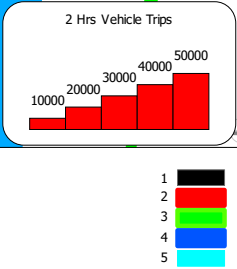
APPENDIX H

TRAFFIC VOLUMES__

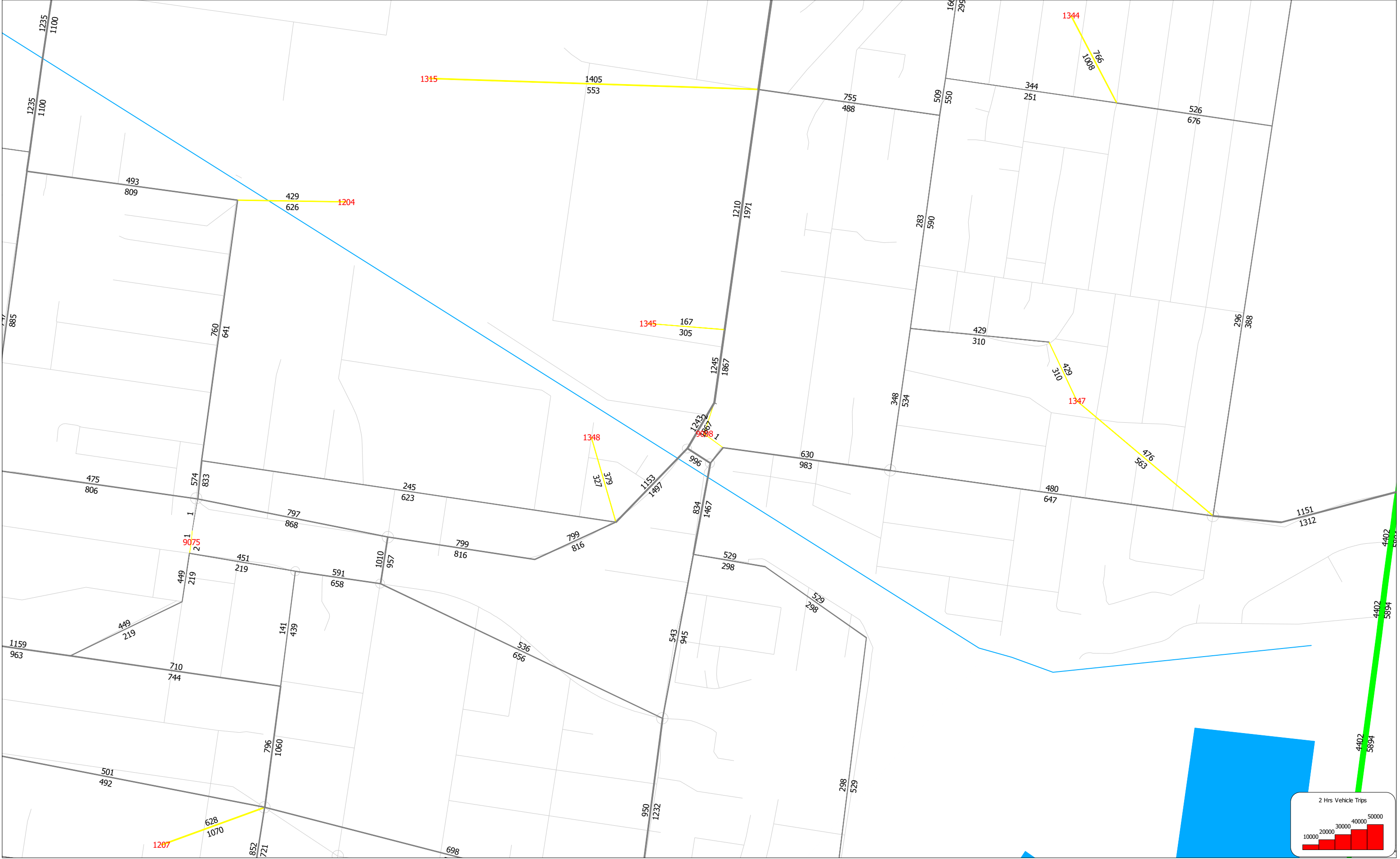


SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL(STFM)
Scenario 2021: 2021_STFM_STD(TZP19STMV3.8FMMV7.1)-7-9AM(mf33)
2021-12-10 10:27

LANE (1WAY):



TRAFFIC VOLUMES__

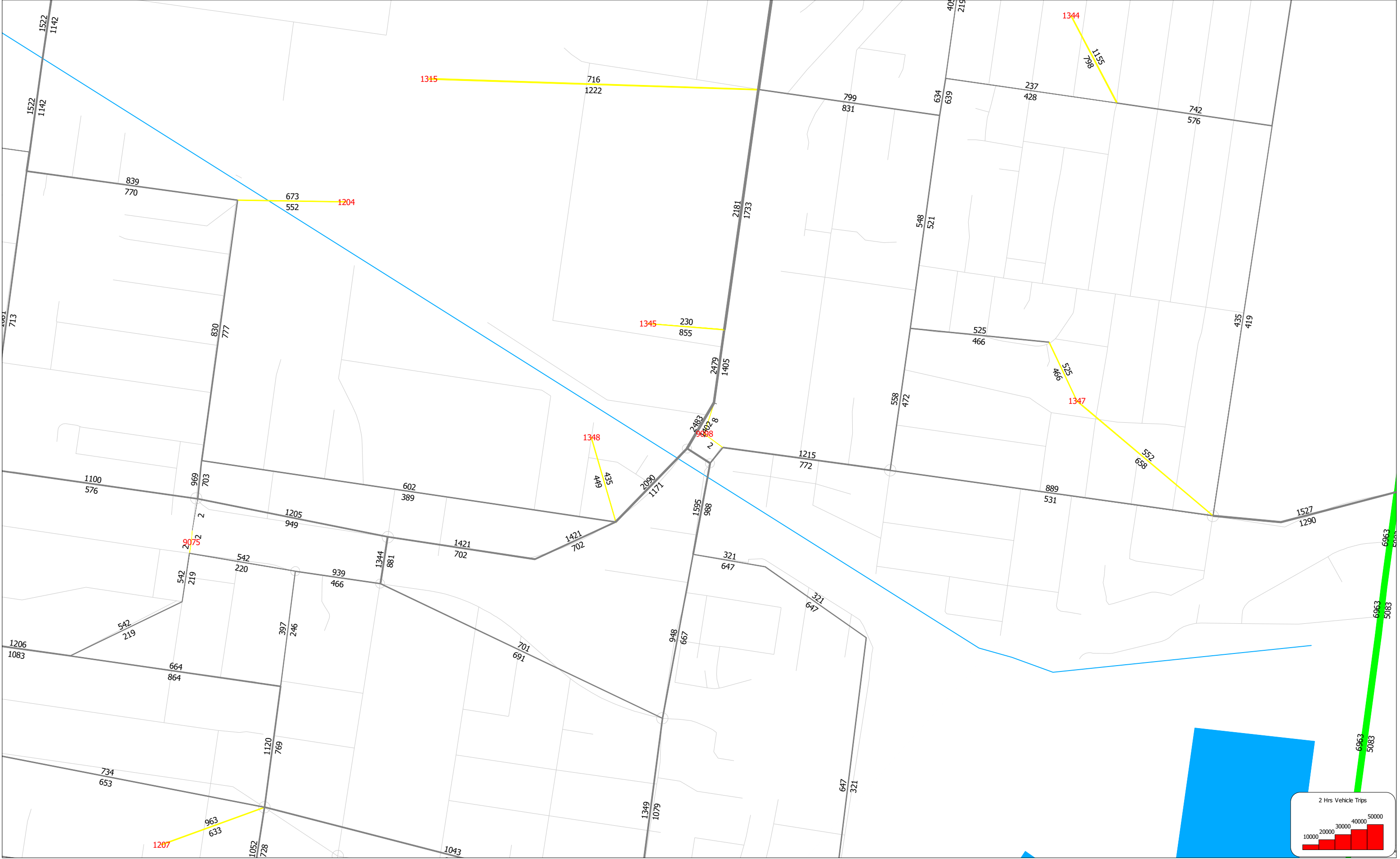


SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL(STFM)
Scenario 20210: 2021_STFM_STD(TZP19STMV3.8FMMV7.1)-4-6PM(mf53)
2021-12-10 10:28

LANE (1WAY):

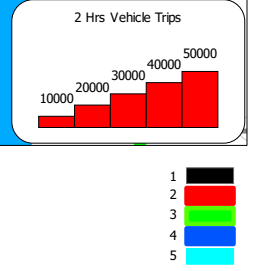
- 1
- 2
- 3
- 4
- 5

TRAFFIC VOLUMES__



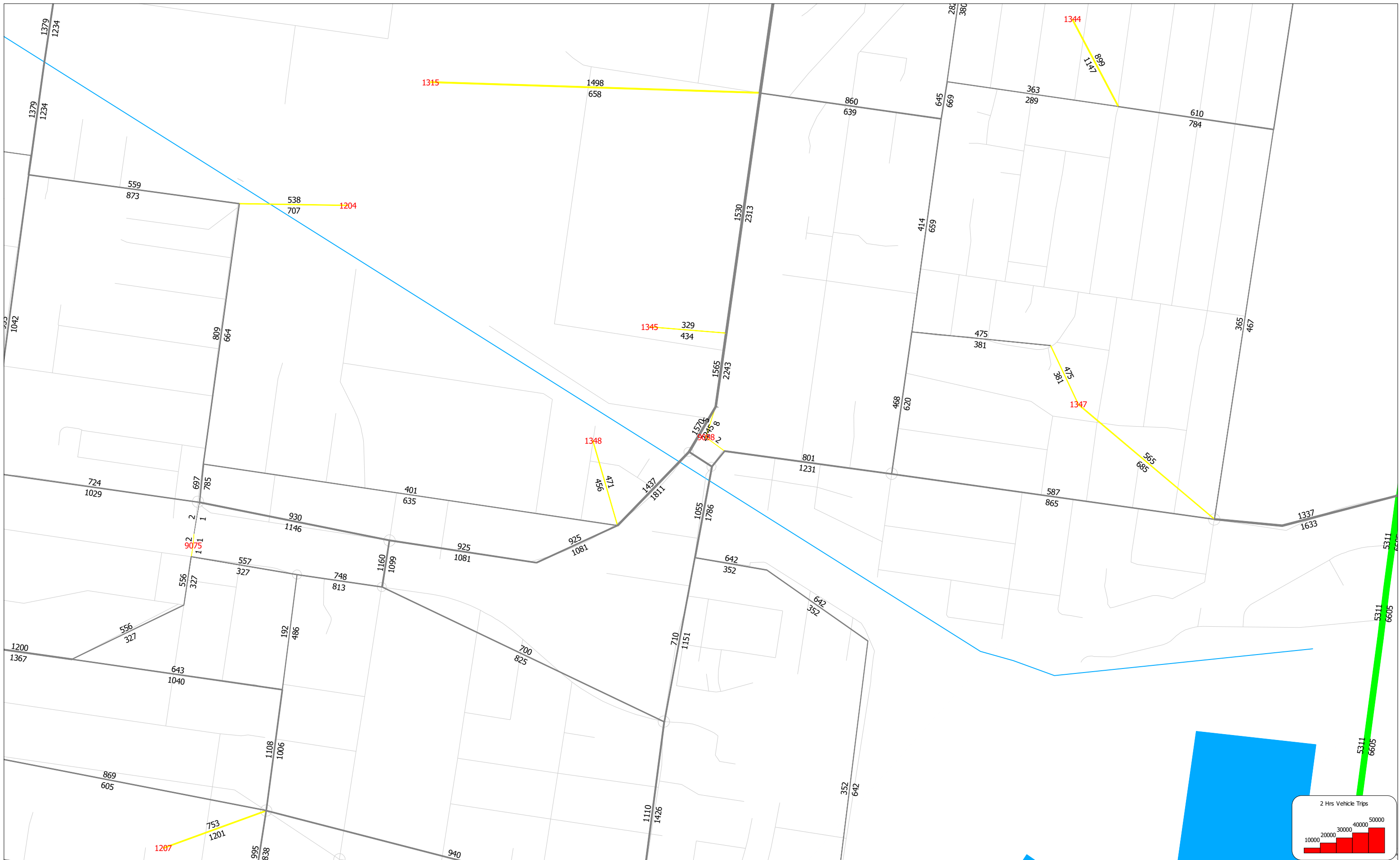
SYDNEY GMA STRATEGIC TRAFFIC FORECASTING MODEL(STFM)
Scenario 2031: 2031_STFM_STD(TZP19STMV3.8FMMV7.1)-7-9AM(mf35)
2021-12-10 10:28

LANE (1WAY):



- 1
- 2
- 3
- 4
- 5

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

LANE (1WAY):



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

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



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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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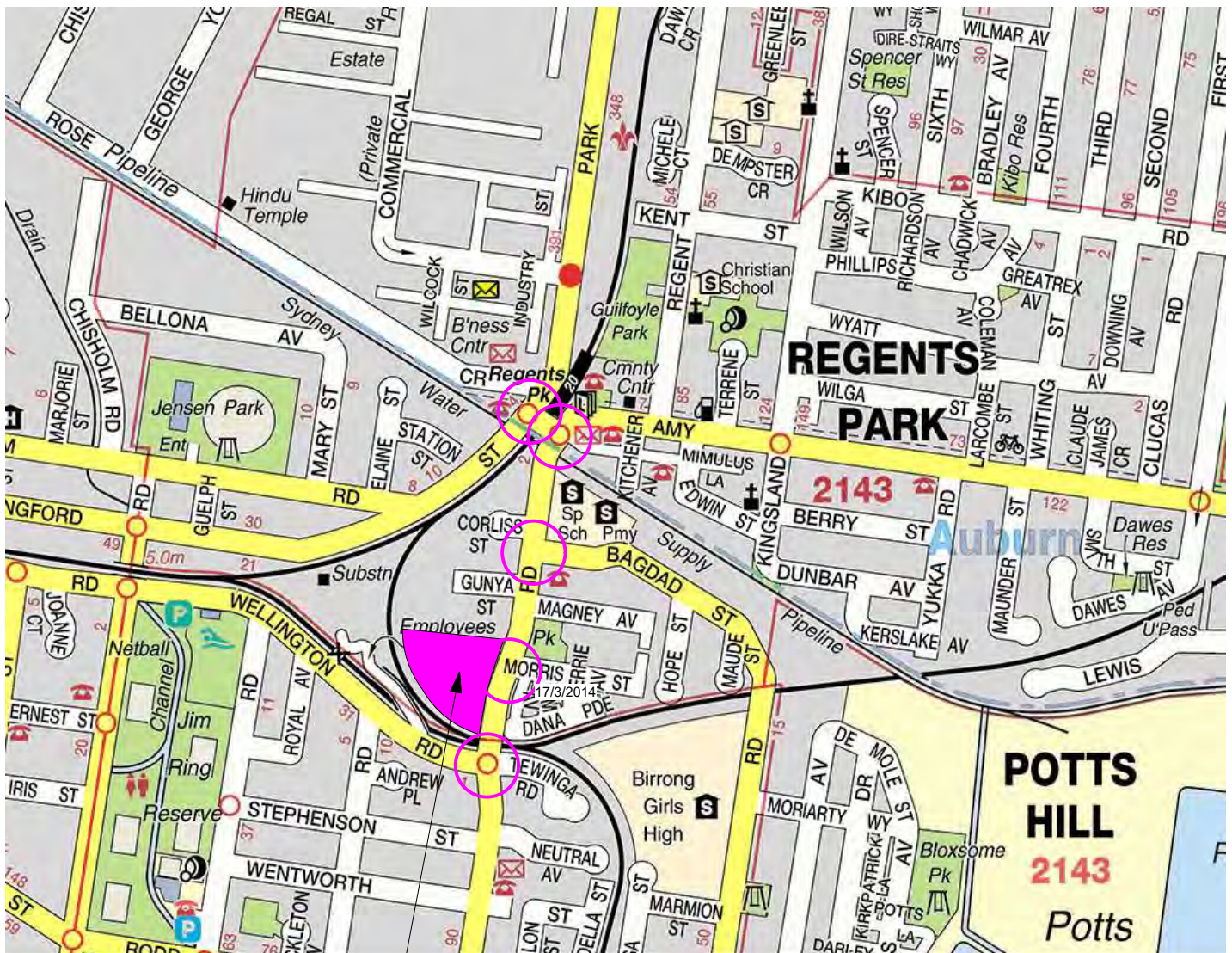
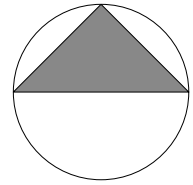
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APPENDIX A Action Plan

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 context 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

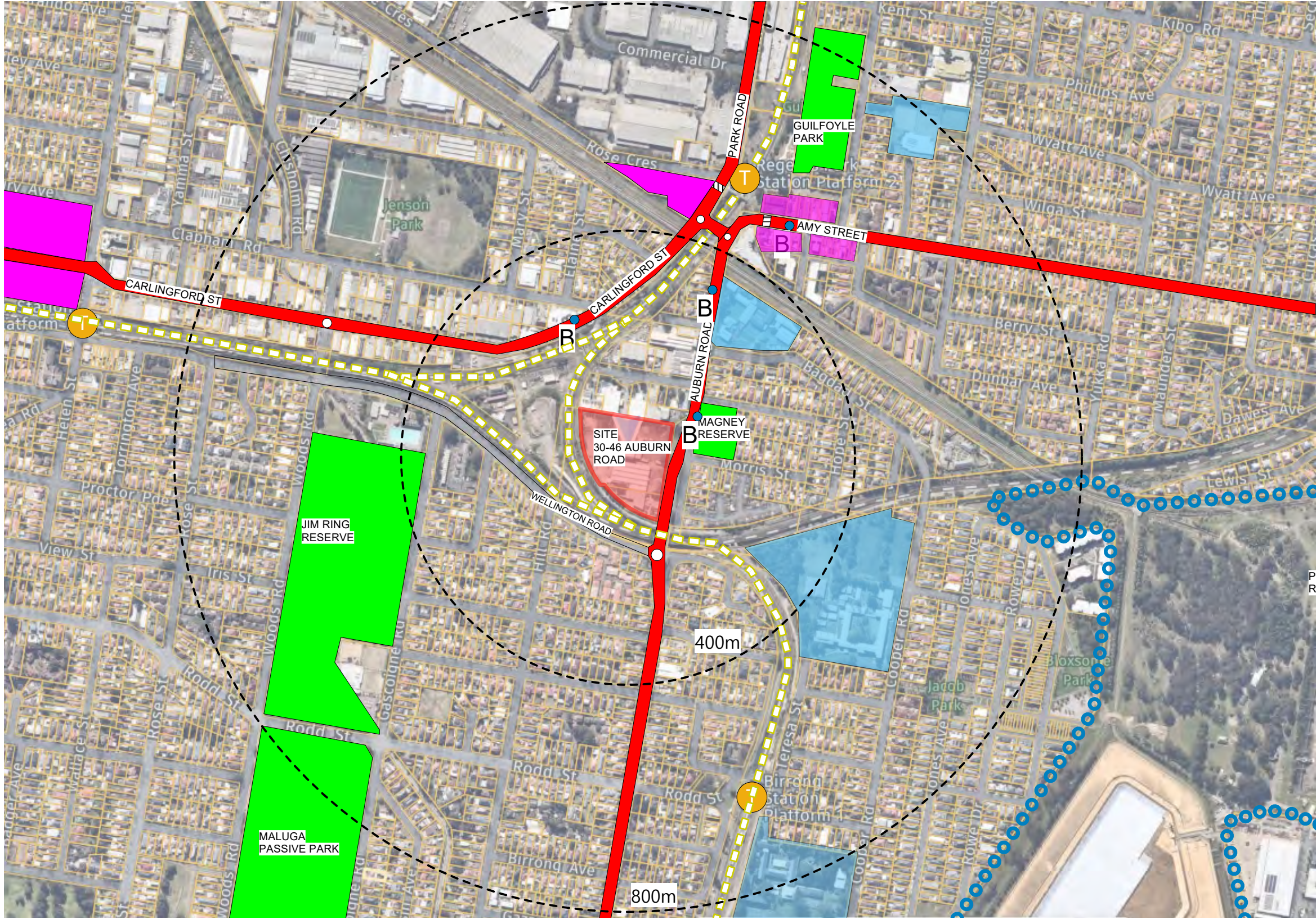
The train service network map is shown in **Figure 3B**.

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.



- LEGEND
- POTTS HILL RESERVIOR
 - REGIONAL ROAD
 - PARKS
 - TRAIN STATION
 - TRAIN LINE
 - BUS STOP
 - ROUNDABOUT
 - SCHOOL
 - TOWN CENTRE
 - PED CROSSING
 - SITE

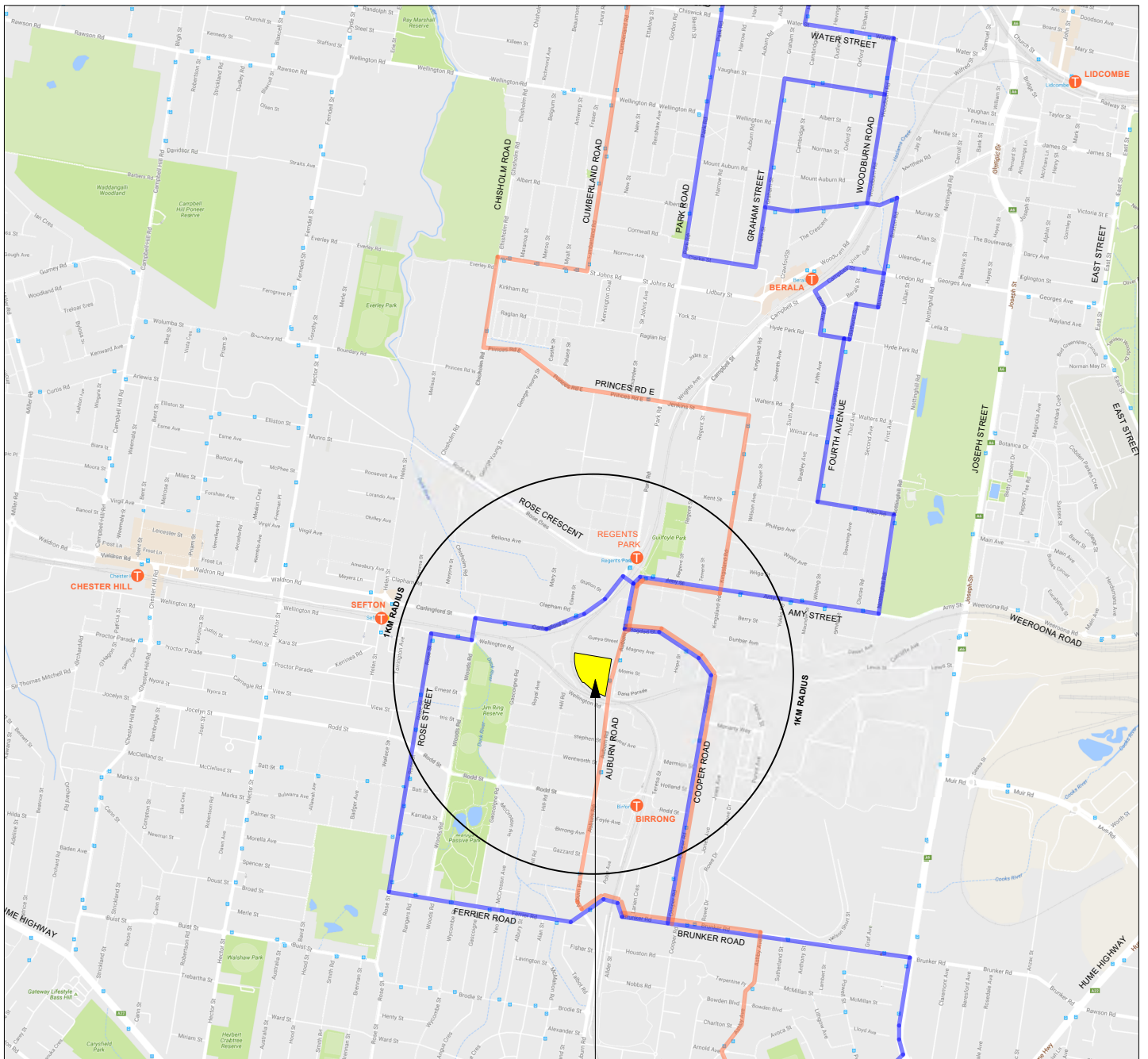
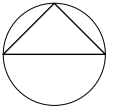
POTTS HILL
RESERVIOR

NORTH

SOURCE NEARMAP

FIGURE 2 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

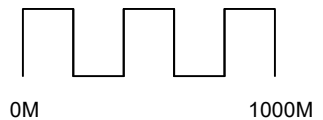


FIGURE 3A
MAP OF EXISTING BUS ROUTES WITHIN 1KM OF
30 - 46 AUBURN ROAD, REGENTS PARK

Sydney rail network

M Metro **T** Trains



Sydney metro and train lines



Metro North West Line
Cherrybrook
Tallawong



North Shore & Western Line
North Shore
Western
Richmond



Inner West & Leppington Line
Inner West
Leppington
City



Bankstown Line
Bankstown
Liverpool
City



Eastern Suburbs & Western Line
Eastern Suburbs
Western
Cronulla



Cumberland Line
Leppington
Richmond



Olympic Park Line
Olympic Park
Lidcombe



Airport & South Line
Airport
South
City



Northern Line
Northern
Gordon



Check timetables and trip planners
for train services and connections

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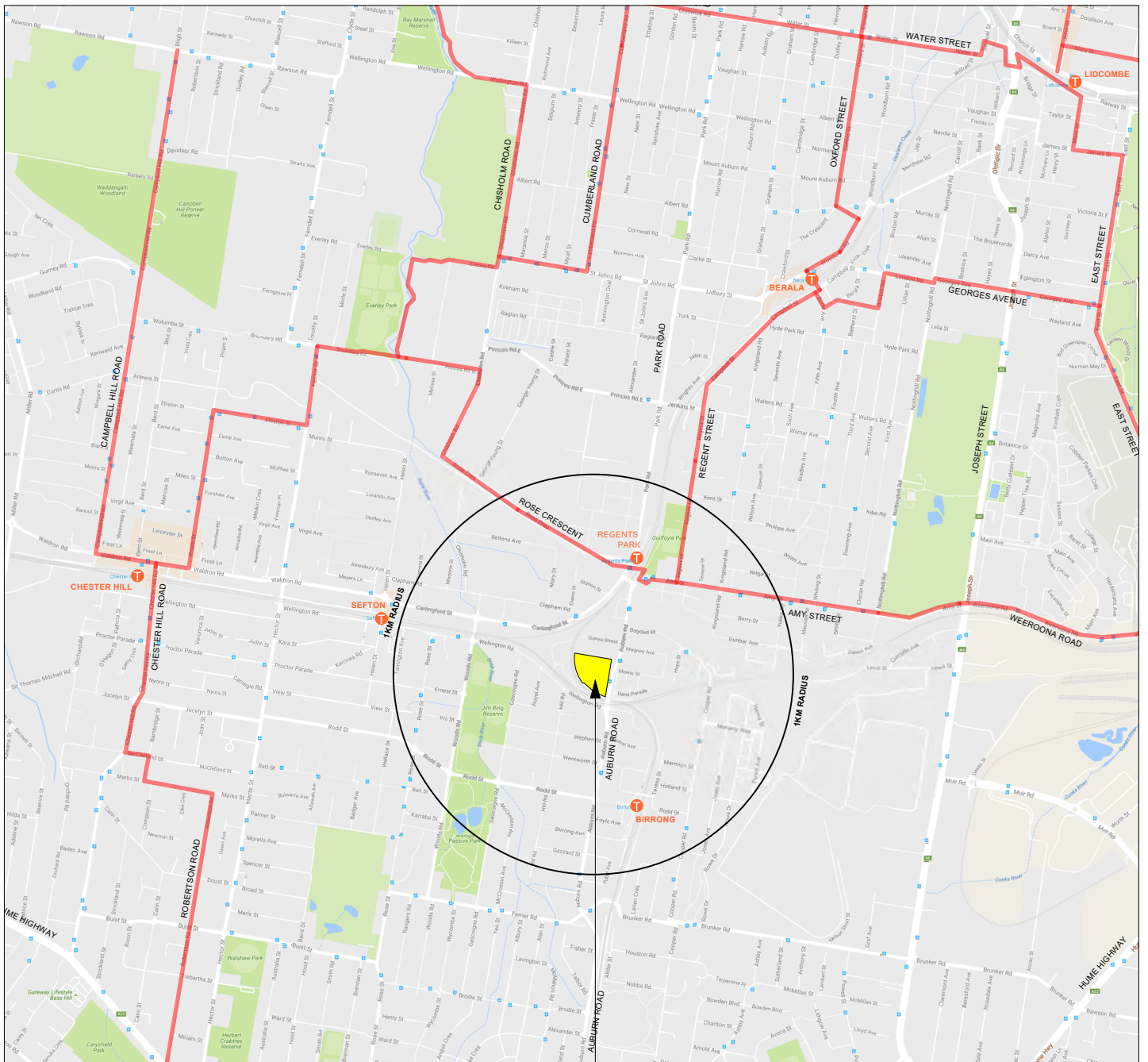
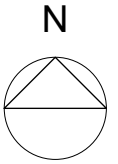
1989TMS-GMT-2019-01-02

LEGEND

Nearest Railway Station

Proposed Site Location

FIGURE 3B
MAP OF EXISTING TRAIN NETWORK



SUBJECT SITE:
30-46 AUBURN ROAD,
REGENTS PARK

LEGEND

 **CYCLEWAY**

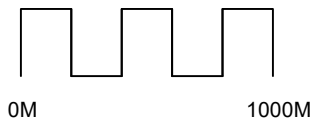


FIGURE 4
MAP OF EXISTING CYCLEWAYS SURROUNDING
30 - 46 AUBURN ROAD, REGENTS PARK

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**.

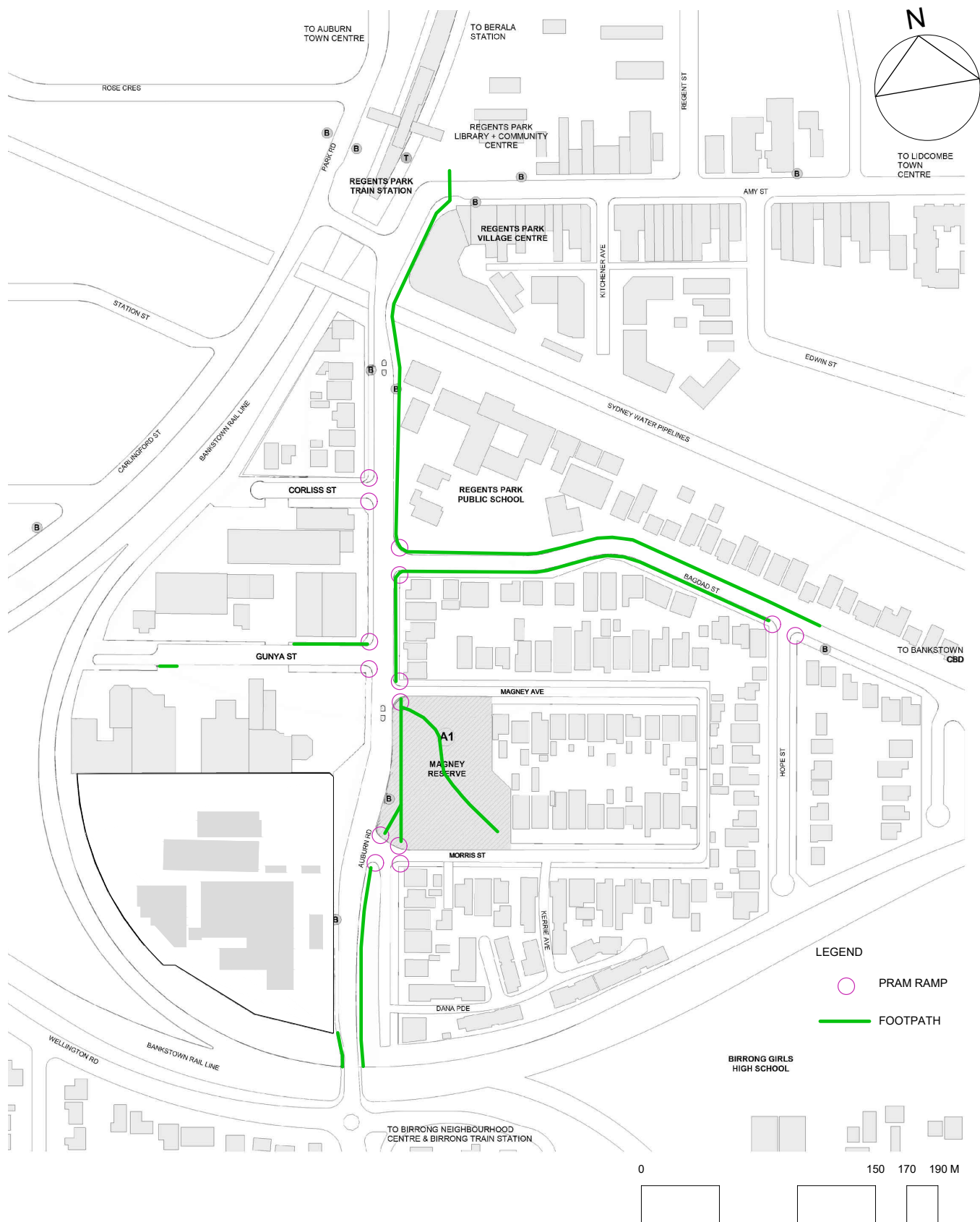


FIGURE 5
EXISTING FOOTPATH NETWORK



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

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.

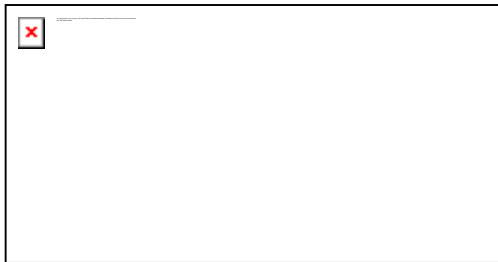
Thank you for using our FRNSW fire safety guideline: [Access for fire brigade vehicles and firefighters:](#)
Click onto the below link:

https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_access_for_emergency_vehicles.pdf

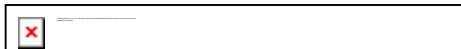
*"The maximum sized vehicle is the **specialist fire appliance** which is 12.5 metres long and requires a minimum width of 6 metres and overall minimum height of 4.5 metres. This **specialist fire appliance** size requirements are the measurements you **should be using** as the **general fire appliance** 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 **02 9742 7434**.

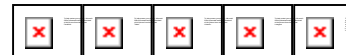
Kind regards,
Grant



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



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

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



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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

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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

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FIGURE 4B	PM Future Peak Hour Traffic Volumes – 2023 Plus Future

APPENDICES

APPENDIX 1

Revised Reduced A3 Architectural Plans prepared by Smith and Tzannes Architects

- **Below Ground Envelopes**
- **Above Ground Envelopes**
- **Envelope Sections**

APPENDIX 2

- **SIDRA analysis summary Table for networked site access**
- **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 21,170m² 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 400m² 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 21,170m² and corresponding uses include 558 residential, a small component of retail shops (400m²), childcare centre for 106 children places and parking for 707 plus bicycle parking and any motorbike parking. We understand that the corresponding GFA is 55,041m².

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**.

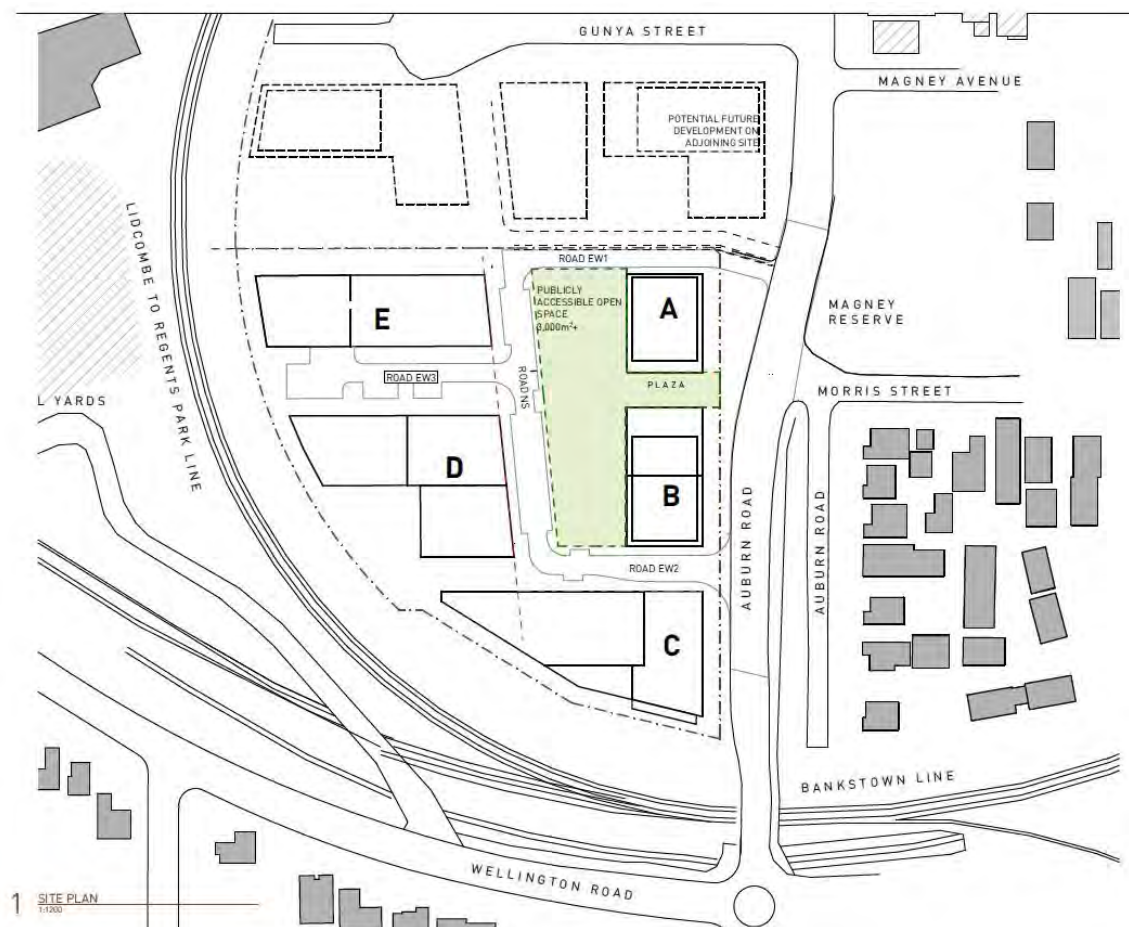
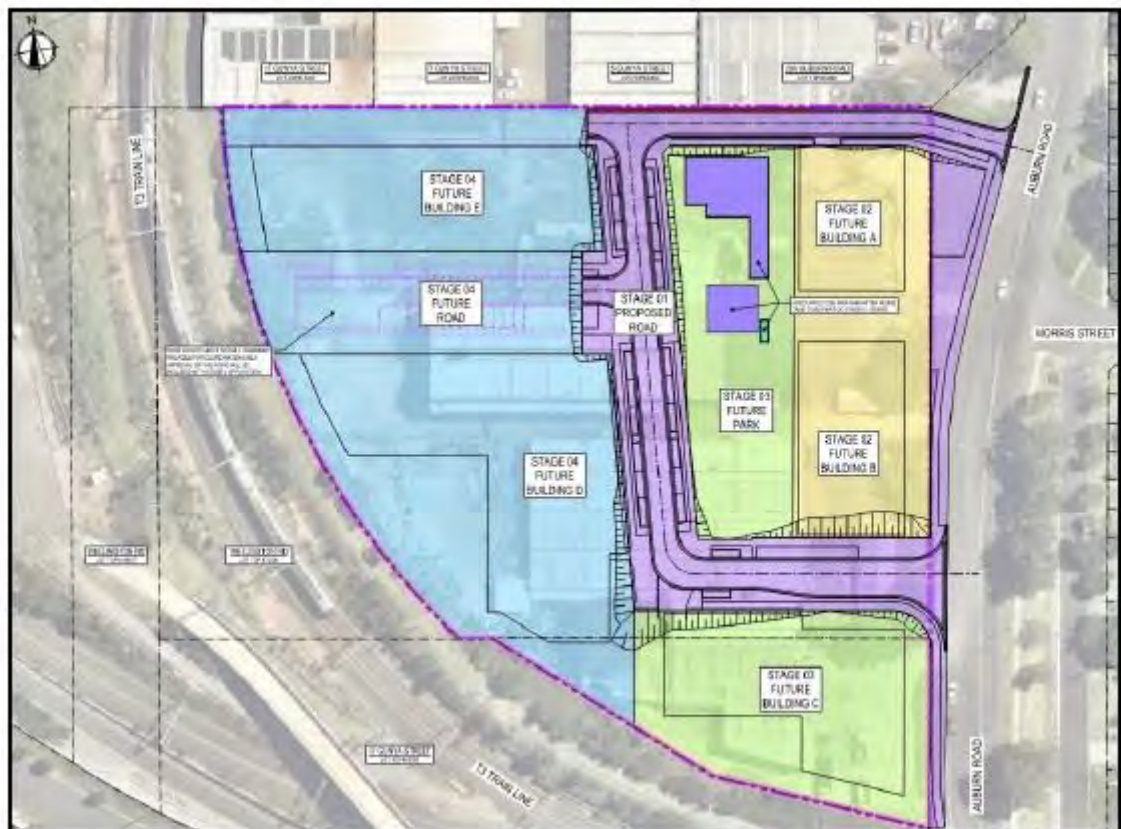


Figure 1A Concept Site Plan

(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 CBDP 2003 Section 3.2

Land use	Required number of car parking spaces in accordance with CBDP 2023 Section 3.2	Bicycle Parking	Proposed Use No Of Units	Required Spaces	Car 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% Affordable 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 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	Proposed Use No Of Units	Required Spaces	Car	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 *CBDCA*. 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								
Residential	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								
Residential	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.

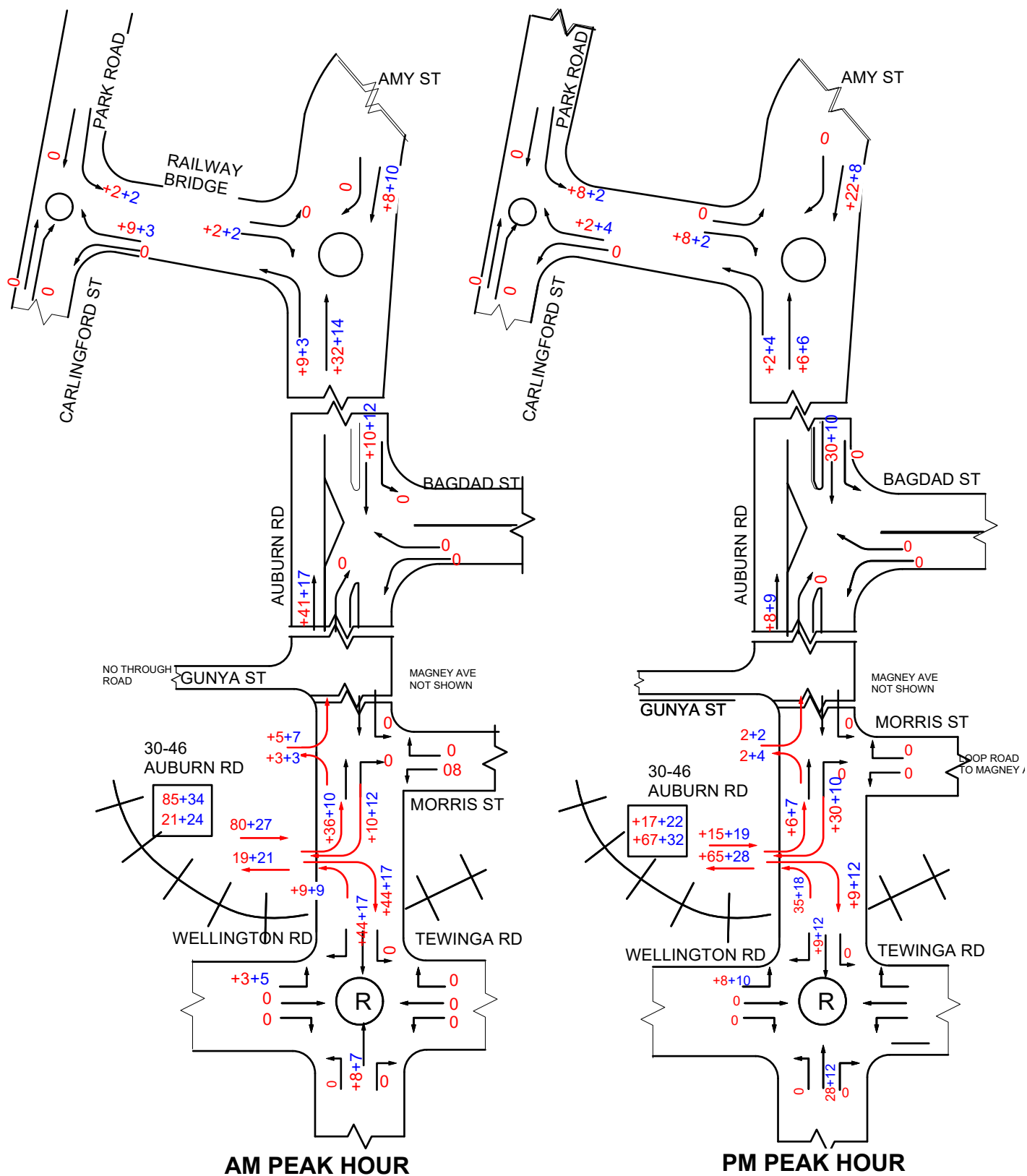
The traffic assignment is based upon the 'arterial road' and 'collector road' network, the shortest path to work destinations from the Regents Park residential area estimated from the *2016 Census Journey to Work* and adjusted based upon peak hour travel time surveys. The traffic assignment is prepared 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.

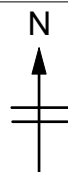
5.0 SUMMARY AND CONCLUSIONS

- 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 400m² 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.

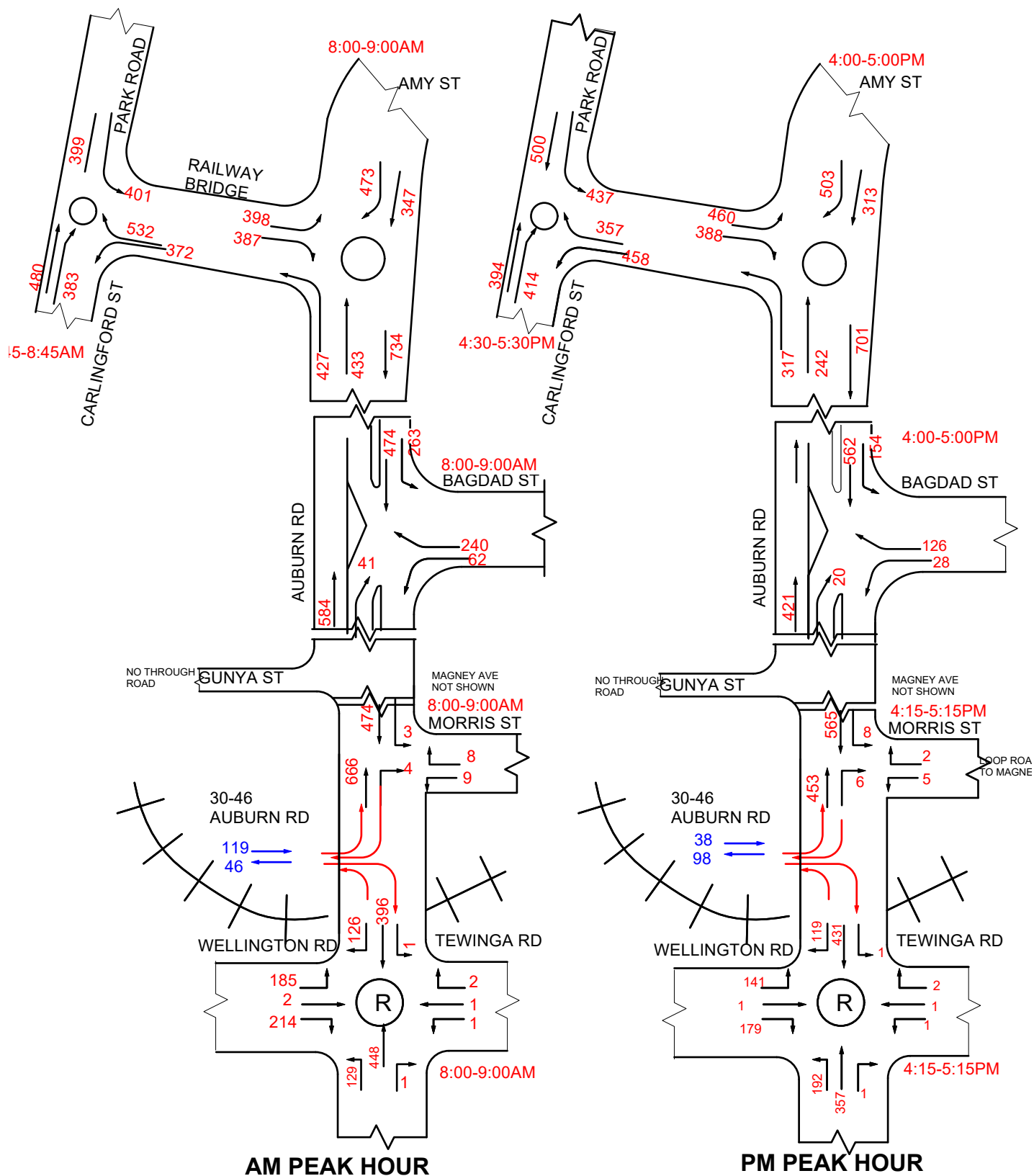


LEGEND

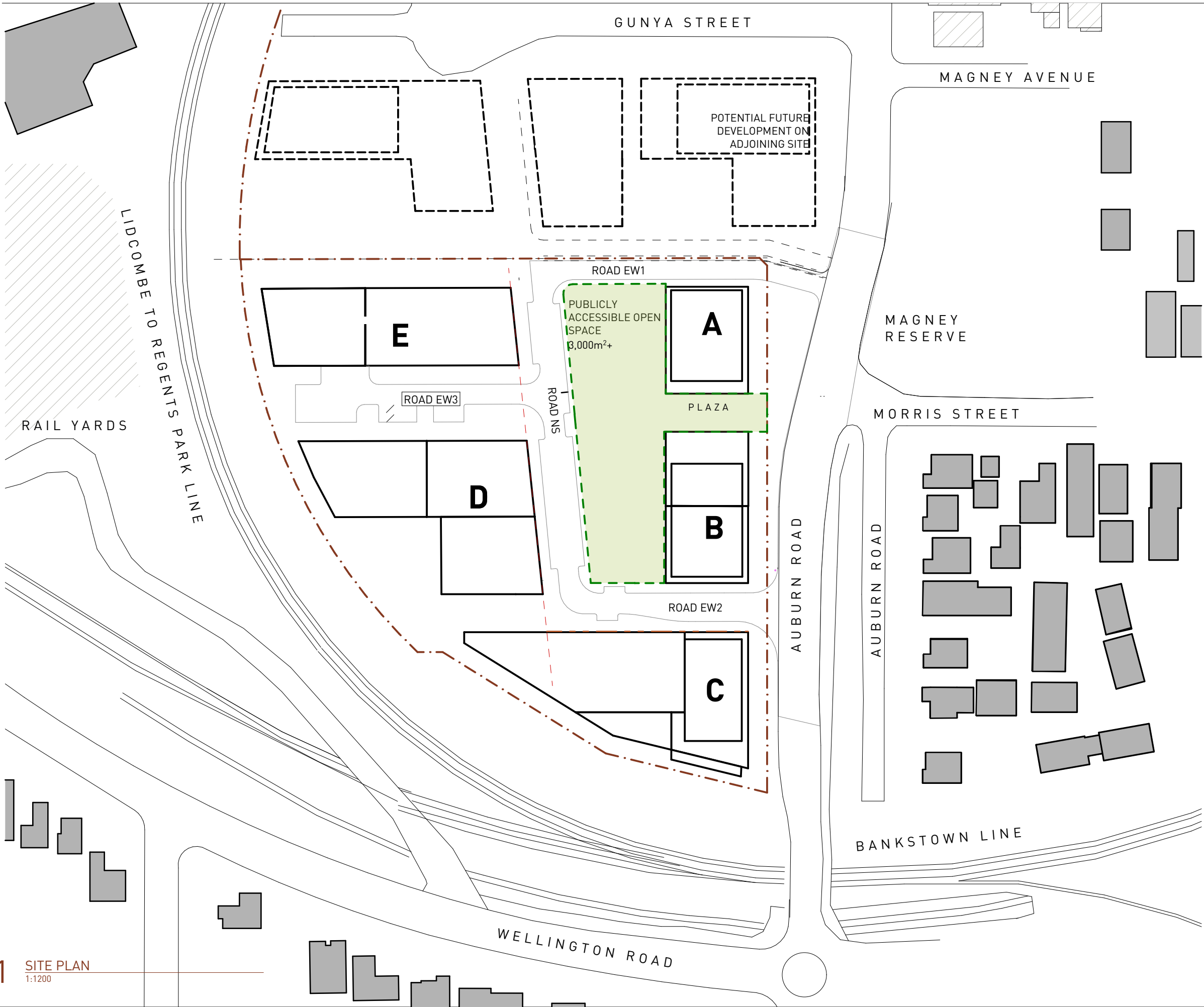
- +21 ADDITIONAL PEAK HOUR VOLUMES
GENERATED BY
THE PROPOSED RESIDENTIAL APARTMENTS
SITE AT 30-46 AUBURN ROAD
- +34 GENERATED BY CHILDCARE CENTRE + SHOPS



CONCEPT DEVELOPMENT
558 APARTMENTS PLUS
SHOPS &
CHILDCARE CENTRE
FIGURES 3A + 3B

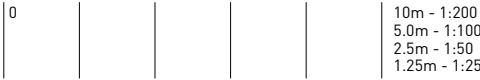


APPENDIX 1



1 SITE PLAN
1:1200

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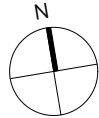


NOTES

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 be undertaken by surveyor on site. Shop drawings should be prepared where required or necessary
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LEGEND

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



VERSION
ISSUED FOR AMENDMENT REPORT

REV E 11-04-2024

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

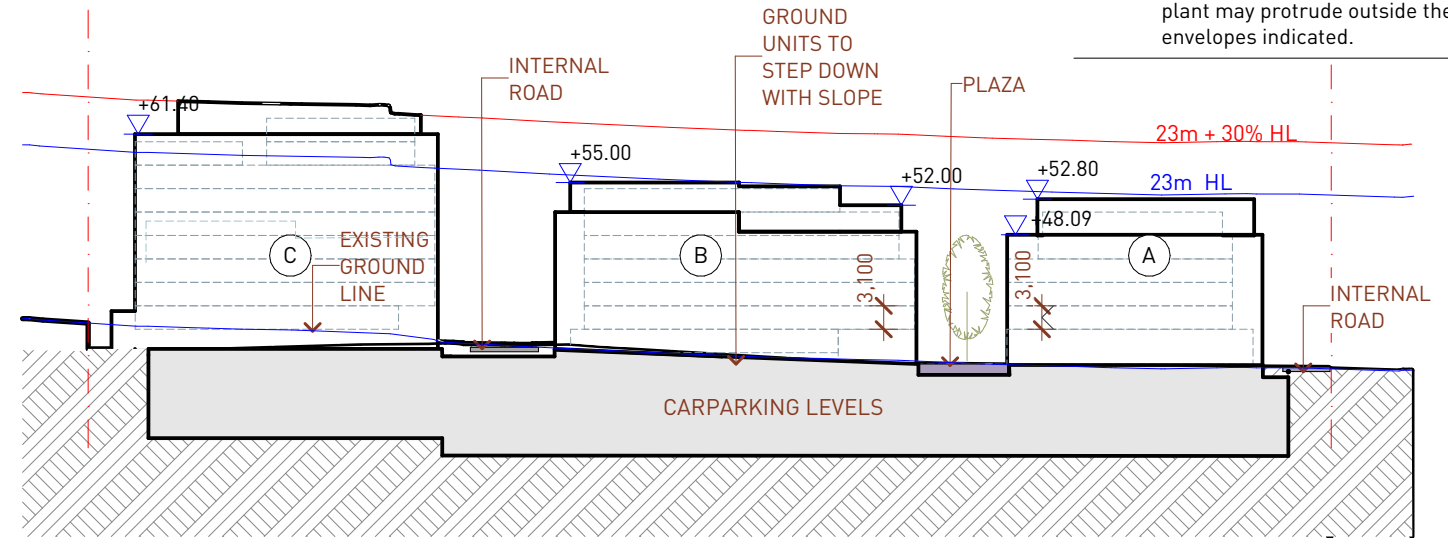
ARCHITECTURE URBAN PLANNING
M1/147 McEvoy Street Alexandria NSW 2015
P 02 9516 2022 E email@smithtzannes.com.au
smithtzannes.com.au
Nominated Architect: Peter Smith (Reg 7024)



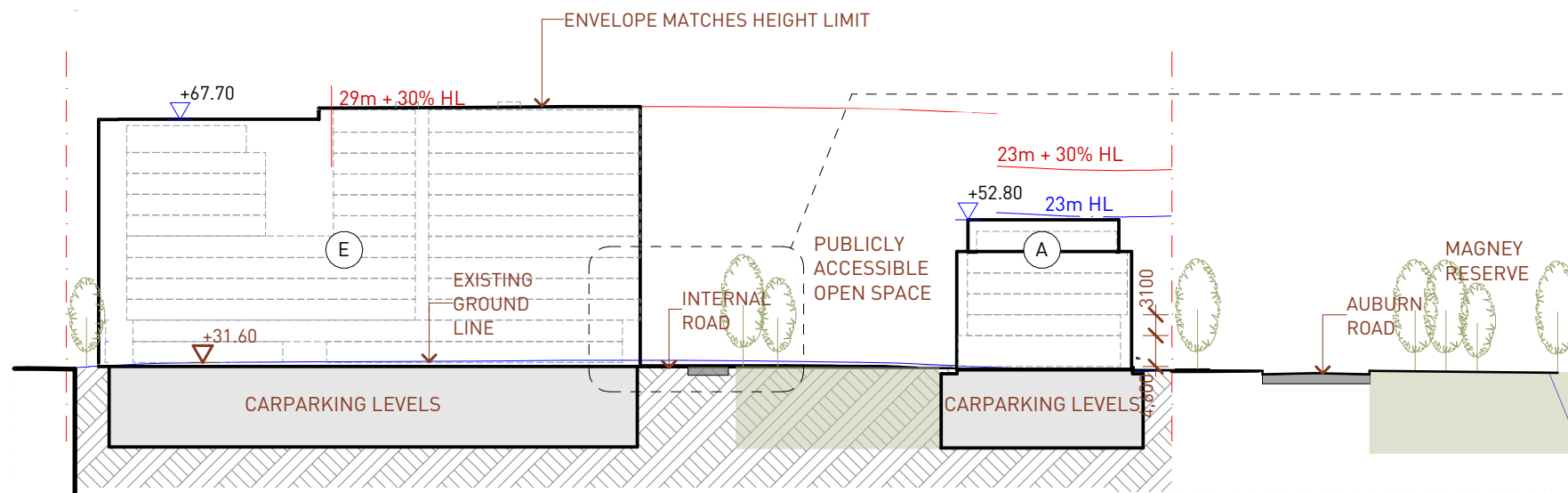


A cross-section diagram of a building structure. The diagram shows two main levels: 'CARPARKING LEVELS' at the bottom and an upper level. The upper level contains two rooms, 'D' and 'E', separated by a wall. An 'INTERNAL ROAD' is located between the two rooms. The 'EXISTING GROUND LINE' is indicated by a dashed line. The 'ENVELOPE MATCHES HEIGHT LIMIT' is shown at the top of the building. The 'ALLOWANCE FOR LIFT OVERRUN' is indicated on the left side. The height of the building is marked as '29m +30% HL'. The ground level is marked as '+68.60'.

2 SECTION - BUILDING A, B & C



2 SECTION - BUILDING A, B & C



3 SECTION - A & E



4 INTERNAL STREET SECTION

EXISTING GROUND LINE

29m+30%HL

ENVELOPE MATCHES HEIGHT LIMIT

+64.30

+61.40

AUBURN ROAD

C

CARPARKING LEVELS

5 SECTION A
1:1000

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

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20_053 U-020

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)

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)

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]								
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist] m			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	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	59.8
Approach			661	1.9	661	1.9	0.333	0.2	NA	0.0	0.0	0.00	0.02	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	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	45.2
Approach			505	3.8	505	3.8	0.254	0.5	NA	0.1	0.4	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	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	12.8
Approach			113	0.0	113	0.0	0.459	24.1	LOS C	0.8	5.4	0.86	1.04	12.8
All Vehicles			1279	2.5	1279	2.5	0.459	2.4	NA	0.8	5.4	0.09	0.11	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.

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)

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec	[Veh. veh	Dist]	m			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)

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)

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%									[Veh. veh
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.

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)

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
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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Project: M:\LMA Jobs\SIDRA\1160-5-22-SUPPLEMENTARY\1160-5-22 AUBURN RD REGENTS PARK5-SUPP-2024-04-30.sip9

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)

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)

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)

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			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	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	49.8
Approach			780	1.9	780	1.9	0.393	0.2	NA	0.0	0.0	0.00	0.02	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	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	39.5
Approach			596	3.8	596	3.8	0.299	0.6	NA	0.1	0.5	0.03	0.04	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	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	7.6
Approach			113	0.0	113	0.0	0.710	46.6	LOS E ¹¹	1.3	9.1	0.95	1.20	7.6
All Vehicles			1489	2.5	1489	2.5	0.710	3.8	NA	1.3	9.1	0.08	0.11	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)

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back	Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				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.

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)

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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Project: M:\LMA Jobs\SIDRA\1160-5-22-SUPPLEMENTARY\1160-5-22 AUBURN RD REGENTS PARK5-SUPP-2024-04-30.sip9

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)

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			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	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	49.9
Approach			627	1.6	627	1.6	0.290	0.5	NA	0.0	0.0	0.00	0.06	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	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	40.7
Approach			711	2.4	711	2.4	0.345	0.7	NA	0.1	0.7	0.04	0.05	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	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	12.7
Approach			36	0.0	36	0.0	0.194	24.4	LOS C	0.3	1.8	0.84	0.94	12.7
All Vehicles			1373	2.0	1373	2.0	0.345	1.2	NA	0.3	1.8	0.04	0.08	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)

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		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back	Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				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.