TRAFFIC AND PARKING IMPACT ASSESSMENT OF THE PROPOSED ALTERATIONS AND ADDITIONS TO DAPTO LEAGUES CLUB AT CNR STATION STREET AND BONG BONG ROAD

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Site Address: **CNR Station Street and Bong Bong Road**

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1 INTRODUCTION

M^CLaren Traffic Engineering was commissioned by *Integrated Projects* to provide a traffic and parking impact assessment of the proposed Alterations and Additions to Dapto Leagues Club at CNR Station Street and Bong Bong Road as depicted in **Annexure A**.

1.1 Description and Scale of Development

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

- Increase in Ground Floor area of 1,680m^2 GFA (Registered Club);
- Decrease in Level 1 area of 1,363m^2 GFA (Function Room);
- Increase in off-street car parking from 256 spaces to 358 spaces (including nine (9) accessible spaces);
- Increase in peak staff quantity from 45 to 57.
- Vehicular access is via the existing two-way driveway from Osborne Street, the existing two-way driveway from Station Street and altering the existing one-way exit driveway on Station Street into a one-way entry driveway.

1.2 State Environmental Planning Policy (Transport and Infrastructure) 2021

The proposed development does not qualify as a traffic generating development with relevant size and/or capacity under *Clause 2.122* of the *SEPP (Transport and Infrastructure) 2021,* as the alterations provides fewer than 200 car parking spaces. Accordingly, formal referral to Transport for NSW (TfNSW) is not necessary and the application will be assessed by Wollongong City Council officers.

1.3 Site Description

The subject development involves a single lot currently zoned *B2 – Local Centre* under the *Wollongong Local Environmental Plan 2009* and occupied by Dapto Leagues Club. The site has frontages to Baan Baan Street to the north, Osborne Street to the east, Bong Bong Road to the south and Station Street to the west.

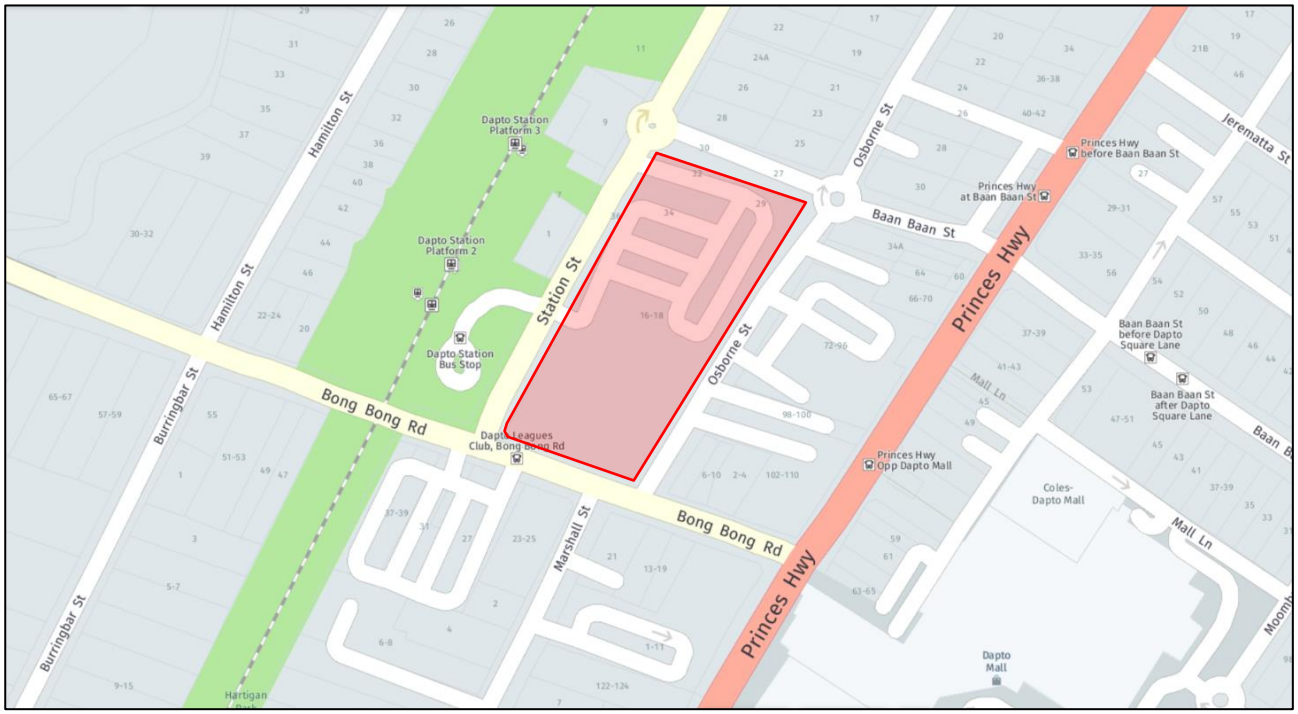
The site is generally surrounded by the Dapto retail precinct to the south and east, Dapto Train Station to the west and medium density residential dwellings to the north. Notably, Dapto Mall is located within a 200m proximity to the east of the site.

1.4 Site Context

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

Site Location

FIGURE 1: SITE CONTEXT – AERIAL PHOTO



Site Location

FIGURE 2: SITE CONTEXT – STREET MAP

2 EXISTING TRAFFIC AND PARKING CONDITIONS

2.1 Road Hierarchy

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

2.1.1 Bong Bong Road

- Unclassified COLLECTOR Road;
- Approximately 11m wide carriageway facilitating one (1) lane in each direction;
- Signposted 50km/h speed limit;
- "No Parking" restrictions apply along the site frontage and "No Stopping" restrictions apply along the opposite side of the carriageway;
- Signposted "Bus Zones" along the site frontage and on the opposite side of the carriageway.

2.1.2 Station Street

- Unclassified LOCAL Road;
- Approximately 12m wide carriageway facilitating one (1) lane in each direction and kerbside parking;
- Default 50km/h speed limit;
- Unrestricted kerbside parking permitted along both sides of the road except along the frontage of the train station where a time-restriction of 5 minutes applies between the hours of 9AM – 5PM, Monday to Friday and 9AM – 12PM, Saturday.

2.1.3 Osborne Street

- Unclassified COLLECTOR Road;
- Approximately 12m wide carriageway facilitating traffic flow in both directions;
- Default 50km/h speed limit;
- Time restricted 1-hour parking permitted along both sides of the carriageway approximately between the Osborne Street / Bong Bong Road and Osborne Street / Baan Baan Street intersections.

2.1.4 Baan Baan Street

- Unclassified COLLECTOR Road;
- Approximately 12m wide carriageway facilitating one (1) lane in each direction and kerbside parking;
- Signposted 50km/h speed limit;
- Generally, unrestricted parking permitted along both sides of the road except between the Baan Baan Street / Osbourne Street and Baan Baan Street / Princes Highway intersections.

2.2 Existing Traffic Management

- "Stop" controlled intersection of Station Street / Bong Bong Road;
- "Stop" controlled intersection of Osborne Street / Bong Bong Road;
- Roundabout controlled intersection of Osborne Street / Baan Baan Street;
- Roundabout controlled intersection of Station Street / Baan Baan Street.

2.3 Existing Traffic Environment

Turning movement count traffic surveys were conducted at the intersections of Station Street / Baan Baan Street, Osborne Street / Baan Baan Street, Osborne Street / Bong Bong Road, Station Street / Bong Bong Road from 4:00pm to 7:00pm on 16-17th June 2023 representing a typical operating Friday and Saturday. The full survey results are shown in **Annexure B** for reference.

2.3.1 Existing Road Performance

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

TABLE 1: EXISTING INTERSECTION PERFORMANCES (SIDRA INTERSECTION 9.0)

Intersection	Peak Hour	Degree of Saturation(1)	Average Delay(2) (sec/veh)	Level of Service(3)(4)	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE							
Bong Bong Road/Station Street	AM	0.88	8 (Worst: >70)	**NA** (Worst: F)	Give Way	RT from Station Street	6.9 veh (48.8m) Station Street
	PM	0.25	2.7 (Worst: 24)	**NA** (Worst: B)		RT from Station Street	1 veh (6.9m) Station Street
Bong Bong Road/Osborne Street	AM	0.63	3.8 (Worst: 35.5)	**NA** (Worst: C)	Give Way	RT from Osborne Street	3.3 veh (23.4m) Osborne Street
	PM	0.32	3.1 (Worst: 18.4)	**NA** (Worst: B)		RT from Osborne Street	1.1 veh (8.1m) Osborne Street
Baan Baan Street/Station Street	AM	0.29	5.3 (Worst: 8.4)	**A** (Worst: A)	Roundabout	RT from Baan Baan Street	1.9 veh (13.2m) Station Street
	PM	0.11	5.2 (Worst: 8.5)	**A** (Worst: A)		RT from Baan Baan Street	0.6 veh (4.2m) Station Street
Baan Baan Street/Osborne Street	AM	0.14	6.5 (Worst: 9)	**A** (Worst: A)	Roundabout	RT from Osborne Street	0.8 veh (5.4m) Osborne Street
	PM	0.09	5.9 (Worst: 8.5)	**A** (Worst: A)		RT from Baan Baan Street	0.5 veh (3.2m) Baan Baan Street

Notes:

(1) The Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.

(2) The average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.

(3) The Level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with A representing the best operational condition and level of service F the worst. The LoS of the intersection is shown in bold, and the LoS of the most disadvantaged movement is shown in brackets.

(4) No overall Level of Service is provided for Give Way and Stop controlled intersections as the low delays associated with the dominant movements skew the average delay of the intersection. The Level of Service of the worst approach is an indicator of the operation of the intersection, with a worse Level of Service corresponding to long delays and reduced safety outcomes for that approach.

As shown, the relevant intersections are currently performing at a high level of efficiency, with a level of service “A”, “B” or “C” conditions in both the AM & PM peak hour periods, except for the turns from Station Street onto Bong Bong Road. The level of service “A”, “B” and “C” performance is characterised by low approach delays and spare capacity.

It should be noted that in some circumstances, with intersections controlled by give way and stop signs, simply examining the highest individual average delay can be misleading. The size of the movement with the highest average delay per vehicle should also be taken into account. Thus, for example, an intersection where all movements are operating at a level of service “A”, except one which is at level of service “F”, may not necessarily define the intersection level of service as “F” if that movement is of a relatively small traffic volume. That is, longer delays to a small number of vehicles may not justify upgrading an intersection unless a safety issue were also involved.

Based upon TfNSW crash data from their website, that are no existing cluster of accidents at the intersection of Station Street / Bong Bong Road and therefore consideration to intersection upgrades is not strictly required on a road safety basis. The development primarily relies upon Osborne Street for access given that this is the only entry to the site.

2.4 Existing On-Street Parking Environment

Parking surveys were undertaken on Friday and Saturday 16-17 June 2023 at 30-minute intervals within 200m walking distance of the site between the hours of 4:00 PM – 10:00 PM representing a typical weekend. **Figure 3** outlines the extent of the survey area, with the survey results summarised in **Figure 4** and **Figure 5**. The full results are reproduced within **Annexure B** for reference.

FIGURE 3: PARKING SURVEY – MARKUP

Key:

Site

Within 200m of the site

Off-street Car Park

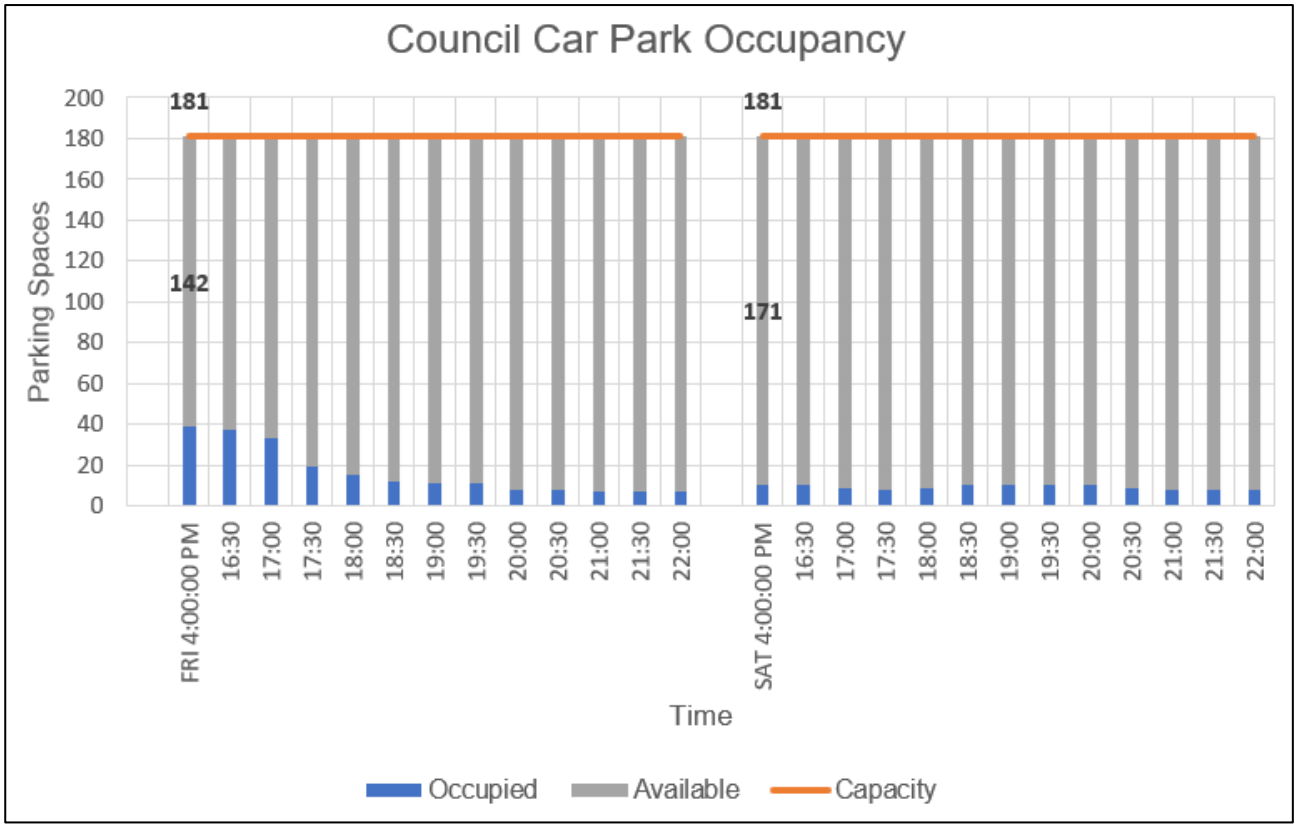


FIGURE 4: UNRESTRICTED COUNCIL CAR PARK OCCUPANCY

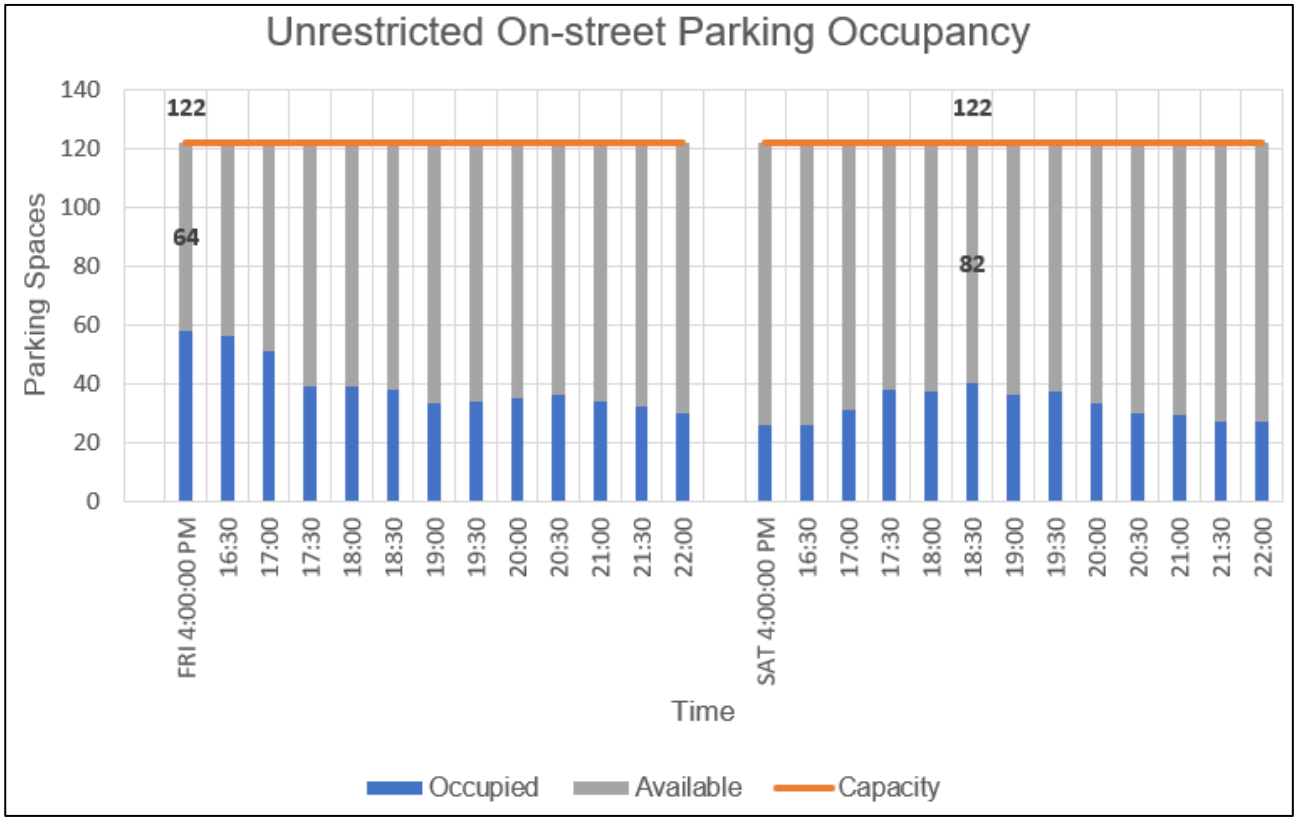


FIGURE 5: UNRESTRICTED ON-STREET CAR PARKING WITHIN 200M

As shown above, the minimum parking availability within the Council Off-street car park is **142** of 181 spaces (78% available) on Friday, and **171** of 181 spaces on Saturday (94% available). Further, the minimum unrestricted on-street parking availability within 200m walking distance is **64** of 122 spaces (52% available) on Friday, and **82** of 122 (67% available) on Saturday.

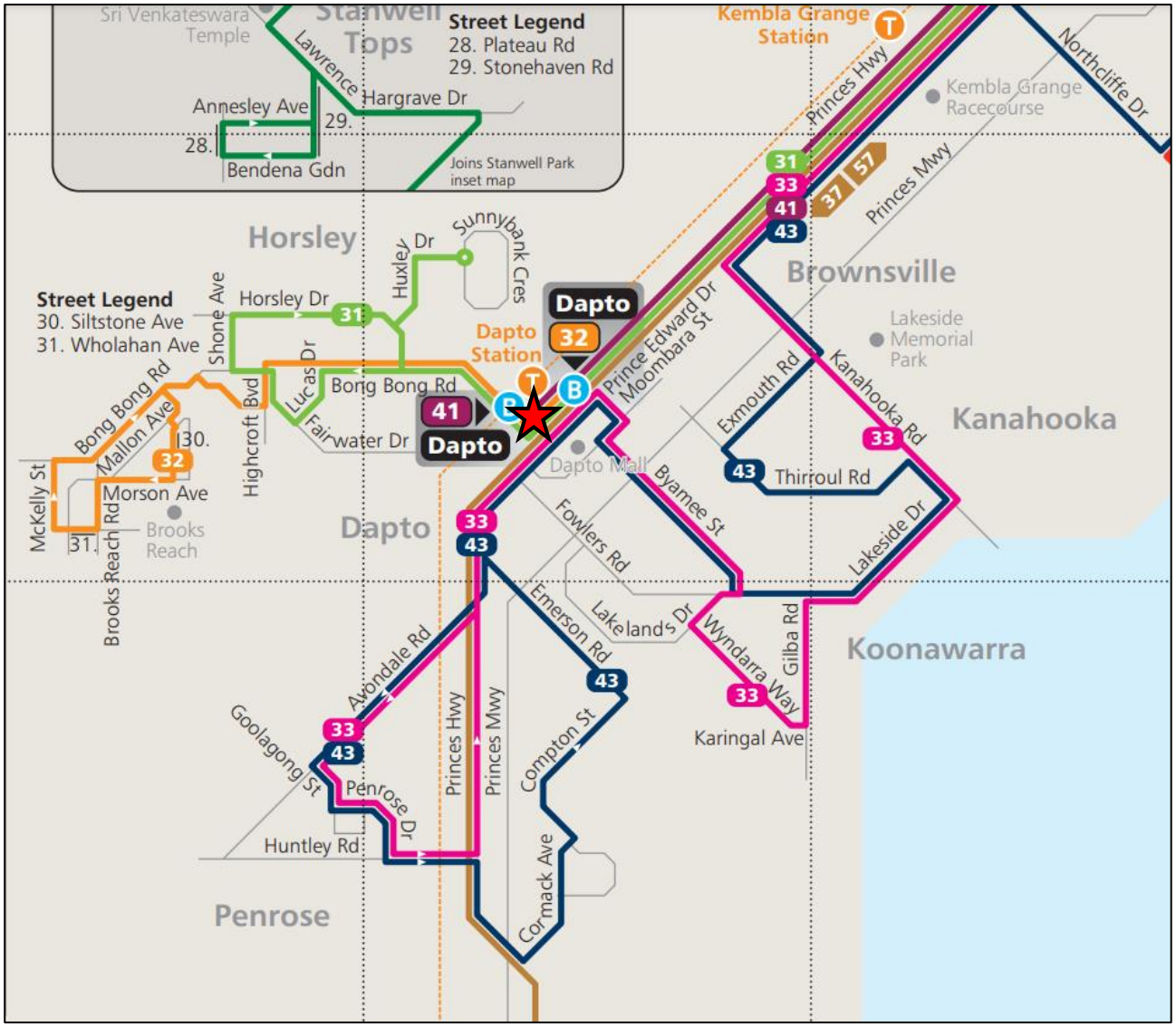
When the data for on and off-street parking is combined, there is a minimum of **206** of 303 spaces available (68%) on Friday and **253** of 303 spaces available (83%) on Saturday. In summary, there is a large amount of unused parking within the surrounding area on Friday and Saturday evenings.

2.5 Public Transport

The subject site has access to the existing bus stop (ID: 253022) located approximately along the site frontage on Bong Bong Road. The bus stop services existing bus routes 30 (Kembla Grange to Dapto via Wongawilli), 31 (Wollongong to Horsley via Unanderra), 32 (Dapto to Brooks Reach), 33 (Wollongong to Dapto via Unanderra) and 41 (Dapto to University of Wollongong) provided by Premier Illawarra.

Dapto Train Station is located 170m (2-minutes) walking distance to the west of the subject site, servicing the South Coast Line. A train service is provided every 20 – 60 minutes in commuter peak periods and provides direct access between the Sydney CBD (Central) and Kiama.

The location of the site subject to the surrounding public transport network is shown in **Figure 6**.



Site Location

FIGURE 6: PUBLIC TRANSPORT NETWORK MAP

2.6 Future Road and Infrastructure Upgrades

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

3 PARKING ASSESSMENT

3.1 Council Parking Requirement

Reference is made to the *Wollongong Development Control Plan 2009* (WDCP 2009) *Chapter E3: Car Parking, Access, Servicing/ Loading Facilities and Traffic Management* which designates the following parking rates applicable to the proposed development:

> ***Schedule 1 – Car Parking, Bicycle, Motorcycle and Delivery Vehicle Parking Requirements***
>
> *Registered Club*
>
> *1 car parking space per 2 staff plus 1 car parking space per 5m² GFA or 1 car parking space per 6 seats (whichever is the greater)*
>
> *Function Room*
>
> *1 car parking space per 2 staff plus 1 car parking space per 5m²*

Table 2 presents the parking requirements of the proposal according to Council's above car parking rates. It is relevant to note that the children's area on Level 1 has been excluded from the existing Club site use as it is not assumed to generate unique parking demand.

TABLE 2: DCP CAR PARKING RATES

Land Use(1)	Level	Scale	Rate	Spaces Required	Spaces Provided	Parking Shortfall
Existing						
Registered Club	-	45 Staff	1 per 2 staff	22.5	256	-1014
	GF	3,903m² GFA	1 per 5m² GFA	780.6		
	1	2,336m² GFA		467		
Subtotal	-	6,239m² GFA	-	1270	256	
Proposed						
Registered Club	-	57 Staff	1 per 2 staff	28.5	358	-982
	GF	5,583m² GFA	1 per 5m² GFA	1116.6		
	1	973m² GFA		195		
Subtotal	-	6,556m² GFA	-	1,340	358	
Net Change						
Registered Club	-	+12 Staff	1 per 2 staff	+6	+102	+32
	GF	+1,680m² GFA	1 per 5m² GFA	+336		
	1	-1,363m² GFA		-272		
Total		**-**	**-**	**+70**	**+102**	**+32**

Note: (1) Ground Floor is assessed as Registered Club and Level 1 is assessed as Function Room throughout the report.

As shown, strict application of the DCP requires the provision of **1,340** car parking spaces. The proposed plans detail the provision of **358** car parking spaces, resulting in a shortfall of 982 spaces strictly compared to the Council's DCP parking requirements.

Whilst the proposed car parking provision is a significant variation from the DCP requirements, the rates provided in the DCP do not reflect the modern operation of licensed premises or the distribution of demand over time that occurs in mixed-use development situated in a town centre environment. This is clearly evident by the fact that there is available on-street parking within close proximity to the site. If there was a shortfall of 1014 spaces for the existing use, there would be no available parking within close proximity to the site.

In any case, the proposal increases the ratio of parking spaces to floor area compared to the existing situation. Currently, the Club has a parking provision of 4.1 spaces per 100m^2 of floor area (256 spaces per 6,239m^2). The proposed scenario increases the parking provision to 5.46 spaces per 100m^2 of floor area (358 spaces per 6,556m^2). Therefore, the proposal improves the car parking scenario compared to the existing and approved facility.

Notwithstanding the above, *McLaren Traffic Engineering* (*MTE*) has completed a parking study of the existing site operation to forecast future car parking demand for the development. The Club parking demand study is detailed in the following sections.

3.2 Licenced Premises Parking Demand Study

3.2.1 RTA Guide to Traffic Generating Developments

The RTA Guide to Traffic Generating Developments (RTA Guide), which is the foremost source of traffic and parking data for development in NSW, provides an off-street parking demand rate for 10 surveyed clubs in 1978. The RTA Guide states that behaviour of drivers to licensed hotels has changed since 1978 partly due to the introduction of random breath testing. The shifting of societal values and the introduction of blood alcohol driving limits has greatly changed the transport characteristics of patrons of licensed hotels. Therefore, the use of this guide is deemed inappropriate for the calculation of parking rates and as such has not been considered.

3.2.2 Transaction Surveys

The *RTA Guide to Traffic Generating Developments 2002* prescribes that "*Off-street car parking must be provided to satisfy the average maximum demand*" for clubs. The proposed development should provide sufficient off-street parking to cater for the 85th percentile parking demand on peak days being Fridays and Saturdays.

A year's worth of sales transactions at the existing Dapto Leagues Club was obtained to determine a correlation of the peak patron numbers to the number of transactions that occurred in a day. The sales transaction data occurred between June 2022 and June 2023 and includes the dates surveyed within the car parking survey. The detailed data from the sales transactions is also provided in **Annexure D**.

The sales transaction data on Fridays and Saturdays over the year were ordered by number of transactions to determine the percentile 'business' on each day. The 85th percentile club sales data is presented in **Figure 7** below with the results from the patron and parking survey days shown for comparison.

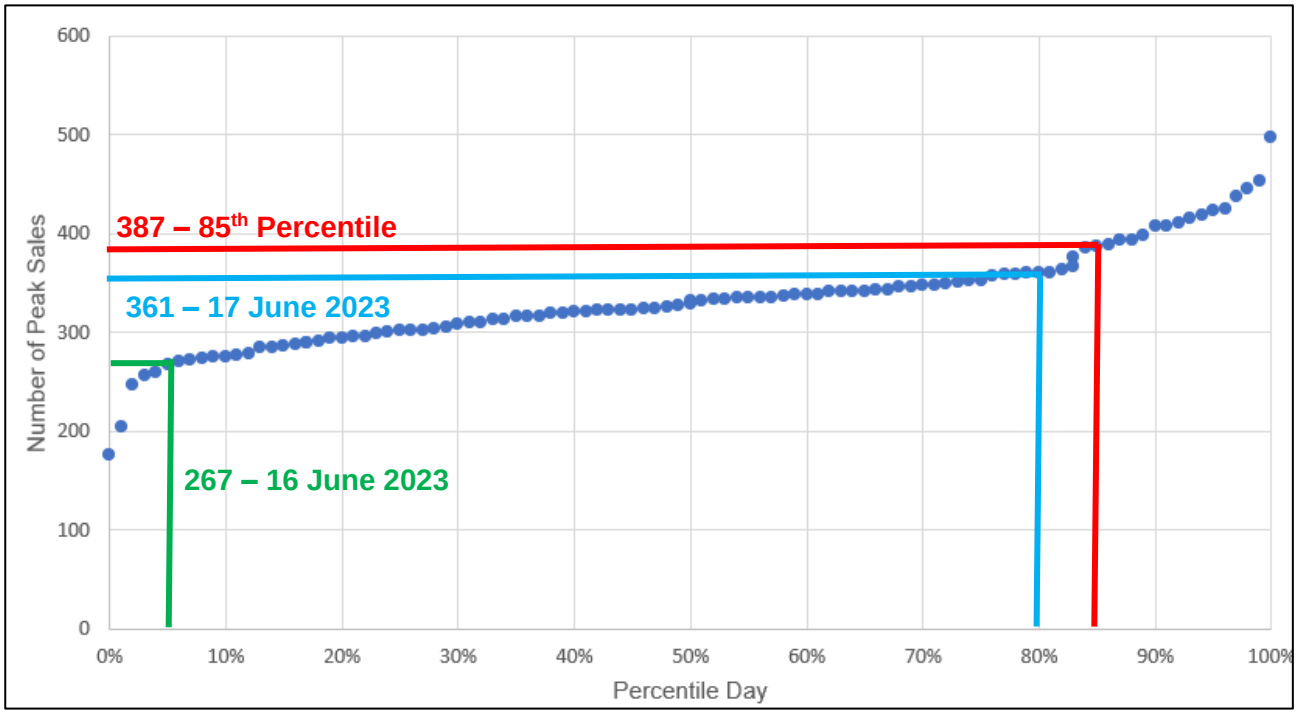


FIGURE 7: DAPTO LEAGUES CLUB – SALES PERCENTILE DEMAND

As shown, the 85th percentile peak sales day is **387** transactions in a peak hour. By comparison, the surveyed days of 361 and 267 transactions per hour were the 80th and 5th percentile days.

3.2.3 Parking and Patron Surveys

Onsite parking and patron surveys were undertaken on Friday and Saturday 16-17 June 2023 between the hours of 4pm and 10pm, representing a typical peak weekday and peak weekend. Parking and patron headcount surveys were undertaken at 30-minute intervals with patron interview surveys undertaken intermittently throughout the survey period. Patron headcounts were undertaken of people inside the Club. The patron headcount and hourly sales data results are summarised in **Table 3**, with a summary of patron interview results in **Annexure B** for reference.

It is relevant to note that there were no functions occurring on the surveyed days. As a result, the parking demand is concentrated on the Club operation without functions.

TABLE 3: SURVEY SUMMARY – PARKING AND PATRON COUNTS

Time	# People in Club		Transactions	Peak Parking Demand[(1)]
	Adults	Children		
Friday (16/06/23)				
16:00	151	0	-	170 spaces (occurred at 7:30pm)
16:30	170	0	-	
17:00	193	3	124	
17:30	234	2		
18:00	274	6	267	
18:30	326	7		
19:00	394	7	220	
19:30	439	11		
20:00	442	11	161	
20:30	382	9		
21:00	321	4	-	
21:30	251	2	-	
22:00	191	0	-	
Saturday (17/06/23)				
16:00	321	2	-	234 spaces (occurred at 6:30pm)
16:30	361	3	-	
17:00	420	6	303	
17:30	434	8		
18:00	529	14	361	
18:30	647	19		
19:00	623	18	304	
19:30	492	16		
20:00	425	14	168	
20:30	382	11		
21:00	385	7	117	
21:30	353	4		
22:00	324	3	-	

Note (1): The club car park is not restricted by a gate or other measure. As such, the parking numbers could have been inflated due to other town centre users parking in the club car park. In any case, this results in a conservative assessment.

The peak number of patrons has been plotted against the number of transactions in the surveyed days. The regression analysis presented in **Figure 8** was undertaken which resulted in an R^2 value of **0.9126** representing a very strong correlation between peak patrons and number of sales over a day.

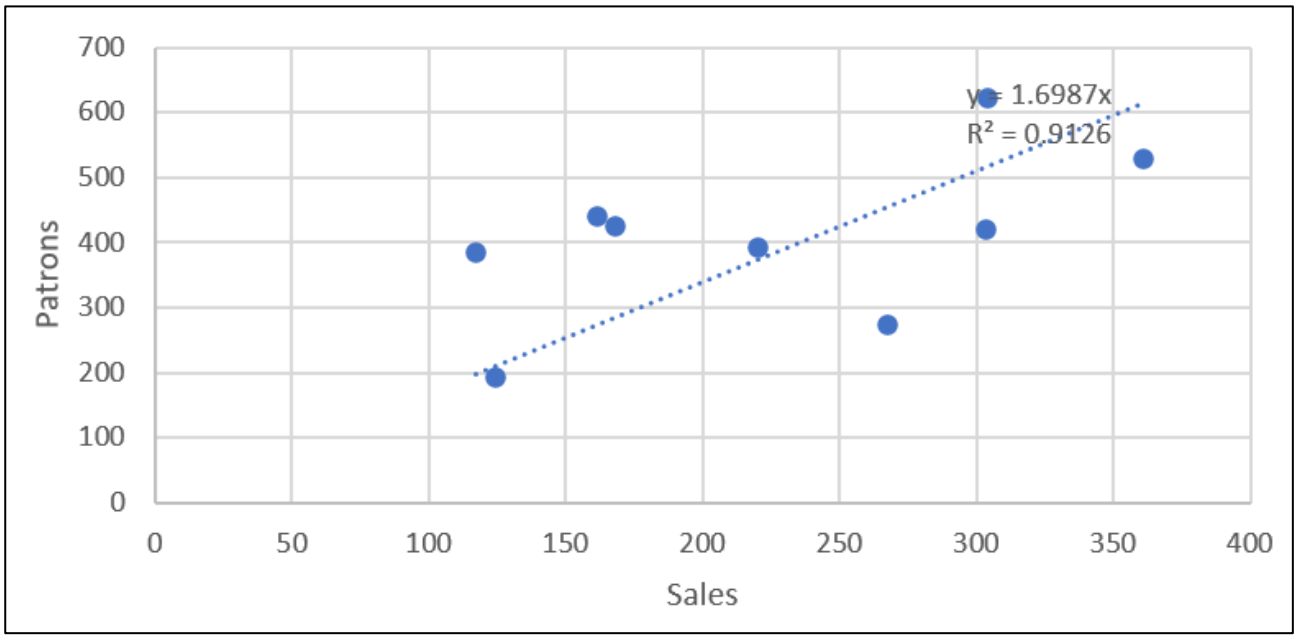


FIGURE 8: DAPTO LEAGUES CLUB – PATRON NUMBER REGRESSION

The regression analysis in **Figure 8** can be used to calculate the 85th percentile number of patrons expected to be in the Club. The calculation is provided below.

$$85th\ percentile\ patrons = 1.6987 * 85th\ percentile\ transactions$$

$$85th\ percentile\ patrons = 1.6987 * 387$$

$$85th\ percentile\ transactions = 387\ (\text{Figure 7})$$

$$85th\ percentile\ patrons = \mathbf{657}$$

3.2.4 Club Patron Parking Demand

The Club car parking on Friday and Saturday (16-17 October) was recorded to peak at 170 spaces on Friday and 234 spaces on Saturday. This represents a range of 2.62–2.67 patrons per car, which can be applied to the 85th percentile patron/sales day to determine the 85th percentile parking demand. A summary of the parking demand on the surveyed days and subsequent 85th percentile parking demand is presented in **Table 4** below.

TABLE 4: PATRON PARKING DEMAND OF THE EXISTING CLUB

Date	Peak Number of Sales	Percentile Day	Sales to Patron Ratio	Patron Demand	Patrons to Car Parking	Car Parking
Friday: 16/06/2023	267	5th percentile	1.7	454	2.67	170
Saturday: 17/06/2023	361	80th percentile		613	2.62	234
85th Percentile	**387**	**85th percentile**		**657**	**2.62**	**251**

The 85th percentile car demand for the existing 3,903.4m^2 GFA Club is 251 spaces. This results in an 85th percentile car parking demand of 6.43 spaces per 100m^2.

3.2.5 Staff Parking Demand

The proposal includes an additional 12 staff members. The Council's DCP rate of 1 space per 2 staff has been applied, resulting in an additional **6** staff spaces for the proposal.

3.2.6 Function Centre Parking Demand

The Council DCP rate of 1 space per 5m^2 for function centres within clubs represents an overprovision. The rate is based upon a standalone centre, whereas the subject function room is within the Club and would have some percentage of dual usage both before and after the function and would also be unused at times.

A year's worth of function data at the existing Dapto Leagues Club was obtained to determine the 85th percentile demand for functions that would occur in a peak day. The function data represents attendance at functions between June 2022 and June 2023 and is summarised in **Figure 9**. The detailed data from the function attendance is also provided in **Annexure E**.

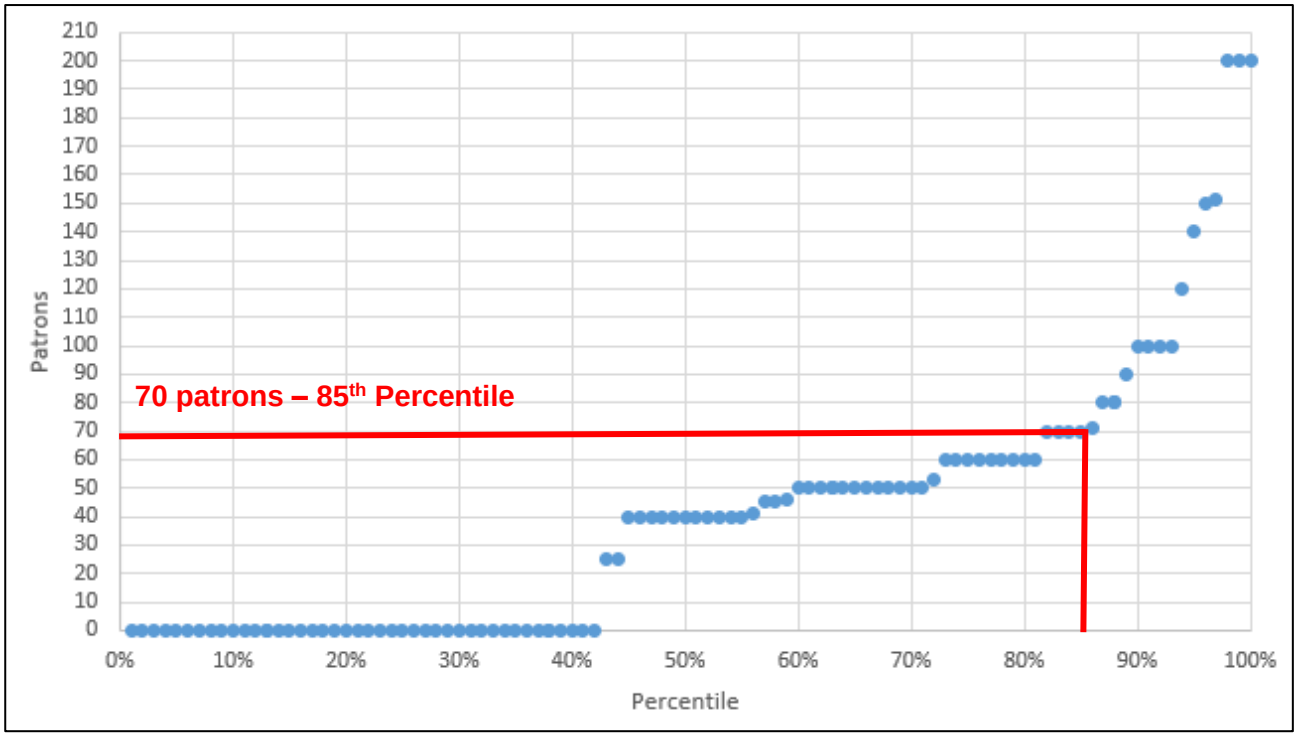


FIGURE 9: JUNE 2022 – JUNE 2023 FUNCTION DATA

As shown, the function room is not used in 42% of peak days and the 85th percentile function demand is 70 patrons. For comparison purposes, the DCP parking demand for a function centre of this size would be 217 car parking spaces (1085 / 5). That would represent an 85th percentile parking demand of over three spaces per patron for this particular centre, which is illogical.

In any case, it would be appropriate to assume the function demand would be 70 patrons, which equates to **27** car parking spaces (70/2.62).

3.3 Car Parking Demand

The proposed car parking demand discussed throughout **Section 3.2** is summarised in **Table 5**.

TABLE 5: PROPOSED CLUB PARKING DEMAND

Condition	85th Percentile Patrons			Staff		85th Percentile Functions			Total Parking Demand
	Scale	Parking Rate	Parking Demand	Number	Parking Demand	Number	Car Occupancy	Parking Demand	
Existing	4,173m²	6.43 per 100m²	**268**	-	-	70	2.62	**27**	**295**
Proposed	5,583m²		**359**	12	**6**	70		**27**	**392**

Note: (1) Existing includes snooker room on Level 1.

As shown, the current car parking provision is 256 and the 85th percentile demand is 295 spaces, which represents an existing shortfall of 39 spaces. On the other hand, the proposed car parking provision is **358** spaces and the 85th percentile demand is **392** spaces, which represents a shortfall of 34 spaces. As a result, the proposal reduces the car parking shortfall by 5 spaces (39-34). Therefore, the proposal has a positive impact on the car parking environment. Additionally, it is relevant to note that the 85th percentile demand of the Club

alone (without a function) is **365** spaces. It is noted that no functions occurred on 42% of the surveyed peak days in the previous year.

It is noted that the above assessment is conservative given the following considerations:

- It is unlikely that each of the uses will generate their parking demand at the same time;
- Functions are not expected to occur every Friday and Saturday;
- No multipurpose trips have been considered;
- It assumes that there is no parking demand for the existing kids play area, if this area generates parking demand in the existing scenario there would be a larger existing shortfall and therefore the proposal would have a greater positive impact on the car parkign environment;
- It assumes that all observed parking demand within the on-site car park were associated with the users of the development, whereas it is likely that other users within the town centre used the car park as well.

3.3.1 Car Parking Overflow during Large Functions

In any case, it is important to analyse the surrounding area's car parking facilities and their ability to accommodate an occasional overflow in car parking as a direct result of large functions. The 85th percentile function occurring on an 85th percentile day would represent a **34**-space shortfall. As discussed in **Section 2**, there is a 181-space public off-street car park on the southern side of Bong Bong Road, as well as 122 unrestricted on-street car parking spaces within 200m of the site on Bong Bong Road, Station Street, Baan Baan Street and Osborne Street. These car parking spaces are primarily used for the commercial facilities within the area as well as for Dapto Train Station. The Club peaks after 5pm on Fridays and Saturdays, which does not typically overlap with the other commercial facilities' demand, nor the Train Station's demand.

The parking data in **Figure 4** and **Figure 5** shows that unrestricted car parking within the area is 68%-83% available during the Club's peak periods. In more specific terms, there is a minimum of **206** parking spaces available within 200m walking distance of the site (142 in the off-street car park and 64 on-street) on Friday, and a minimum of **253** parking spaces available (171 in the off-street car park and 82 on-street) on Saturday. This is far more than enough to satisfy the Club's occasional car parking shortfall (34 spaces in the 85th percentile function demand). Therefore, the total car parking provision is satisfactory in terms of its impacts on the surrounding parking environment.

3.4 Parking for People with Disabilities

The WDCP 2009 makes reference to *Table D3.5* of the *Building Code of Australia (BCA)* in their accessible parking requirements. Accordingly, the proposed development can be categorised as an assembly building, or Class 9b building, which therefore requires the provision of car parking for people with disabilities at a rate of:

> *Class 9b*
>
> *(b) Other Assembly Buildings*
>
> *(i) Up to 1000 car parking spaces*
>
> *1 car parking space for every 50 car parking spaces or part thereof.*

The proposed site provides 358 car parking spaces and as such the DCP requires the provision of eight (**8**) accessible spaces. The proposed car parking layout incorporates nine (**9**) parking spaces for people with disabilities resulting in compliance with WDCP and BCA requirements.

3.5 Bicycle & Motorcycle Parking Requirements

3.5.1 Bicycle Parking

The WDCP 2009 requires that bicycle parking be provided at a rate of one (1) bicycle space per 25m^2 GFA. The patron surveys did not show any level of bicycle usage, and none was recorded in the parking surveys. Given this, any bicycle parking provision would not likely be used. However, 16 bicycle parking rails (8 staff, 8 visitor) have been included to satisfy Council requirements and encourage the use of active transport. It should be noted that the existing operations include shower and change facilities for employees such that employees may be encouraged to cycle to work.

3.5.2 Motorcycle Parking

Reference is made to the WDCP 2009 which states that one (1) motorcycle space per 25 car parking spaces should be provided, resulting in a requirement of 15 motorcycle parking spaces (rounded up from 14.32).

Motorcycle parking demand would not be additional to the parking demand devised in **Section 3.2**. As a result, any motorcycle parking could be accommodated within the car parking spaces. Further, the patron surveys did not show any level of motorcycle usage, and none was recorded in the parking surveys.

In any case, 17 motorcycle parking spaces have been detailed on the plans, resulting in compliance with WDCP 2009 requirements.

3.6 Servicing & Loading

Reference is made to the WDCP 2009 which outlines the following service facility requirements applicable to the proposed development:

> *<500m^2 GFA – Small Rigid Vehicle*
>
> *>500m^2 GFA – Large Rigid Vehicle, Articulated Vehicle (Semi-Trailer)**
>
> *Note*:* *The determination as to the standard truck size for a particular development will be dependent upon the nature and scale of the development and will be determined by Council at the pre-lodgement meeting stage.*

Since the proposed development is greater than 500m^2 in scale, service facilities should be able to accommodate at least a 12.5m long Heavy Rigid Vehicle. The dedicated loading dock is of sufficient size to facilitate collection by vehicles up to and including a 12.5m long HRV. Swept paths of a 12.5m length HRV entering the site, reversing toward the loading bay and exiting the site in a forward direction are provided in **Annexure F**.

3.7 Car Park Design & Compliance

The car parking layout as depicted in **Annexure A,** has been assessed to achieve the relevant clauses and objectives of *AS2890.1:2004*, *AS2890.2:2018* and *AS2890.6:2022*. Any variances from standards are addressed in the following subsections including required changes, if any. Swept path testing has been undertaken and the results are reproduced within **Annexure F** for reference.

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

- 7m wide two-way driveway facilitating access to Osborne Street;
- 5m wide entry driveway facilitating access from Station Street;
- 8.9m two-way service vehicle driveway facilitating access to Station Street;
- Minimum 6.2m wide parking aisles;
- Compliant curve radius along ramp;
- Compliant ramp grades not exceeding 20% for public developments and no grade change greater than 12.5%:
- Minimum 5.4m long, 2.5m wide spaces;
- Minimum 5.4m long, 2.4m wide accessible spaces with adjacent associated 5.4m long, 2.4m wide shared space;
- Minimum headroom of 2.2m for general circulation and 2.5m headroom clearance provided over accessible and adaptable parking areas;

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

3.8 Pedestrian Access through Car Park

The design requirements for this facility as per AS2890.1:2004 relate to User Class 2 design, in that the minimum car parking design is to provide 2.5m wide spaces with a 5.8m wide aisle. The proposed plans as depicted in **Annexure A**, provide 2.5m wide spaces with a 6.2m wide aisle, an increase of 0.4m above what is required. This design achieves improved safety for the movement of pedestrians to and from the club.

4 TRAFFIC ASSESSMENT

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

4.1 Traffic Generation

The estimated traffic generation for the proposed development must follow a similar procedure to that of the parking demand in that each land use must be calculated separately in terms of traffic generation, then combined to provide the total traffic generation for the entire site. The general procedure will align in order of priority with: the RMS guide, empirical survey data and first principle assessments.

4.1.1 RTA Guide - Restaurants and Clubs

The estimated traffic generation level for the licensed premise development is based upon the *RTA Guide to Traffic Generating Developments 2002*.

The RTA Guide states a traffic generation rate of 10 veh/hr/100m^2, however, this value was obtained by surveys conducted in 1978, following which driver behaviour has changed, partly due to the introduction of random breath testing and the introduction of blood alcohol driving limits. It has therefore been assumed that the traffic generation of the site will follow the same reduction from the guide as the parking rate in **Section 3** of this report.

The parking rate from the surveyed results of licensed premises is 6.43 car parking spaces per 100m^2. The 1978 RTA surveys showed that the average vehicle length of stay for visitors of the club over the ten (10) surveyed sites was 91.45 minutes, or approximately 1 hour 31 minutes. Through the calculation of this parking demand and parking turnover, the resultant peak hour traffic generation rate is **8.5 trips per 100m^2**.

4.1.2 Function Centre

The RTA Guide does not provide traffic generation rates for function centres and as such, a traffic generation based on first principles has been adopted for the proposed function room. As calculated in **Section 3.2.6**, the function and training rooms are expected to use 27 spaces. As a worst-case scenario, it is assumed that when a function starts/finishes 90% of the cars arrive / depart within one hour. This results in a traffic generation of **24** vehicle trips for either arrival or departure.

4.1.3 Cumulative Traffic Generation

The cumulative peak trip generation for all uses within the proposed development is summarised in **Table 6** below.

TABLE 6: TRAFFIC GENERATION

Land use	Scale	Rate	Trip Generation	Direction(1)
Pub / Registered Club / Restricted Premises	+1,680m^2 (Ground Floor)	8.5 trips / 100m^2	143	114 IN / 29 OUT
Function/Training Centre	70 patrons (Level 1)	First Principles (**Section 4.1.2**)	24	19 IN / 5 OUT
Total			**167**	**133 IN / 34 OUT**

Notes: (1) – The peak hour occurs between 4 and 6pm, therefore it is assumed that 80% of patrons will be arriving to the Club at that time

As shown in **Table 6** above, the peak traffic generation of the proposed development is expected to be **167** vehicular trips (133 IN / 34 OUT).

It is noted that the above assessment is conservative given the following considerations:

- It is unlikely that each of the uses will generate their peak traffic demand at the same time;
- Trainings and functions are not expected to occur every Friday and Saturday;
- No multipurpose trips have been considered.

4.2 Traffic Assignment

The road network, traffic surveys and locations of residential areas surrounding the site have been assessed and the following traffic assignment has been assumed for all traffic to and from the site:

- 5% to/from the west via Bong Bong Road;
- 35% to/from the south via Princes Highway;
- 60% to/from the north via Princes Highway.

The above rates are shown in **Figure 10**.

FIGURE 10: TRIP DISTRIBUTION

4.3 Traffic Impact

The traffic generation outlined in above has been added to the existing traffic volumes recorded. SIDRA INTERSECTION 9.0 was used to assess the intersections performance. The purpose of this assessment is to compare the existing intersection operations to the future scenario under the increased traffic load. The results of this assessment are shown in **Table 7**.

TABLE 7: FUTURE INTERSECTION PERFORMANCES (SIDRA INTERSECTION 9.0)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/veh)	Level of Service[3][4]	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE							
Bong Bong Road/Station Street	FRI	0.88	8 (Worst: >70)	**NA** (Worst: F)	Give Way	RT from Station Street	6.9 veh (48.8m) Station Street
	SAT	0.25	2.7 (Worst: 24)	**NA** (Worst: B)		RT from Station Street	1 veh (6.9m) Station Street
Bong Bong Road/Osborne Street	FRI	0.63	3.8 (Worst: 35.5)	**NA** (Worst: C)	Give Way	RT from Osborne Street	3.3 veh (23.4m) Osborne Street
	SAT	0.32	3.1 (Worst: 18.4)	**NA** (Worst: B)		RT from Osborne Street	1.1 veh (8.1m) Osborne Street
Baan Baan Street/Station Street	FRI	0.29	5.3 (Worst: 8.4)	**A** (Worst: A)	Roundabout	RT from Baan Baan Street	1.9 veh (13.2m) Station Street
	SAT	0.11	5.2 (Worst: 8.5)	**A** (Worst: A)		RT from Baan Baan Street	0.6 veh (4.2m) Station Street
Baan Baan Street/Osborne Street	FRI	0.14	6.5 (Worst: 9)	**A** (Worst: A)	Roundabout	RT from Osborne Street	0.8 veh (5.4m) Osborne Street
	SAT	0.09	5.9 (Worst: 8.5)	**A** (Worst: A)		RT from Baan Baan Street	0.5 veh (3.2m) Baan Baan Street
FUTURE PERFORMANCE							
Bong Bong Road/Station Street	FRI	0.85	8.6 (Worst: >70)	**NA** (Worst: F)	Give Way	RT from Station Street	6.3 veh (45m) Station Street
	SAT	0.25	2.6 (Worst: 23.2)	**NA** (Worst: B)		RT from Station Street	0.9 veh (6.6m) Station Street
Bong Bong Road/Osborne Street	FRI	0.71	5 (Worst: 41.1)	**NA** (Worst: C)	Give Way	RT from Osborne Street	3.9 veh (27.5m) Osborne Street
	SAT	0.36	3.7 (Worst: 19.7)	**NA** (Worst: B)		RT from Osborne Street	1.8 veh (13.1m) Bong Bong Road
Baan Baan Street/Station Street	FRI	0.29	5.3 (Worst: 8.4)	**A** (Worst: A)	Roundabout	RT from Baan Baan Street	1.9 veh (13.2m) Station Street
	SAT	0.11	5.2 (Worst: 8.5)	**A** (Worst: A)		RT from Baan Baan Street	0.6 veh (4.2m) Station Street
Baan Baan Street/Osborne Street	FRI	0.19	6.5 (Worst: 9.1)	**A** (Worst: A)	Roundabout	RT from Osborne Street	1 veh (7.4m) Baan Baan Street
	SAT	0.15	5.9 (Worst: 8.6)	**A** (Worst: A)		RT from Osborne Street	0.8 veh (5.7m) Baan Baan Street

NOTES: Refer to **Table 1**.

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

5 RESPONSE TO COUNCIL COMMENTS

This section is in response to Wollongong Council's comments within a letter dated 10 October 2024 for DA-2024/502. The comments made by Council relevant to traffic and parking are shown below (italicised) with *M^{C}Laren Traffic Engineering*'s (**MTE**) response thereafter.

> ***Strategic***
>
> *The bike parking is not centrally located to the entrance to the venue or end of trip facilities. Active transport facilities are important in encouraging a mode shift away from private vehicles, particularly for trips of a short distance. Location, type and provision rates of bike parking to be reviewed – defer to Transport Planner for detailed requirements.*

MTE Response: The location of the bicycle parking is for others to address. The plans have been updated such that the provision rates of bicycle parking are compliant with DCP requirements.

> ***Traffic***
>
> *The proposed variation to bicycle parking is not accepted. The provision of additional bicycle parking will improve the sustainability of the development and provide opportunities for staff to cycle to and from work. Accordingly, the development needs to provide a minimum of 15 bicycle rails within the site in an area which has sufficient surveillance and weather protection. Of these spaces, a total of 8 bicycle spaces must be provided in a secure compound with a self-closing door and combination keypad for use by staff (Security Class B facilities). A further 7 bicycle spaces should be provided as unsecure rails for use by visitors (Security Class C).*

MTE Response: The plans have been updated with eight (8) staff bicycle spaces (Security Class B facilities) and eight (8) visitor bicycle spaces (Security Class C facilities), complying with Council's bicycle parking requirements.

> *No motorcycle parking has been provided and motorcycle parking spaces are to be provided to meet DCP rates. It's noticed that adequate space appears available at the corners of the carpark layout.*

MTE Response: The Wollongong DCP requires motorcycle parking at a rate of 1 motorcycle space per 25 car parking spaces. The proposed plans detail 358 car parking spaces therefore requiring 15 motorcycle spaces. The plans have been updated to detail 17 motorcycle spaces on the Level 1 Carpark.

Wollongong holds UCI Bike City status, and Council strongly supports the use of active transportation methods. Bicycle parking spaces do not appear adequate for the floor area served, and visitor and staff parking spaces are to be provided to meet DCP rates. Staff bicycle parking spaces are to be secure to meet a Class B standard. The location of the visitor bicycle spaces is also questioned given the poor visibility from the club entrance.

MTE Response: The plans have been updated with eight (8) staff bicycle spaces (Security Class B facilities) and eight (8) visitor bicycle spaces (Security Class C facilities), complying with Council's bicycle parking requirements.

An End-of-Trip facility has not been provided for staff use. Note: If staff showers and lockers are proposed or already installed in the existing portion of the building, a departure could be considered as these spaces could be used as the EOT facility. Clarification should be provided and EOT included on drawings.

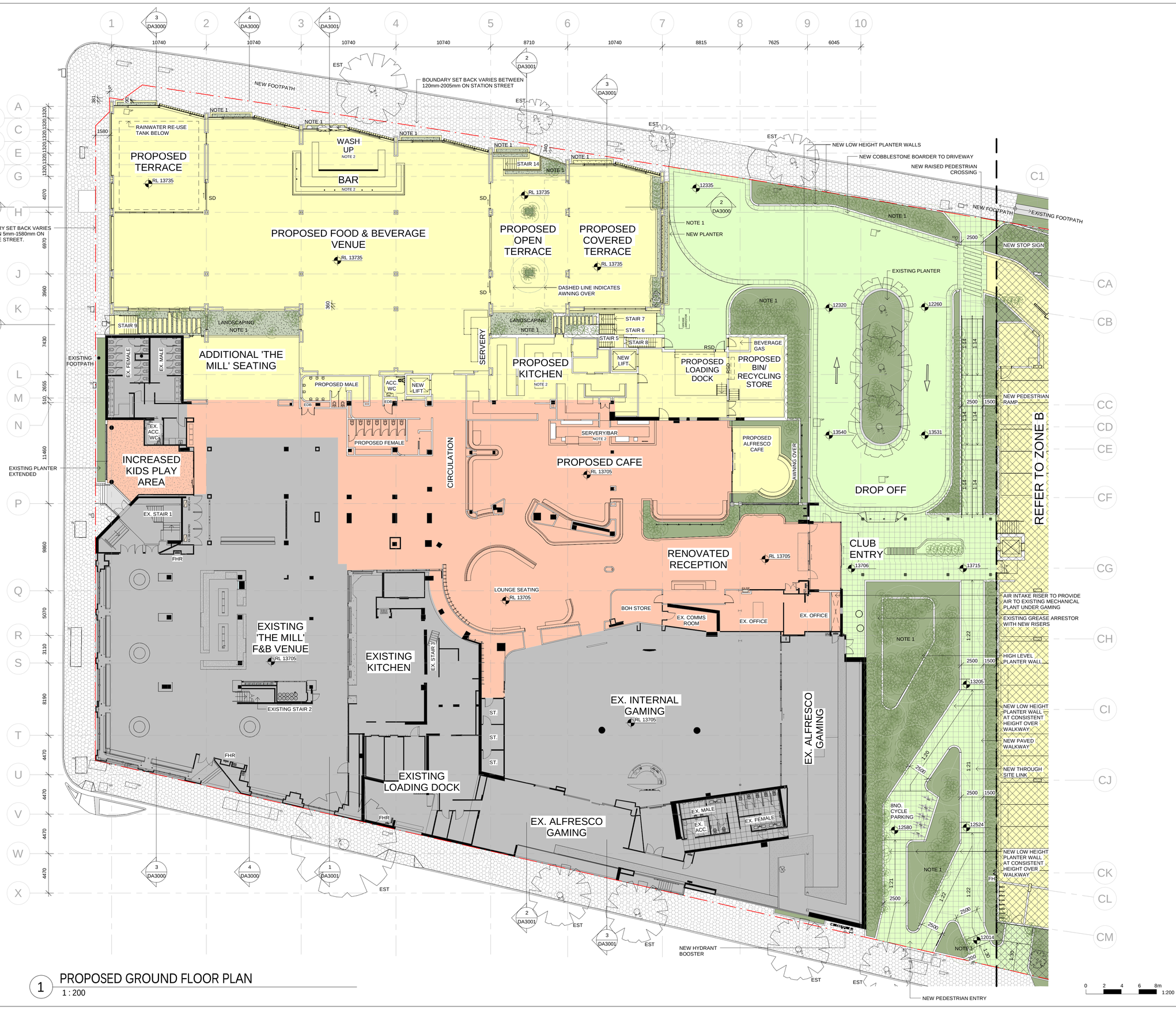
MTE Response: This comment is for others to address.

6 CONCLUSION

In view of the foregoing, the subject Alterations and Additions to Dapto Leagues Club proposal at CNR Station Street and Bong Bong Road (as depicted in **Annexure A**) is fully supportable in terms of its traffic and parking impacts. The following outcomes of this traffic impact assessment are relevant to note:

- The proposal includes the provision of **358** car parking spaces within a proposed carpark, satisfying the 85th percentile demand of the Club patron and additional staff demand. When the 85th percentile function is considered, there is an overflow of 34 car parking spaces which can easily be accommodated in the surrounding public parking areas. It should be noted that the existing site has an existing shortfall of 39 spaces, hence the proposal reduces this by 5 spaces.
- Council's DCP requires the provision of **15** bicycle parking spaces and **15** motorcycle parking spaces. The patron surveys did not show any bicycle or motorcycle usage and as such, the provision of specific motorcycle and bicycle parking is considered unnecessary. In any case, 16 bicycle parking rails (8 staff, 8 visitor) and 17 motorcycle spaces are provided on site.
- The parking areas of the site have been assessed against the relevant sections of *AS2890.1:2004*, *AS2890.2:2018* and *AS2890.6:2022* and have been found to satisfy the objectives of each standard. Swept path testing has been undertaken and the results are reproduced within **Annexure F**.
- The traffic generation of the proposed development has been estimated to be some **167** trips in the peak hour (133 in, 34 out). The impacts of the traffic generation have been modelled using SIDRA INTERSECTION 9.0, indicating that there will be no adverse impact to the performance of the intersections as a result of the generated traffic.

ANNEXURE A: PROPOSED PLANS
(3 SHEETS)



1 PROPOSED GROUND FLOOR PLAN
1 : 200

ISSUE	DATE	DESCRIPTION
A	24/06/2024	ISSUED FOR DA APPLICATION
B	1/11/2024	ISSUED FOR DEVELOPMENT APPLICATION RESPONSE.

NOTE 1: NEW LANDSCAPING. REFER TO LANDSCAPE ARCHITECTS DOCUMENTS.
NOTE 2: KITCHEN BAR AND WASH UP EQUIPMENT AND LAYOUTS SHOWN INDICATIVELY. FINAL EQUIPMENT AND LAYOUTS TO BE CONFIRMED. ALL KITCHEN AREAS TO COMPLY WITH THE FOOD ACT 2003 & AUSTRALIAN STANDARDS.
NOTE 3: REFER TO ELEVATIONS FOR WINDOW LOCATIONS.
NOTE 4: ELECTRIC VEHICLE CHARGING DISTRIBUTION BOARDS.

DS: DRAINAGE SUMP
EST: EXISTING STREET TREE
EST: NEW STREET TREE. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR SPECIFICATION. ALL TREES TO BE PLANTED IN ACCORDANCE WITH WOLLONGONG CITY COUNCIL SPECIFICATIONS.
ES: ELECTRICAL SUMP
RSD: ROLLER SHUTTER DOOR
SD: SLIDING DOOR
TS: TELEPHONE SUMP

HATCH INDICATES NEW PAVING TO FOOTPATH AND DRIVEWAYS TO WCC SPECIFICATIONS

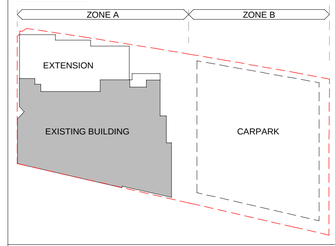
ZONE FOR FUTURE ELECTRIC VEHICLE CHARGERS

GENERAL NOTE: ALL UPPER LEVEL CAR PARK LIGHING TO BE ON LOW HEIGHT POLES WITH LOW POWER LIGHING TO MINIMISE LIGHT SPREAD. FINAL LIGHTING DESING TO BE PROVIDED AS PART OF CONSTRCUTION CERTIFICATE DOCUMENTS.

KEY

- EXTENT OF EXISTING CLUB. NO WORKS
- EXTENT OF NEW BUILDING WORKS.
- EXTENT OF EXISTING CLUB TO BE RENOVATED.
- NEW / MODIFIED HARDSCAPE.
- EXTENT OF LANDSCAPING. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR ADDITIONAL INFORMATION.
- GLAZING IN NEW BUILDING WORKS.

ZONE PLAN KEY



CLIENT: Dapto Leagues

PROJECT:
DAPTO LEAGUES CLUB NORTH WING REFURBISHMENT

ARCHITECT:
ALTIS ARCHITECTURE
p 61 2 9364 9000 f 61 2 9571 7930 lower deck jones bay wharf
suite 123 / 26 - 32 pirrama road pyrmont nsw 2009 australia

DRAWING TITLE:
GROUND FLOOR PLAN - ZONE A

NOTES:
Nominated architect: Rolfe Latimer : 5535
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Use only figured dimensions.
All discrepancies to be referred to Altis Architecture Pty Ltd prior to construction.
Ensure compliance with the Building Code of Australia and all relevant Australian Standards and Authority requirements.

NORTH

SCALE:		DATE:	
As indicated @ A1			
DRAWN BY: BK	CHECKED BY: DC	PROJECT NO: 2219.03	DRAWING NO: DA1101
CAD FILE:			ISSUE: B

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1 PROPOSED GROUND FLOOR PLAN
1 : 200

ISSUE	DATE	DESCRIPTION
A	24/06/2024	ISSUED FOR DA APPLICATION
B	1/11/2024	ISSUED FOR DEVELOPMENT APPLICATION RESPONSE.

PARKING SPACE TOTALS

GROUND	= 120 STANDARD SPACES = 53 EV COMPATIBLE SPACES = 173 TOTAL SPACES
LEVEL 1	= 138 STANDARD SPACES = 7 DISABLED SPACES = 36 EV COMPATIBLE SPACES = 2 DISABLED EV COMPATIBLE SPACES = 185 TOTAL SPACES
TOTAL	**= 358 SPACES**
MOTORCYCLE	= 17 SPACES TOTAL

NOTE 1: NEW LANDSCAPING, REFER TO LANDSCAPE ARCHITECTS DOCUMENTS.
NOTE 2: KITCHEN BAR AND WASH UP EQUIPMENT AND LAYOUTS SHOWN INDICATIVELY, FINAL EQUIPMENT AND LAYOUTS TO BE CONFIRMED. ALL KITCHEN AREAS TO COMPLY WITH THE FOOD ACT 2003 & AUSTRALIAN STANDARDS.
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NOTE 4: ELECTRIC VEHICLE CHARGING DISTRIBUTION BOARDS.

DS: DRAINAGE SUMP
EST: EXISTING STREET TREE
NST: NEW STREET TREE. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR SPECIFICATION, LOCATION AND TREE PROTECTION. ALL TREES TO BE PLANTED IN ACCORDANCE WITH WOLLONGONG CITY COUNCIL SPECIFICATIONS. TREES TO BE PLANTED WHERE POSSIBLE. IF EXISTING STREET SERVICES PREVENT A TREE FROM BEING PLANTED, SAID TREE WILL BE REMOVED FROM SCOPE.
ES: ELECTRICAL SUMP
RSD: ROLLER SHUTTER DOOR
SD: SLIDING DOOR
TS: TELEPHONE SUMP

HATCH INDICATES NEW PAVING TO FOOTPATH AND DRIVEWAYS TO WCC SPECIFICATIONS
(ANY SERVICE PITS ON PATHWAY TO BE ADJUSTED AS REQUIRED TO HAVE MAX 2.5% CROSS FALL)

ZONE FOR FUTURE ELECTRIC VEHICLE CHARGERS

GENERAL NOTE: ALL UPPER LEVEL CAR PARK LIGHING TO BE ON LOW HEIGHT POLES WITH LOW POWER LIGHING TO MINIMISE LIGHT SPREAD. FINAL LIGHTING DESING TO BE PROVIDED AS PART OF CONSTRCUTION CERTIFICATE DOCUMENTS.

KEY

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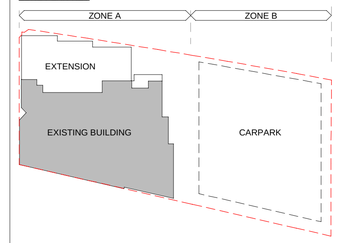
- GLAZING IN NEW BUILDING WORKS.

ZONE PLAN KEY



CLIENT: Dapto Leagues

PROJECT:
DAPTO LEAGUES CLUB NORTH WING REFURBISHMENT

ARCHITECT:
ALTIS ARCHITECTURE
p 61 2 9364 9000 f 61 2 9571 7930 lower deck jones bay wharf
suite 123 / 26 - 32 pirrama road pyrmont nsw 2009 australia

DRAWING TITLE:
GROUND FLOOR PLAN - ZONE B

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As indicated @ A1				
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BK	DC	2219.03	DA1102	B

CAD FILE:

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1 PROPOSED LEVEL 1 PLAN
1 : 200

0 2 4 6 8m 1:200

ISSUE	DATE	DESCRIPTION
A	24/06/2024	ISSUED FOR DA APPLICATION
B	1/11/2024	ISSUED FOR DEVELOPMENT APPLICATION RESPONSE.

PARKING SPACE TOTALS

GROUND = 120 STANDARD SPACES
= 53 EV COMPATIBLE SPACES
= 173 TOTAL SPACES

LEVEL 1 = 138 STANDARD SPACES
= 7 DISABLED SPACES
= 36 EV COMPATIBLE SPACES
= 2 DISABLED EV COMPATIBLE SPACES
= 185 TOTAL SPACES

TOTAL = 358 SPACES

MOTORCYCLE = 17 SPACES TOTAL

NOTE 1: NEW LANDSCAPING. REFER TO LANDSCAPE ARCHITECTS DOCUMENTS.
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(ANY SERVICE PITS ON PATHWAY TO BE ADJUSTED AS REQUIRED TO HAVE MAX 2.5% CROSS FALL)

ZONE FOR FUTURE ELECTRIC VEHICLE CHARGERS

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KEY

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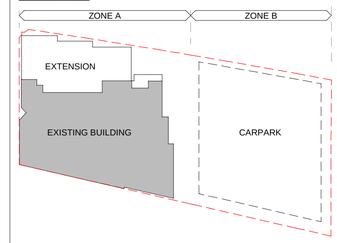
ZONE PLAN KEY



CLIENT:
Dapto Leagues

PROJECT:
DAPTO LEAGUES CLUB NORTH WING REFURBISHMENT

ARCHITECT:
ALTIS ARCHITECTURE
p 61 2 9364 9000 f 61 2 9571 7930 lower deck jones bay wharf
suite 123 / 26 - 32 pirrama road pyrmont nsw 2009 australia

DRAWING TITLE:
LEVEL 1 PLAN - ZONE B

NOTES:
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SCALE: As indicated @ A1
DATE:
DRAWN BY: BK | CHECKED BY: DC | PROJECT NO: 2219.03
CAD FILE:
DRAWING NO: DA1104
ISSUE: B

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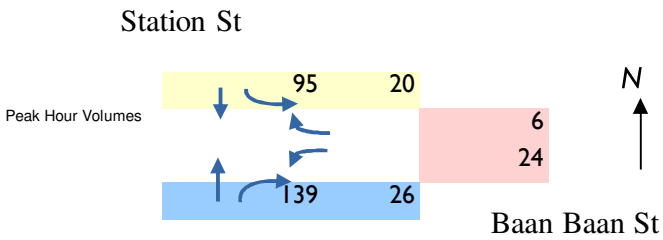
ANNEXURE B: TRAFFIC SURVEY DATA
(16 SHEETS)

Curtis Traffic Surveys

Turning movement count

Job:	230502mcl
Day, date	17/06/23
Location:	Baan Baan St & Station St
Weather:	Fine
Client:	McLaren Traffic Engineering



Time Period	From Station St south		From Baan Baan St		From Station St north		Total vehicles	Peak
	through	right	left	right	left	through		
16:00 to 16:15	34	8	7	1	3	18	71	
16:15 to 16:30	36	4	5	2	4	20	71	
16:30 to 16:45	41	5	6	1	3	12	68	
16:45 to 17:00	33	6	5	2	4	16	66	
17:00 to 17:15	36	5	8	3	5	22	79	
17:15 to 17:30	29	7	7	0	3	23	69	
17:30 to 17:45	40	9	6	1	9	29	94	peak
17:45 to 18:00	34	5	3	2	3	21	68	
18:00 to 18:15	42	3	4	1	2	18	70	
18:15 to 18:30	31	4	2	0	4	22	63	
18:30 to 18:45	22	5	2	2	2	14	47	
18:45 to 19:00	23	4	3	1	2	13	46	
Total	401	65	58	16	44	228		

Hourly summary

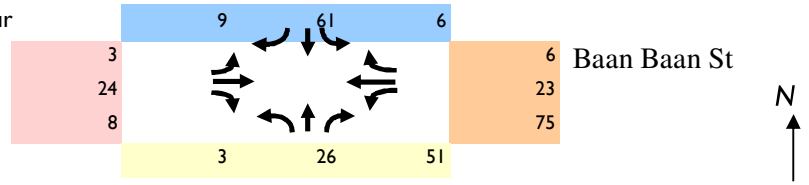
16:00 to 17:00	144	23	23	6	14	66	276	
16:15 to 17:15	146	20	24	8	16	70	284	
16:30 to 17:30	139	23	26	6	15	73	282	
16:45 to 17:45	138	27	26	6	21	90	308	
17:00 to 18:00	139	26	24	6	20	95	310	peak hour
17:15 to 18:15	145	24	20	4	17	91	301	
17:30 to 18:30	147	21	15	4	18	90	295	

Curtis Traffic Surveys

Turning movement count

Job: 230502mcl
Day, date 17/06/23
Location: Baan Baan St & Osbourne St
Weather: Fine
Client: McLaren Traffic Engineering
All motor vehicles

Peak Hour

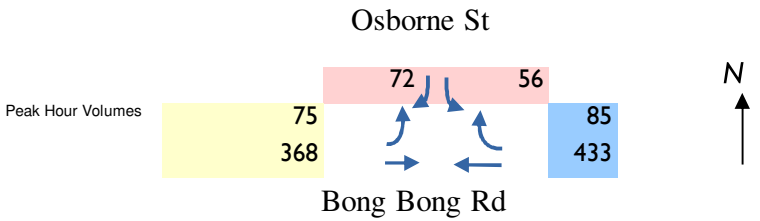


Time Period	From Osborne St north			From Baan Baan St west			From Osborne St south			From Baan Baan St east			Total vehicle movements	
	left	through	right	left	through	right	left	through	right	left	through	right		
16:00 to 16:15	3	12	3	1	7	3	1	9	14	13	4	2	72	
16:15 to 16:30	4	16	2	1	5	1	0	10	13	15	5	1	73	
16:30 to 16:45	3	17	1	0	6	2	2	5	12	20	4	2	74	
16:45 to 17:00	0	12	1	1	7	2	1	7	16	23	5	0	75	
17:00 to 17:15	2	16	2	1	6	3	0	4	10	17	9	3	73	
17:15 to 17:30	3	9	0	0	8	2	1	3	16	15	6	0	63	
17:30 to 17:45	1	15	1	2	10	6	2	2	14	19	4	1	77	Peak
17:45 to 18:00	2	16	0	0	5	3	1	3	11	18	4	4	67	
18:00 to 18:15	1	11	3	0	3	2	0	4	9	14	2	2	51	
18:15 to 18:30	0	9	1	1	5	2	0	1	16	13	1	1	50	
18:30 to 18:45	1	10	0	1	4	2	0	3	10	12	4	1	48	
18:45 to 19:00	1	6	1	1	3	2	1	2	9	11	2	2	41	
Totals	21	149	15	9	69	30	9	53	150	190	50	19		
16:00 to 17:00	10	57	7	3	25	8	4	31	55	71	18	5	294	
16:15 to 17:15	9	61	6	3	24	8	3	26	51	75	23	6	295	Peak Hour
16:30 to 17:30	8	54	4	2	27	9	4	19	54	75	24	5	285	
16:45 to 17:45	6	52	4	4	31	13	4	16	56	74	24	4	288	
17:00 to 18:00	8	56	3	3	29	14	4	12	51	69	23	8	280	
17:15 to 18:15	7	51	4	2	26	13	4	12	50	66	16	7	258	
17:30 to 18:30	4	51	5	3	23	13	3	10	50	64	11	8	245	
17:45 to 18:45	4	46	4	2	17	9	1	11	46	57	11	8	216	
18:00 to 19:00	3	36	5	3	15	8	1	10	44	50	9	6	190	

Curtis Traffic Surveys

Turning movement count

Job:	230502mcl
Day, date	17/06/23
Location:	Bong Bong Rd & Osborne St
Weather:	Fine
Client:	McLaren Traffic Engineering



Time Period			From Bong Bong Rd east		From Osborne St		From Bong Bong Rd west		Total vehicles	Peak
			through	right	left	right	left	through		
16:00	to	16:15	95	18	20	16	18	75	242	
16:15	to	16:30	106	15	16	17	16	95	265	
16:30	to	16:45	101	22	14	20	21	98	276	
16:45	to	17:00	113	25	15	16	22	80	271	
17:00	to	17:15	113	23	11	19	16	95	277	peak
17:15	to	17:30	120	19	13	11	11	84	258	
17:30	to	17:45	126	21	10	12	9	87	265	
17:45	to	18:00	107	16	11	15	10	78	237	
18:00	to	18:15	63	7	9	13	6	65	163	
18:15	to	18:30	78	6	8	9	7	59	167	
18:30	to	18:45	87	5	10	10	5	60	177	
18:45	to	19:00	86	6	7	10	6	53	168	
Total			1195	183	144	168	147	929		

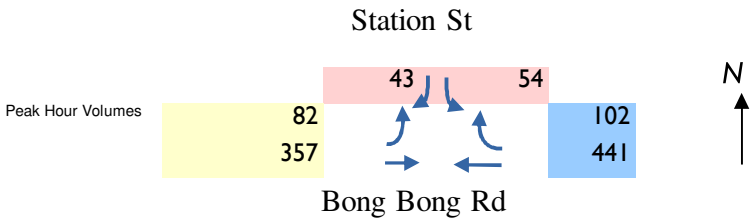
Hourly summary

16:00	to	17:00	415	80	65	69	77	348	1054	
16:15	to	17:15	433	85	56	72	75	368	1089	peak hour
16:30	to	17:30	447	89	53	66	70	357	1082	
16:45	to	17:45	472	88	49	58	58	346	1071	
17:00	to	18:00	466	79	45	57	46	344	1037	
17:15	to	18:15	416	63	43	51	36	314	923	
17:30	to	18:30	374	50	38	49	32	289	832	

Curtis Traffic Surveys

Turning movement count

Job:	230502mcl
Day, date	17/06/23
Location:	Bong Bong Rd & Station St
Weather:	Fine
Client:	McLaren Traffic Engineering



Time Period	From Bong Bong Rd east through	From Bong Bong Rd east right	From Station St left	From Station St right	From Bong Bong Rd west left	From Bong Bong Rd west through	Total vehicles	Peak
16:00 to 16:15	95	19	11	9	16	84	234	
16:15 to 16:30	102	23	15	11	18	91	260	
16:30 to 16:45	98	17	12	15	16	79	237	
16:45 to 17:00	107	21	10	10	17	91	256	
17:00 to 17:15	113	25	16	16	22	90	282	peak
17:15 to 17:30	109	29	12	9	20	85	264	
17:30 to 17:45	112	27	16	8	23	91	277	
17:45 to 18:00	94	30	11	11	22	78	246	
18:00 to 18:15	62	25	16	12	26	62	203	
18:15 to 18:30	54	32	12	20	21	58	197	
18:30 to 18:45	79	24	16	14	27	65	225	
18:45 to 19:00	82	22	13	16	29	64	226	
Total	1107	294	160	151	257	938		

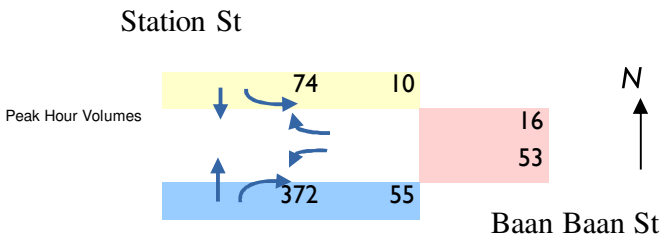
Hourly summary

16:00 to 17:00	402	80	48	45	67	345	987	
16:15 to 17:15	420	86	53	52	73	351	1035	
16:30 to 17:30	427	92	50	50	75	345	1039	
16:45 to 17:45	441	102	54	43	82	357	1079	peak hour
17:00 to 18:00	428	111	55	44	87	344	1069	
17:15 to 18:15	377	111	55	40	91	316	990	
17:30 to 18:30	322	114	55	51	92	289	923	

Curtis Traffic Surveys

Turning movement count

Job:	230502mcl
Day, date	16/06/23
Location:	Baan Baan St & Station St
Weather:	Fine
Client:	McLaren Traffic Engineering



Time Period			From Station St south through	From Station St south right	From Baan Baan St left	From Baan Baan St right	From Station St north left	From Station St north through	Total vehicles	Peak
16:00	to	16:15	78	14	8	4	1	15	120	
16:15	to	16:30	84	17	9	3	2	14	129	
16:30	to	16:45	91	14	12	4	2	16	139	
16:45	to	17:00	101	15	14	3	1	18	152	peak
17:00	to	17:15	95	13	11	6	3	19	147	
17:15	to	17:30	85	13	16	3	4	21	142	
17:30	to	17:45	81	12	10	4	2	22	131	
17:45	to	18:00	79	15	9	5	3	31	142	
18:00	to	18:15	72	10	6	4	2	28	122	
18:15	to	18:30	69	9	7	3	3	24	115	
18:30	to	18:45	65	8	2	2	2	19	98	
18:45	to	19:00	57	6	2	2	1	20	88	
Total			957	146	106	43	26	247		

Hourly summary

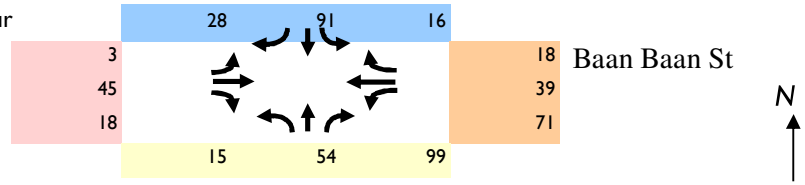
16:00	to	17:00	354	60	43	14	6	63	540	
16:15	to	17:15	371	59	46	16	8	67	567	
16:30	to	17:30	372	55	53	16	10	74	580	peak hour
16:45	to	17:45	362	53	51	16	10	80	572	
17:00	to	18:00	340	53	46	18	12	93	562	
17:15	to	18:15	317	50	41	16	11	102	537	
17:30	to	18:30	301	46	32	16	10	105	510	

Curtis Traffic Surveys

Turning movement count

Job: 230502mcl
Day, date 16/06/23
Location: Baan Baan St & Osbourne St
Weather: Fine
Client: McLaren Traffic Engineering
All motor vehicles

Peak Hour

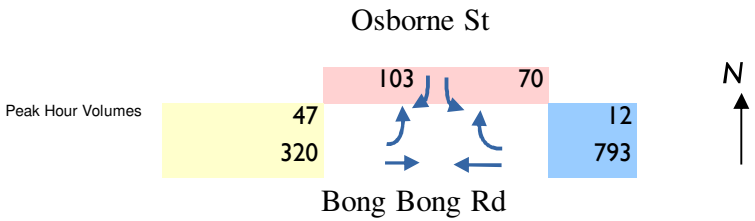


Time Period	From Osborne St north			From Baan Baan St west			From Osborne St south			From Baan Baan St east			Total vehicle movements	
	left	through	right	left	through	right	left	through	right	left	through	right		
16:00 to 16:15	5	21	3	0	12	4	3	12	22	16	6	3	107	
16:15 to 16:30	5	23	2	1	13	5	3	13	21	19	7	4	116	
16:30 to 16:45	7	26	4	0	10	6	4	15	27	20	9	4	132	Peak
16:45 to 17:00	8	23	3	0	12	4	3	11	22	20	10	5	121	
17:00 to 17:15	6	19	4	1	12	3	3	13	26	18	11	6	122	
17:15 to 17:30	7	23	5	2	11	5	5	15	24	13	9	3	122	
17:30 to 17:45	8	20	3	1	12	2	4	16	22	19	8	4	119	
17:45 to 18:00	6	16	3	3	12	3	4	11	20	17	7	4	106	
18:00 to 18:15	5	15	2	0	10	2	2	10	19	15	7	6	93	
18:15 to 18:30	4	11	2	1	8	2	3	8	21	16	5	3	84	
18:30 to 18:45	5	10	1	2	7	1	2	6	14	11	1	5	65	
18:45 to 19:00	3	12	1	1	6	0	1	6	13	11	2	3	59	
Totals	69	219	33	12	125	37	37	136	251	195	82	50		
16:00 to 17:00	25	93	12	1	47	19	13	51	92	75	32	16	476	
16:15 to 17:15	26	91	13	2	47	18	13	52	96	77	37	19	491	
16:30 to 17:30	28	91	16	3	45	18	15	54	99	71	39	18	497	Peak Hour
16:45 to 17:45	29	85	15	4	47	14	15	55	94	70	38	18	484	
17:00 to 18:00	27	78	15	7	47	13	16	55	92	67	35	17	469	
17:15 to 18:15	26	74	13	6	45	12	15	52	85	64	31	17	440	
17:30 to 18:30	23	62	10	5	42	9	13	45	82	67	27	17	402	
17:45 to 18:45	20	52	8	6	37	8	11	35	74	59	20	18	348	
18:00 to 19:00	17	48	6	4	31	5	8	30	67	53	15	17	301	

Curtis Traffic Surveys

Turning movement count

Job:	230502mcl
Day, date	16/06/23
Location:	Bong Bong Rd & Osborne St
Weather:	Fine
Client:	McLaren Traffic Engineering

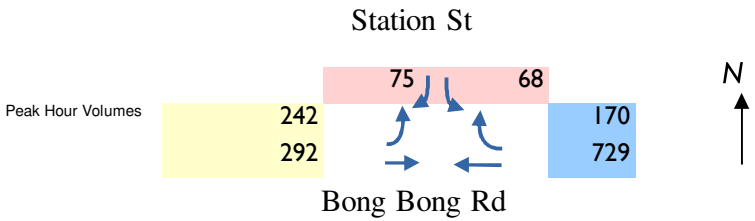


	From Bong Bong Rd east		From Osborne St		From Bong Bong Rd west			
Time Period	through	right	left	right	left	through	Total vehicles	Peak
16:00 to 16:15	167	2	15	19	15	57	275	
16:15 to 16:30	172	1	19	21	12	55	280	
16:30 to 16:45	131	1	16	22	11	51	232	
16:45 to 17:00	197	0	18	28	18	61	322	
17:00 to 17:15	189	2	20	31	13	112	367	peak
17:15 to 17:30	187	3	18	24	14	85	331	
17:30 to 17:45	191	4	17	26	11	66	315	
17:45 to 18:00	226	3	15	22	9	57	332	
18:00 to 18:15	264	5	13	17	10	53	362	
18:15 to 18:30	90	7	12	15	11	56	191	
18:30 to 18:45	110	4	9	14	14	52	203	
18:45 to 19:00	96	3	10	16	16	51	192	
Total	2020	35	182	255	154	756		
Hourly summary								
16:00 to 17:00	667	4	68	90	56	224	1109	
16:15 to 17:15	689	4	73	102	54	279	1201	
16:30 to 17:30	704	6	72	105	56	309	1252	
16:45 to 17:45	764	9	73	109	56	324	1335	
17:00 to 18:00	793	12	70	103	47	320	1345	peak hour
17:15 to 18:15	868	15	63	89	44	261	1340	
17:30 to 18:30	771	19	57	80	41	232	1200	

Curtis Traffic Surveys

Turning movement count

Job:	230502mcl
Day, date	16/06/23
Location:	Bong Bong Rd & Station St
Weather:	Fine
Client:	McLaren Traffic Engineering



Time Period	From Bong Bong Rd east		From Station St		From Bong Bong Rd west		Total vehicles	Peak
	through	right	left	right	left	through		
16:00 to 16:15	149	35	18	15	56	62	335	
16:15 to 16:30	156	37	15	16	61	51	336	
16:30 to 16:45	123	31	22	20	53	46	295	
16:45 to 17:00	191	40	14	14	49	63	371	
17:00 to 17:15	181	41	20	19	62	102	425	
17:15 to 17:30	175	39	16	22	53	78	383	
17:30 to 17:45	165	46	14	16	71	61	373	
17:45 to 18:00	208	44	18	18	56	51	395	
18:00 to 18:15	250	34	13	18	44	95	454	peak
18:15 to 18:30	82	31	15	13	38	55	234	
18:30 to 18:45	102	25	11	11	33	55	237	
18:45 to 19:00	87	24	16	9	28	57	221	
Total	1869	427	192	191	604	776		
Hourly summary								
16:00 to 17:00	619	143	69	65	219	222	1337	
16:15 to 17:15	651	149	71	69	225	262	1427	
16:30 to 17:30	670	151	72	75	217	289	1474	
16:45 to 17:45	712	166	64	71	235	304	1552	
17:00 to 18:00	729	170	68	75	242	292	1576	
17:15 to 18:15	798	163	61	74	224	285	1605	peak hour
17:30 to 18:30	705	155	60	65	209	262	1456	

Curtis Traffic Surveys

Patron Count

230502mcl(23_0206)
McLaren Traffic Engineering
Sat, 17 Jun 23

*Child count is low due to a child care area called "Tabatinga" surveyor did not have access to

Weather: Dapto Leagues Club

Surveyor: PP

	Bar & restaurant		Poker		*Obtain from club* Upstairs function	
Time	Adults	*Children	machines	TAB	Adults	Children
04:00 PM	214	2	82	25		
04:30 PM	256	3	79	26		
05:00 PM	316	6	77	27		
05:30 PM	336	8	74	24		
06:00 PM	415	14	81	33		
06:30 PM	531	19	85	31		
07:00 PM	485	18	94	44		
07:30 PM	418	16	49	25		
08:00 PM	335	14	80	10		
08:30 PM	305	11	68	8		
09:00 PM	300	7	75	10		
09:30 PM	275	4	71	7		
10:00 PM	256	3	62	6		

Curtis Traffic Surveys

Patron Count

230502mcl(23_0206)
McLaren Traffic Engineering
Fri, 16 Jun 23

*Child count is low due to a child care area called "Tabatinga" surveyor did not have access to

Weather: Dapto Leagues Club

Surveyor: PP

Time	Bar & restaurant Adults	Bar & restaurant Children*	Poker machines	TAB	*Obtain from club* Upstairs function Adults	Upstairs function Children
04:00 PM	102	0	41	8		
04:30 PM	112	0	48	10		
05:00 PM	134	3	51	8		
05:30 PM	165	2	59	10		
06:00 PM	195	6	70	9		
06:30 PM	224	7	91	11		
07:00 PM	286	7	101	7		
07:30 PM	316	11	110	13		
08:00 PM	306	11	123	13		
08:30 PM	239	9	129	14		
09:00 PM	175	4	136	10		
09:30 PM	145	2	98	8		
10:00 PM	110	0	75	6		

Curtis Traffic Surveys

230502mcl(23_0206)
McLaren Traffic Engineering
Dapto Leagues Club

Weather: Fine

Surveyor: PP

Fri, 16 Jun 23

Mode of transport		Main reason to visit club		Local resident or worker		Location of parked car	
Car drivers	59	Drinks	38	Local resident	85	Club car park	50
Car passengers	3	Food	50	Works locally	1	council off street	5
Walkers	17	Function	0	neither	10	railway car park	2
Taxi passengers	1	Was in area	0			on street	2
Uber passengers	1	Gaming	6			at work	0
Dropped off by car	6	music	1				
Courtesy minibus	9						
rail	0						

Sat, 17 Jun 23

Mode of transport		Main reason to visit club		Local resident or worker		Location of parked car	
Car drivers	58	Drinks	9	Local resident	160	Club car park	49
Car passengers	85	Food	141	Works locally	0	council off street	0
Walkers	8	Function	7	neither	19	railway car park	0
Taxi passengers	1	Was in area	0			on street	5
Uber passengers	5	Gaming	16			at work	0
Dropped off by car	15	music	1			Aldi	1
Courtesy minibus	1						
rail	6						

Curtis Traffic Surveys

230502mcl(23_0206)
McLaren Traffic Engineering
Date: Sat, 17 Jun 23
Dapto Leagues Club
Weather: Fine
Surveyor: PP

Main reason to visit club
Drinks 1
Food 2
Function 3
was in area 4

Live/work?
Live 1
Work 2
Neither 0

Patron Mode
1 drive
2 car passenger
3 Walk
4 taxi
ride share
6 dropped off
7 shuttle bus
8 rail

Parking codes
club car park 1
Bong Bong Rd car park 2
Dapto Station car park 3
on street 4
at work 5
Elsewhere, specify
Elsewhere, specify

Time	Mode	Main reason to visit club?	Live or work near?	If driver, where parked?
16:00	1	poker machines	1	1
16:03	3	1	1	
16:10	1	poker machines	1	4
16:18	6	poker machines	1	
16:21	3	keno	1	
16:25	1	2	1	1
16:30	8	2	1	
16:30	8	2	1	
16:30	8	2	1	
16:30	8	2	1	
16:30	8	2	1	
16:30	8	2	1	
16:32	3	2	1	
16:32	6	2	1	
16:33	1	2	1	1
16:33	2	2	1	
16:38	1	poker machines	1	1
16:38	2	poker machines	1	1
16:39	6	entertainment	0	
16:40	1	2	1	1
16:40	1	2	0	1
16:40	2	2	0	
16:40	2	2	1	
16:40	2	2	1	
16:40	2	2	1	
16:45	1	2	1	1
16:45	2	2	1	
16:45	2	2	1	
16:45	2	2	1	
16:48	6	2	1	
16:48	6	2	1	
16:48	6	2	1	
16:48	6	2	1	
16:50	3	poker machines	1	
16:50	1	party	1	1
16:50	2	party	1	
16:50	2	1	1	
16:50	2	2	1	
16:50	2	2	1	
17:00	1	2	1	1
17:00	1	2	1	1
17:00	1	party	1	
17:00	2	party	1	
17:00	2	2	1	
17:00	2	2	1	
17:00	2	2	1	
17:02	1	2	1	1
17:02	2	2	1	
17:02	2	2	1	
17:02	6	2	1	
17:03	1	2	1	1
17:03	2	2	1	
17:03	1	2	1	1
17:03	2	2	1	
17:03	1	2	1	1
17:03	2	2	1	
17:06	1	2	1	1
17:06	2	2	1	
17:10	1	2	1	1
17:10	2	2	1	
17:10	2	2	1	
17:10	2	2	1	
17:10	2	2	1	
17:10	2	2	1	
17:11	1	2	1	1
17:11	2	2	1	
17:11	2	2	1	
17:13	1	2	1	1
17:13	2	2	1	
17:13	2	2	1	
17:16	1	2	1	1
17:16	2	2	1	
17:16	1	2	1	1
17:16	2	2	1	
17:16	2	2	1	
17:16	2	2	1	
17:16	2	2	1	
17:16	2	2	1	
17:30	5	1	0	
17:30	5	1	0	
17:30	5	1	0	
17:30	5	1	0	
17:30	5	1	0	
17:32	1	2	1	1
17:32	2	2	1	
17:32	2	2	1	
17:32	2	2	1	
17:32	2	2	1	
17:34	1	2	1	1
17:34	1	2	1	1
17:34	1	2	1	1
17:34	1	2	1	1
17:35	1	2	1	1
17:36	1	2	1	1
17:36	1	2	1	1
17:37	1	2	1	1
17:38	1	2	1	1
17:38	2	2	1	
17:38	2	2	1	
17:38	2	2	1	
17:44	1	2	1	1
17:44	2	2	1	
17:44	2	2	1	
17:44	2	2	1	
17:44	2	2	1	
17:44	2	2	1	
17:48	1	3	0	1
17:48	2	3	0	
17:48	2	3	0	
17:52	3	1	1	
17:53	1	poker machines	1	1
17:55	1	2	1	1
17:57	7	2	1	
18:00	1	2	1	1
18:00	2	2	1	
18:00	2	2	1	
18:02	1	2	1	1
18:03	1	2	1	1
18:03	2	2	1	
18:03	2	2	1	
18:03	2	2	1	
18:04	1	2	1	1
18:04	2	2	1	
18:04	1	2	1	1
18:04	2	2	0	
18:04	2	2	1	
18:04	2	2	1	
18:04	2	2	1	
18:05	1	2	0	4
18:06	1	2	1	1
18:06	2	2	1	
18:06	2	2	1	
18:06	2	2	1	
18:06	2	2	1	
18:06	2	2	1	
18:06	2	2	1	
18:15	1	2	0	4
18:15	2	2	0	
18:19	1	2	1	
18:30	1	2	1	4
18:30	2	2	1	
18:30	2	2	1	
18:38	1	2	1	1
18:38	2	2	1	
18:41	1	2	1	Aldi
18:41	2	2	1	
18:41	2	2	1	
18:41	2	2	1	
19:00	1	2	1	1
19:00	2	2	1	
19:00	2	2	1	
19:13	1	TAB	1	
19:13	2	TAB	1	
19:14	3	3	1	
19:14	3	3	1	
19:14	3	3	1	
19:18	1	2	1	1
19:18	2	2	1	
19:18	2	2	1	
19:18	2	2	1	
19:30	1	2	1	4
19:34	1	2	1	
19:35	1	2	1	1
19:35	6	2	1	
19:35	6	2	1	
19:41	1	2	1	1
19:41	2	poker machines	1	
19:41	2	poker machines	0	
19:45	1	poker machines	0	1
19:45	2	poker machines	0	
19:47	4	poker machines	1	
19:58	6	2	1	
19:58	6	2	1	
20:14	1	2	1	1
20:14	2	2	0	
20:55	6	1	1	
20:55	6		1	
21:14	6	3	1	
21:22	1	poker machines	1	1

Curtis Traffic Surveys

230502mcl(23_0206)

McLaren Traffic Engineering

Date: Fri, 16 Jun 23

Dapto Leagues Club

Weather: Fine

Surveyor: PP

Main reason to visit club

Drinks 1
Food 2
Function 3
was in area 4

Live/work?

Live 1
Work 2
Neither 0

Patron Mode

1 drive
2 car passenger
3 Walk
4 taxi
share
6 dropped off
7 shuttle bus
8 rail

Parking codes

club car park 1
Bong Bong Rd car park 2
Dapto Station car park 3
on street 4
at work 5
Elsewhere, specify

Time	Mode	Main reason to visit club?	Live or work near?	If driver, where parked?
16:00	1	1	1	1
16:02	1	1	1	1
16:02	2	1	1	2
16:08	1	1	1	1
16:08	1	1	1	1
16:11	3	1	1	2
16:15	1	1	1	1
16:30	3	1	0	
16:33	4	1	0	
16:38	1	1	0	2
16:43	1	1	1	1
16:45	1	1	1	1
16:48	1	1	1	1
16:48	3	1	1	
16:52	3	1	1	
16:54	1	2	1	1
17:00	3	2	1	
17:13	1	2	0	
17:14	1	2	1	1
17:16	6	2	1	
17:16	1	1	1	1
17:18	1	1	1	1
17:19	1	1	1	
17:19	1	2	1	
17:20	1	1	1	
17:22	1	2	1	1
17:28	1	2	1	1
17:28	6	2	1	
17:29	1 raffle		1	1
17:41	1	2	1	3
17:42	1	2	1	1
17:45	1	1	1	1
17:45	1	2	1	2
17:48	1	1	1	1
17:49	1	1	0	2
17:50	1	2	1	1
17:50	1	2	0	1
17:51	6	1	1	
17:52	1	2	1	1
17:52	7 poker machines		1	
17:52	1	2	1	1
17:58	1	2	1	1
18:00	1	2	2	1
18:23	1 TAB		1	1
18:30	1	2	1	3
18:18	1	2	1	1
18:18	1	1	1	1
18:19	1	2	1	1
18:23	1	2	1	1
18:24	3	2	1	
18:24	3 music		1	
18:29	1	2	1	4
18:39	6	1	1	1
18:39	7	1	1	
18:41	7	1	1	
18:41	3	1	1	
18:45	6	2	1	
18:45	1	1	1	1
18:49	1	1	1	1
18:49	3	2	1	
18:50	1	2	1	1
18:53	1	2	1	1
19:00	1	2	1	
19:19	6	2	0	1
19:20	1 poker machines		1	1
19:20	1	2	0	1
19:21	1	2	1	1
19:25	1	2	1	1
19:29	1	2	0	1
19:42	5	2	1	4
19:42	7	1	1	1
19:42	7	1	1	1
19:45	1	0	1	
19:45	1	2	1	1
19:48	3	2	1	1
19:49	1	2	1	
19:49	1 poker machines		1	1
19:53	3	1	1	
20:00	1 poker machines		1	
20:19	3	2	1	
20:28	3	2	1	
20:29	3	2	1	
20:40	3	2	1	
20:43	3	2	1	
20:45	3	2	1	
20:48	7	1	1	
20:50	7	1	1	
20:52	1	1	1	1
20:59	1	2	1	1
21:15	1	2	1	1
21:20	7	2	1	
21:25	7	2	1	
21:40	1	1	1	1
21:40	2	1	1	
21:44	1	2	0	1
21:04	2	2	1	

Curtis Traffic Surveys

Job: 230502mcl

Client: McLaren Traffic Engineering

Day, date 17/06/23

Location: Dapto

Weather fine

Surveyor MC

Parking round commencing…

Zone	Street	From	To	Street	Capacit	Restriction	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00
a	Dapto Leagues off street				238	229+9dis	78	84	90	118	163	208	176	164	146	132	125	121	113
b	Council off street				181	u	10	10	9	8	9	10	10	10	10	9	8	8	8
c	Bong Bong Rd	level crossing	Burringbah St	south	8	u	0	0	0	0	0	0	0	0	0	0	0	0	0
d	Bong Bong Rd	Hamilton St	level crossing	north	8	u	0	0	0	0	0	0	0	0	0	0	0	0	0
e	Station St	Bong Bong Rd	Baan Baan St	west	13	5*5min1+9u	4	4	2	1	2	2	2	3	2	2	2	2	2
f	Station St	Bong Bong Rd	Baan Baan St	east	16	u	3	3	5	6	7	10	8	8	6	4	3	2	2
g	Station St	Baan Baan St	No 17	west	17	u	4	4	4	4	4	4	4	4	4	4	4	4	4
h	Station St	No 17	Baan Baan St	east	18	u	6	6	7	9	9	9	8	8	7	8	10	10	10
I	Baan Baan St	Station St	Osborne St	north	11	u	1	1	0	0	1	2	2	2	2	2	2	1	1
j	Baan Baan St	Station St	Osborne St	south	9	u	0	0	0	0	3	5	5	6	5	3	1	1	1
k	Osborne St	Baan Baan St	No 17	west	17	u	6	6	7	9	5	2	3	3	3	3	3	3	3
L	Osborne St	No 18	Baan Baan St	east	18	u	6	6	8	10	8	8	6	6	6	6	6	6	6
m	Baan Baan St	Osborne St	H'y	north	5	1p(std)	1	1	2	2	2	1	3	2	1	2	1	2	1
n	Baan Baan St	H'y	No 54	north	7	1p(std)	3	4	4	5	4	5	4	5	3	4	3	4	3
o	Baan Baan St	bus zone	H'y	south		bz	0	0	0	0	0	0	0	0	0	0	0	0	0
p	Baan Baan St	H'y	Osborne St	south	4	1p(std)	1	2	2	2	1	0	0	0	1	1	1	1	1
q	Osborne St	Baan Baan St	Bong Bong Rd	east	17	1p(std)	8	7	5	3	5	13	14	12	11	10	9	8	8
r	Osborne St	Baan Baan St	Bong Bong Rd	west	20	1p(std)	5	4	4	3	5	6	9	12	12	11	9	8	6
s	Bong Bong Rd	Osborne St	H'y	north		tz	0	0	0	0	0	0	0	0	0	0	0	0	0
t	Bong Bong Rd	H'y	Marshall St	south	10	1/2p(std	7	7	6	5	6	7	7	7	8	8	8	8	9
u	Marshall St	Bong Bong Rd	No 15	east	13	+1dis+10u	3	2	2	1	1	1	1	2	3	2	1	1	1
v	Marshall St	No 12	Bong Bong Rd	west	13	1p(std)	5	5	3	2	2	2	1	1	1	0	0	0	0
w	Bong Bong Rd	Marshall St	level crossing	south		bz	0	0	0	0	0	0	0	0	0	0	0	0	0
x	Bong Bong Rd	level crossing	Osborne St	north		bz	0	0	0	0	0	0	0	0	0	0	0	0	0

Curtis Traffic Surveys

Job: 230502mcl

Client: McLaren Traffic Engineering

Day, date 16/06/23

Location: Dapto

Weather fine

Surveyor MC

Parking round commencing…

Zone	Street	From	To	Street	Capacit	Restriction	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00
a	Dapto Leagues off street				238	229+9dis	56	62	75	81	101	132	154	161	146	121	94	91	85
b	Council off street				181	u	39	37	33	19	15	12	11	11	8	8	7	7	7
c	Bong Bong Rd	level crossing	Burringbah St	south	8	u	0	0	0	0	0	0	0	0	0	0	0	0	0
d	Bong Bong Rd	Hamilton St	level crossing	north	8	u	0	0	0	0	0	0	0	0	0	0	0	0	0
e	Station St	Bong Bong Rd	Baan Baan St	west	13	5*5min1+9u	2	2	2	2	2	4	5	5	6	6	5	5	3
f	Station St	Bong Bong Rd	Baan Baan St	east	16	u	7	8	8	7	7	8	9	9	9	9	8	7	6
g	Station St	Baan Baan St	No 17	west	17	u	8	8	6	4	4	3	2	2	3	4	5	4	3
h	Station St	No 17	Baan Baan St	east	18	u	7	8	9	8	8	9	10	11	11	11	11	10	10
I	Baan Baan St	Station St	Osborne St	north	11	u	5	5	3	2	2	2	1	1	1	2	1	1	1
j	Baan Baan St	Station St	Osborne St	south	9	u	6	4	5	1	1	1	1	1	1	1	0	1	0
k	Osborne St	Baan Baan St	No 17	west	17	u	14	13	11	9	9	7	4	4	4	4	4	4	4
L	Osborne St	No 18	Baan Baan St	east	18	u	11	10	9	8	8	8	6	6	6	5	5	5	6
m	Baan Baan St	Osborne St	H'y	north	5	1p(std)	3	3	4	5	4	3	2	3	2	1	1	1	1
n	Baan Baan St	H'y	No 54	north	7	1p(std)	3	4	5	4	3	4	2	3	4	2	3	2	1
o	Baan Baan St	bus zone	H'y	south		bz	1	1	0	0	0	0	0	0	0	0	0	0	0
p	Baan Baan St	H'y	Osborne St	south	4	1p(std)	2	2	2	2	2	2	1	1	1	0	0	0	0
q	Osborne St	Baan Baan St	Bong Bong Rd	east	17	1p(std)	8	8	5	4	3	3	3	3	4	4	4	4	3
r	Osborne St	Baan Baan St	Bong Bong Rd	west	20	1p(std)	6	6	4	3	3	4	6	5	5	2	0	0	0
s	Bong Bong Rd	Osborne St	H'y	north		tz	0	0	0	0	0	0	0	0	0	0	0	0	0
t	Bong Bong Rd	H'y	Marshall St	south	10	1/2p(std	7	7	7	7	7	7	6	6	6	5	4	4	4
u	Marshall St	Bong Bong Rd	No 15	east	13	+1dis+10u	12	11	8	3	4	4	4	4	4	3	3	3	3
v	Marshall St	No 12	Bong Bong Rd	west	13	1p(std)	10	8	6	5	5	2	0	0	0	0	0	0	0
w	Bong Bong Rd	Marshall St	level crossing	south		bz	0	0	0	0	0	0	0	0	0	0	0	0	0
x	Bong Bong Rd	level crossing	Osborne St	north		bz	0	0	0	0	0	0	0	0	0	0	0	0	0

Curtis Traffic Surveys

Job: 230502mcl
Client: McLaren Traffic Engineering
Date 16/06/23
Locatic Dapto
Weath fine
Survey MC

Start	Finish	Interval Size
16:00	22:00	0:30

Restriction Table	
u	unrestricted
np	no parking
p	hour parking
ns	no stopping
dis	disabled
r	authorised residents or other permit holders excepted
bz	bus zone
tz	taxi zone
res	reserved parking

Zone	Street	From	To	Side of Str	Capacit	Restriction
a	Dapto Leagues	off street			238	229+9dis
b	Council	off street			181	u
c	Bong Bo	level cro	Burring	south	8	u
d	Bong Bo	Hamiltor	level cr	north	8	u
e	Station S	Bong Bo	Baan Ba	west	13	5*5min1+9u
f	Station S	Bong Bo	Baan Ba	east	16	u
g	Station S	Baan Baa	No 17	west	17	u
h	Station S	No 17	Baan Ba	east	18	u
I	Baan Baa	Station S	Osborn	north	11	u
j	Baan Baa	Station S	Osborn	south	9	u
k	Osborne	Baan Baa	No 17	west	17	u
L	Osborne	No 18	Baan Ba	east	18	u
m	Baan Baa	Osborne	H'y	north	5	1p(std)
n	Baan Baa	H'y	No 54	north	7	1p(std)
o	Baan Baa	bus zone	H'y	south	0	bz
p	Baan Baa	H'y	Osborn	south	4	1p(std)
q	Osborne	Baan Baa	Bong Bo	east	17	1p(std)
r	Osborne	Baan Baa	Bong Bo	west	20	1p(std)
s	Bong Bo	Osborne	H'y	north	0	tz
t	Bong Bo	H'y	Marshal	south	10	1/2p(std)
u	Marshall	Bong Bo	No 15	east	13	2*1/2p(std)+1dis+10u
v	Marshall	No 12	Bong Bo	west	13	1p(std)
w	Bong Bo	Marshall	level cr	south	0	bz
x	Bong Bo	level cro	Osborn	north	0	bz

5 min1	9am-5pm M-F,9am-12 Sat
(std)	8:30-6pm M-F 8:30-12:30 Sat

ANNEXURE C: SIDRA RESULTS
(16 SHEETS)

MOVEMENT SUMMARY

Site: 101 [Station Street / Bong Bong Road EX FRI (Site Folder: Existing)]

Station Street / Bong Bong Road
Existing Conditions
FRI
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bong Bong Road														
5	T1	729	2.0	767	2.0	0.399	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
6	R2	170	2.0	179	2.0	0.185	8.2	LOS A	0.8	5.7	0.57	0.76	0.57	50.6
Approach		899	2.0	946	2.0	0.399	1.7	NA	0.8	5.7	0.11	0.14	0.11	57.8
North: Station Street														
7	L2	68	2.0	72	2.0	0.883	43.1	LOS D	6.9	48.8	1.00	1.56	2.96	28.1
9	R2	75	2.0	79	2.0	0.883	90.7	LOS F	6.9	48.8	1.00	1.56	2.96	28.1
Approach		143	2.0	151	2.0	0.883	68.1	LOS E	6.9	48.8	1.00	1.56	2.96	28.1
West: Bong Bong Road														
10	L2	242	2.0	255	2.0	0.299	5.6	LOS A	0.0	0.0	0.00	0.27	0.00	55.1
11	T1	292	2.0	307	2.0	0.299	0.1	LOS A	0.0	0.0	0.00	0.27	0.00	57.5
Approach		534	2.0	562	2.0	0.299	2.6	NA	0.0	0.0	0.00	0.27	0.00	56.4
All Vehicles		1576	2.0	1659	2.0	0.883	8.0	NA	6.9	48.8	0.15	0.31	0.33	52.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Station Street / Bong Bong Road EX SAT (Site Folder: Existing)]

Station Street / Bong Bong Road
Existing Conditions
SAT
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bong Bong Road														
5	T1	441	2.0	464	2.0	0.241	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	102	2.0	107	2.0	0.097	7.4	LOS A	0.4	2.9	0.50	0.69	0.50	51.2
Approach		543	2.0	572	2.0	0.241	1.4	NA	0.4	2.9	0.09	0.13	0.09	58.0
North: Station Street														
7	L2	54	2.0	57	2.0	0.249	10.5	LOS A	1.0	6.9	0.69	0.98	0.75	46.4
9	R2	43	2.0	45	2.0	0.249	24.0	LOS B	1.0	6.9	0.69	0.98	0.75	46.2
Approach		97	2.0	102	2.0	0.249	16.4	LOS B	1.0	6.9	0.69	0.98	0.75	46.3
West: Bong Bong Road														
10	L2	82	2.0	86	2.0	0.242	5.6	LOS A	0.0	0.0	0.00	0.11	0.00	56.4
11	T1	357	2.0	376	2.0	0.242	0.1	LOS A	0.0	0.0	0.00	0.11	0.00	58.9
Approach		439	2.0	462	2.0	0.242	1.1	NA	0.0	0.0	0.00	0.11	0.00	58.4
All Vehicles		1079	2.0	1136	2.0	0.249	2.7	NA	1.0	6.9	0.11	0.20	0.11	56.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Osborne Street / Bong Bong Road EX FRI (Site Folder: Existing)]

Osborne Street / Bong Bong Road
Existing Condition
FRI
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bong Bong Road														
5	T1	793	2.0	835	2.0	0.444	0.0	LOS A	0.2	1.2	0.02	0.02	0.02	59.8
6	R2	12	2.0	13	2.0	0.444	8.9	LOS A	0.2	1.2	0.02	0.02	0.02	56.9
Approach		805	2.0	847	2.0	0.444	0.1	NA	0.2	1.2	0.02	0.02	0.02	59.8
North: Osborne Street														
7	L2	70	2.0	74	2.0	0.634	15.9	LOS B	3.3	23.4	0.84	1.21	1.57	40.8
9	R2	103	2.0	108	2.0	0.634	35.5	LOS C	3.3	23.4	0.84	1.21	1.57	40.6
Approach		173	2.0	182	2.0	0.634	27.5	LOS B	3.3	23.4	0.84	1.21	1.57	40.7
West: Bong Bong Road														
10	L2	47	2.0	49	2.0	0.202	5.6	LOS A	0.0	0.0	0.00	0.08	0.00	56.7
11	T1	320	2.0	337	2.0	0.202	0.1	LOS A	0.0	0.0	0.00	0.08	0.00	59.2
Approach		367	2.0	386	2.0	0.202	0.8	NA	0.0	0.0	0.00	0.08	0.00	58.9
All Vehicles		1345	2.0	1416	2.0	0.634	3.8	NA	3.3	23.4	0.12	0.19	0.22	56.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Osborne Street / Bong Bong Road EX SAT (Site Folder: Existing)]

Osborne Street / Bong Bong Road
Existing Condition
SAT
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bong Bong Road														
5	T1	433	2.0	456	2.0	0.320	0.0	LOS A	0.9	6.7	0.23	0.27	0.23	58.2
6	R2	85	2.0	89	2.0	0.320	11.3	LOS A	0.9	6.7	0.23	0.27	0.23	55.4
Approach		518	2.0	545	2.0	0.320	1.8	NA	0.9	6.7	0.23	0.27	0.23	57.7
North: Osborne Street														
7	L2	56	2.0	59	2.0	0.290	10.8	LOS A	1.1	8.1	0.65	1.02	0.77	47.2
9	R2	72	2.0	76	2.0	0.290	18.4	LOS B	1.1	8.1	0.65	1.02	0.77	47.0
Approach		128	2.0	135	2.0	0.290	15.1	LOS B	1.1	8.1	0.65	1.02	0.77	47.1
West: Bong Bong Road														
10	L2	75	2.0	79	2.0	0.244	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	56.5
11	T1	368	2.0	387	2.0	0.244	0.1	LOS A	0.0	0.0	0.00	0.10	0.00	59.0
Approach		443	2.0	466	2.0	0.244	1.0	NA	0.0	0.0	0.00	0.10	0.00	58.5
All Vehicles		1089	2.0	1146	2.0	0.320	3.1	NA	1.1	8.1	0.18	0.29	0.20	56.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Station Street / Baan Baan Street EX FRI (Site Folder: Existing)]

Station Street / Baan Baan Street
Existing Conditions
FRI
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Station Street														
2	T1	372	2.0	392	2.0	0.292	4.8	LOS A	1.9	13.2	0.11	0.48	0.11	53.4
3	R2	55	2.0	58	2.0	0.292	8.1	LOS A	1.9	13.2	0.11	0.48	0.11	52.6
Approach		427	2.0	449	2.0	0.292	5.2	LOS A	1.9	13.2	0.11	0.48	0.11	53.3
East: Baan Baan Street														
4	L2	53	2.0	56	2.0	0.060	5.0	LOS A	0.3	2.1	0.22	0.55	0.22	52.5
6	R2	16	2.0	17	2.0	0.060	8.4	LOS A	0.3	2.1	0.22	0.55	0.22	52.2
Approach		69	2.0	73	2.0	0.060	5.8	LOS A	0.3	2.1	0.22	0.55	0.22	52.5
North: Station Street														
7	L2	10	2.0	11	2.0	0.071	4.9	LOS A	0.3	2.4	0.19	0.47	0.19	53.0
8	T1	74	2.0	78	2.0	0.071	5.0	LOS A	0.3	2.4	0.19	0.47	0.19	53.4
Approach		84	2.0	88	2.0	0.071	5.0	LOS A	0.3	2.4	0.19	0.47	0.19	53.3
All Vehicles		580	2.0	611	2.0	0.292	5.3	LOS A	1.9	13.2	0.13	0.49	0.13	53.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Station Street / Baan Baan Street EX SAT (Site Folder: Existing)]

Station Street / Baan Baan Street
Existing Conditions
SAT
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Station Street														
2	T1	139	2.0	146	2.0	0.112	4.7	LOS A	0.6	4.2	0.05	0.50	0.05	53.5
3	R2	26	2.0	27	2.0	0.112	8.0	LOS A	0.6	4.2	0.05	0.50	0.05	52.7
Approach		165	2.0	174	2.0	0.112	5.3	LOS A	0.6	4.2	0.05	0.50	0.05	53.4
East: Baan Baan Street														
4	L2	24	2.0	25	2.0	0.027	5.1	LOS A	0.1	0.9	0.24	0.54	0.24	52.6
6	R2	6	2.0	6	2.0	0.027	8.5	LOS A	0.1	0.9	0.24	0.54	0.24	52.2
Approach		30	2.0	32	2.0	0.027	5.7	LOS A	0.1	0.9	0.24	0.54	0.24	52.5
North: Station Street														
7	L2	20	2.0	21	2.0	0.088	4.7	LOS A	0.4	3.0	0.12	0.47	0.12	53.2
8	T1	95	2.0	100	2.0	0.088	4.9	LOS A	0.4	3.0	0.12	0.47	0.12	53.7
Approach		115	2.0	121	2.0	0.088	4.8	LOS A	0.4	3.0	0.12	0.47	0.12	53.6
All Vehicles		310	2.0	326	2.0	0.112	5.2	LOS A	0.6	4.2	0.09	0.49	0.09	53.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Baan Baan Street / Osborne Street EX FRI (Site Folder: Existing)]

Baan Baan Street / Osborne Street
Existing Conditions
FRI
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Osborne Street														
1	L2	15	2.0	16	2.0	0.144	5.1	LOS A	0.8	5.4	0.26	0.57	0.26	51.5
2	T1	54	2.0	57	2.0	0.144	5.2	LOS A	0.8	5.4	0.26	0.57	0.26	51.9
3	R2	99	2.0	104	2.0	0.144	8.5	LOS A	0.8	5.4	0.26	0.57	0.26	51.2
Approach		168	2.0	177	2.0	0.144	7.1	LOS A	0.8	5.4	0.26	0.57	0.26	51.5
East: Baan Baan Street														
4	L2	71	2.0	75	2.0	0.119	5.4	LOS A	0.6	4.5	0.33	0.54	0.33	52.3
5	T1	39	2.0	41	2.0	0.119	5.5	LOS A	0.6	4.5	0.33	0.54	0.33	52.8
6	R2	18	2.0	19	2.0	0.119	8.8	LOS A	0.6	4.5	0.33	0.54	0.33	52.0
Approach		128	2.0	135	2.0	0.119	5.9	LOS A	0.6	4.5	0.33	0.54	0.33	52.4
North: Osborne Street														
7	L2	16	2.0	17	2.0	0.129	5.5	LOS A	0.7	4.7	0.35	0.54	0.35	52.0
8	T1	91	2.0	96	2.0	0.129	5.7	LOS A	0.7	4.7	0.35	0.54	0.35	52.4
9	R2	28	2.0	29	2.0	0.129	9.0	LOS A	0.7	4.7	0.35	0.54	0.35	51.6
Approach		135	2.0	142	2.0	0.129	6.4	LOS A	0.7	4.7	0.35	0.54	0.35	52.2
West: Baan Baan Street														
10	L2	3	2.0	3	2.0	0.063	5.5	LOS A	0.3	2.2	0.35	0.55	0.35	51.9
11	T1	45	2.0	47	2.0	0.063	5.7	LOS A	0.3	2.2	0.35	0.55	0.35	52.3
12	R2	18	2.0	19	2.0	0.063	9.0	LOS A	0.3	2.2	0.35	0.55	0.35	51.5
Approach		66	2.0	69	2.0	0.063	6.6	LOS A	0.3	2.2	0.35	0.55	0.35	52.0
All Vehicles		497	2.0	523	2.0	0.144	6.5	LOS A	0.8	5.4	0.31	0.55	0.31	52.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Baan Baan Street / Osborne Street EX SAT (Site Folder: Existing)]

Baan Baan Street / Osborne Street
Existing Conditions
SAT
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Osborne Street														
1	L2	3	2.0	3	2.0	0.065	4.8	LOS A	0.3	2.3	0.15	0.58	0.15	51.7
2	T1	26	2.0	27	2.0	0.065	4.9	LOS A	0.3	2.3	0.15	0.58	0.15	52.1
3	R2	51	2.0	54	2.0	0.065	8.2	LOS A	0.3	2.3	0.15	0.58	0.15	51.4
Approach		80	2.0	84	2.0	0.065	7.0	LOS A	0.3	2.3	0.15	0.58	0.15	51.6
East: Baan Baan Street														
4	L2	75	2.0	79	2.0	0.091	5.0	LOS A	0.5	3.2	0.24	0.52	0.24	52.8
5	T1	23	2.0	24	2.0	0.091	5.2	LOS A	0.5	3.2	0.24	0.52	0.24	53.3
6	R2	6	2.0	6	2.0	0.091	8.5	LOS A	0.5	3.2	0.24	0.52	0.24	52.5
Approach		104	2.0	109	2.0	0.091	5.2	LOS A	0.5	3.2	0.24	0.52	0.24	52.9
North: Osborne Street														
7	L2	6	2.0	6	2.0	0.067	5.0	LOS A	0.3	2.3	0.23	0.50	0.23	52.5
8	T1	61	2.0	64	2.0	0.067	5.2	LOS A	0.3	2.3	0.23	0.50	0.23	53.0
9	R2	9	2.0	9	2.0	0.067	8.5	LOS A	0.3	2.3	0.23	0.50	0.23	52.2
Approach		76	2.0	80	2.0	0.067	5.6	LOS A	0.3	2.3	0.23	0.50	0.23	52.8
West: Baan Baan Street														
10	L2	3	2.0	3	2.0	0.031	5.0	LOS A	0.1	1.0	0.23	0.51	0.23	52.3
11	T1	24	2.0	25	2.0	0.031	5.2	LOS A	0.1	1.0	0.23	0.51	0.23	52.8
12	R2	8	2.0	8	2.0	0.031	8.4	LOS A	0.1	1.0	0.23	0.51	0.23	52.0
Approach		35	2.0	37	2.0	0.031	5.9	LOS A	0.1	1.0	0.23	0.51	0.23	52.5
All Vehicles		295	2.0	311	2.0	0.091	5.9	LOS A	0.5	3.2	0.21	0.53	0.21	52.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Station Street / Bong Bong Road FU FRI (Site Folder: Future)]

Station Street / Bong Bong Road
Existing Conditions
FRI
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bong Bong Road														
5	T1	729	15	767	2.0	0.402	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
6	R2	170	3	179	2.0	0.185	8.2	LOS A	0.8	5.7	0.57	0.78	0.57	51.0
Approach		899	18	946	2.0	0.402	1.7	NA	0.8	5.7	0.11	0.15	0.11	57.9
North: Station Street														
7	L2	68	1	72	2.0	0.848	54.0	LOS D	6.3	45.0	0.84	1.46	2.48	26.9
9	R2	75	2	79	2.0	0.848	93.8	LOS F	6.3	45.0	0.84	1.46	2.48	26.7
Approach		143	3	151	2.0	0.848	74.8	LOS F	6.3	45.0	0.84	1.46	2.48	26.8
West: Bong Bong Road														
10	L2	248	5	261	2.0	0.302	5.6	LOS A	0.0	0.0	0.00	0.27	0.00	55.9
11	T1	292	6	307	2.0	0.302	0.1	LOS A	0.0	0.0	0.00	0.27	0.00	57.4
Approach		540	11	568	2.0	0.302	2.6	NA	0.0	0.0	0.00	0.27	0.00	56.7
All Vehicles		1582	32	1665	2.0	0.848	8.6	NA	6.3	45.0	0.14	0.31	0.29	52.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Station Street / Bong Bong Road FU SAT (Site Folder: Future)]

Station Street / Bong Bong Road
Existing Conditions
SAT
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bong Bong Road														
5	T1	441	9	464	2.0	0.243	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	102	2	107	2.0	0.097	7.4	LOS A	0.4	3.0	0.50	0.69	0.50	51.6
Approach		543	11	572	2.0	0.243	1.4	NA	0.4	3.0	0.09	0.13	0.09	58.1
North: Station Street														
7	L2	54	1	57	2.0	0.246	10.4	LOS A	0.9	6.6	0.63	0.96	0.67	47.2
9	R2	43	1	45	2.0	0.246	23.2	LOS B	0.9	6.6	0.63	0.96	0.67	46.7
Approach		97	2	102	2.0	0.246	16.1	LOS B	0.9	6.6	0.63	0.96	0.67	47.0
West: Bong Bong Road														
10	L2	88	2	93	1.9	0.246	5.6	LOS A	0.0	0.0	0.00	0.12	0.00	57.2
11	T1	357	7	376	2.0	0.246	0.1	LOS A	0.0	0.0	0.00	0.12	0.00	58.8
Approach		445	9	468	2.0	0.246	1.2	NA	0.0	0.0	0.00	0.12	0.00	58.5
All Vehicles		1085	22	1142	2.0	0.246	2.6	NA	0.9	6.6	0.10	0.20	0.11	57.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Osborne Street / Bong Bong Road FU FRI (Site Folder: Future)]

Osborne Street / Bong Bong Road
Existing Condition
FRI
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bong Bong Road														
5	T1	793	16	835	2.0	0.483	0.4	LOS A	1.1	7.9	0.11	0.04	0.15	59.1
6	R2	56	0	59	0.4	0.483	8.3	LOS A	1.1	7.9	0.11	0.04	0.15	56.9
Approach		849	16	894	1.9	0.483	0.9	NA	1.1	7.9	0.11	0.04	0.15	59.0
North: Osborne Street														
7	L2	81	1	85	1.7	0.705	21.0	LOS B	3.9	27.5	0.78	1.23	1.65	39.1
9	R2	105	2	111	2.0	0.705	41.1	LOS C	3.9	27.5	0.78	1.23	1.65	38.8
Approach		186	3	196	1.9	0.705	32.4	LOS C	3.9	27.5	0.78	1.23	1.65	38.9
West: Bong Bong Road														
10	L2	47	1	49	2.0	0.202	5.6	LOS A	0.0	0.0	0.00	0.08	0.00	57.5
11	T1	320	6	337	2.0	0.202	0.1	LOS A	0.0	0.0	0.00	0.08	0.00	59.2
Approach		367	7	386	2.0	0.202	0.8	NA	0.0	0.0	0.00	0.08	0.00	59.0
All Vehicles		1402	27	1476	1.9	0.705	5.0	NA	3.9	27.5	0.17	0.21	0.31	55.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Osborne Street / Bong Bong Road FU SAT (Site Folder: Future)]

Osborne Street / Bong Bong Road
Existing Condition
SAT
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bong Bong Road														
5	T1	433	9	456	2.0	0.362	1.2	LOS A	1.8	13.1	0.34	0.17	0.40	57.3
6	R2	129	2	136	1.3	0.362	8.4	LOS A	1.8	13.1	0.34	0.17	0.40	55.2
Approach		562	10	592	1.8	0.362	2.9	NA	1.8	13.1	0.34	0.17	0.40	56.8
North: Osborne Street														
7	L2	67	1	71	1.7	0.325	11.1	LOS A	1.3	9.3	0.63	1.01	0.78	47.5
9	R2	74	1	78	1.9	0.325	19.7	LOS B	1.3	9.3	0.63	1.01	0.78	47.0
Approach		141	3	148	1.8	0.325	15.6	LOS B	1.3	9.3	0.63	1.01	0.78	47.2
West: Bong Bong Road														
10	L2	75	2	79	2.0	0.244	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	57.3
11	T1	368	7	387	2.0	0.244	0.1	LOS A	0.0	0.0	0.00	0.10	0.00	59.0
Approach		443	9	466	2.0	0.244	1.0	NA	0.0	0.0	0.00	0.10	0.00	58.7
All Vehicles		1146	22	1206	1.9	0.362	3.7	NA	1.8	13.1	0.25	0.25	0.29	56.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Station Street / Baan Baan Street FU FRI (Site Folder: Future)]

Station Street / Baan Baan Street
Existing Conditions
FRI
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Station Street														
2	T1	372	2.0	392	2.0	0.292	4.8	LOS A	1.9	13.2	0.11	0.49	0.11	54.4
3	R2	55	2.0	58	2.0	0.292	8.1	LOS A	1.9	13.2	0.11	0.49	0.11	54.0
Approach		427	2.0	449	2.0	0.292	5.2	LOS A	1.9	13.2	0.11	0.49	0.11	54.4
East: Baan Baan Street														
4	L2	53	2.0	56	2.0	0.060	5.0	LOS A	0.3	2.1	0.22	0.55	0.22	53.0
6	R2	16	2.0	17	2.0	0.060	8.4	LOS A	0.3	2.1	0.22	0.55	0.22	53.6
Approach		69	2.0	73	2.0	0.060	5.8	LOS A	0.3	2.1	0.22	0.55	0.22	53.1
North: Station Street														
7	L2	10	2.0	11	2.0	0.071	4.9	LOS A	0.3	2.4	0.19	0.47	0.19	53.4
8	T1	74	2.0	78	2.0	0.071	5.0	LOS A	0.3	2.4	0.19	0.47	0.19	54.4
Approach		84	2.0	88	2.0	0.071	5.0	LOS A	0.3	2.4	0.19	0.47	0.19	54.3
All Vehicles		580	2.0	611	2.0	0.292	5.3	LOS A	1.9	13.2	0.13	0.49	0.13	54.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Station Street / Baan Baan Street FU SAT (Site Folder: Future)]

Station Street / Baan Baan Street
Existing Conditions
SAT
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Station Street														
2	T1	139	2.0	146	2.0	0.112	4.8	LOS A	0.6	4.2	0.05	0.50	0.05	54.6
3	R2	26	2.0	27	2.0	0.112	8.0	LOS A	0.6	4.2	0.05	0.50	0.05	54.2
Approach		165	2.0	174	2.0	0.112	5.3	LOS A	0.6	4.2	0.05	0.50	0.05	54.5
East: Baan Baan Street														
4	L2	24	2.0	25	2.0	0.027	5.1	LOS A	0.1	0.9	0.24	0.54	0.24	53.0
6	R2	6	2.0	6	2.0	0.027	8.5	LOS A	0.1	0.9	0.24	0.54	0.24	53.6
Approach		30	2.0	32	2.0	0.027	5.7	LOS A	0.1	0.9	0.24	0.54	0.24	53.1
North: Station Street														
7	L2	20	2.0	21	2.0	0.088	4.7	LOS A	0.4	3.0	0.12	0.47	0.12	53.7
8	T1	95	2.0	100	2.0	0.088	4.9	LOS A	0.4	3.0	0.12	0.47	0.12	54.7
Approach		115	2.0	121	2.0	0.088	4.8	LOS A	0.4	3.0	0.12	0.47	0.12	54.5
All Vehicles		310	2.0	326	2.0	0.112	5.2	LOS A	0.6	4.2	0.09	0.49	0.09	54.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Baan Baan Street / Osborne Street FU FRI (Site Folder: Future)]

Baan Baan Street / Osborne Street
Existing Conditions
FRI
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Osborne Street														
1	L2	15	0	16	2.0	0.159	5.1	LOS A	0.9	6.1	0.26	0.59	0.26	51.9
2	T1	54	1	57	2.0	0.159	5.2	LOS A	0.9	6.1	0.26	0.59	0.26	52.8
3	R2	118	2	124	1.7	0.159	8.5	LOS A	0.9	6.1	0.26	0.59	0.26	52.4
Approach		187	3	197	1.8	0.159	7.3	LOS A	0.9	6.1	0.26	0.59	0.26	52.5
East: Baan Baan Street														
4	L2	146	1	154	1.0	0.186	5.4	LOS A	1.0	7.4	0.35	0.56	0.35	52.9
5	T1	39	1	41	2.0	0.186	5.6	LOS A	1.0	7.4	0.35	0.56	0.35	53.9
6	R2	18	0	19	2.0	0.186	8.9	LOS A	1.0	7.4	0.35	0.56	0.35	53.5
Approach		203	3	214	1.3	0.186	5.7	LOS A	1.0	7.4	0.35	0.56	0.35	53.2
North: Osborne Street														
7	L2	16	0	17	2.0	0.131	5.6	LOS A	0.7	4.8	0.37	0.56	0.37	52.4
8	T1	91	2	96	2.0	0.131	5.8	LOS A	0.7	4.8	0.37	0.56	0.37	53.3
9	R2	28	1	29	2.0	0.131	9.1	LOS A	0.7	4.8	0.37	0.56	0.37	52.9
Approach		135	3	142	2.0	0.131	6.5	LOS A	0.7	4.8	0.37	0.56	0.37	53.1
West: Baan Baan Street														
10	L2	3	0	3	2.0	0.064	5.6	LOS A	0.3	2.3	0.37	0.56	0.37	52.2
11	T1	45	1	47	2.0	0.064	5.8	LOS A	0.3	2.3	0.37	0.56	0.37	53.2
12	R2	18	0	19	2.0	0.064	9.1	LOS A	0.3	2.3	0.37	0.56	0.37	52.8
Approach		66	1	69	2.0	0.064	6.7	LOS A	0.3	2.3	0.37	0.56	0.37	53.0
All Vehicles		591	10	622	1.7	0.186	6.5	LOS A	1.0	7.4	0.33	0.57	0.33	52.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Baan Baan Street / Osborne Street FU SAT (Site Folder: Future)]

Baan Baan Street / Osborne Street
Existing Conditions
SAT
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Osborne Street														
1	L2	3	0	3	2.0	0.079	4.8	LOS A	0.4	2.8	0.15	0.59	0.15	52.0
2	T1	26	1	27	2.0	0.079	4.9	LOS A	0.4	2.8	0.15	0.59	0.15	52.9
3	R2	70	1	74	1.5	0.079	8.2	LOS A	0.4	2.8	0.15	0.59	0.15	52.6
Approach		99	2	104	1.6	0.079	7.2	LOS A	0.4	2.8	0.15	0.59	0.15	52.6
East: Baan Baan Street														
4	L2	150	2	158	1.0	0.150	5.0	LOS A	0.8	5.7	0.25	0.52	0.25	53.4
5	T1	23	0	24	2.0	0.150	5.2	LOS A	0.8	5.7	0.25	0.52	0.25	54.4
6	R2	6	0	6	2.0	0.150	8.5	LOS A	0.8	5.7	0.25	0.52	0.25	54.0
Approach		179	2	188	1.2	0.150	5.1	LOS A	0.8	5.7	0.25	0.52	0.25	53.6
North: Osborne Street														
7	L2	6	0	6	2.0	0.068	5.1	LOS A	0.3	2.3	0.26	0.50	0.26	52.9
8	T1	61	1	64	2.0	0.068	5.3	LOS A	0.3	2.3	0.26	0.50	0.26	53.9
9	R2	9	0	9	2.0	0.068	8.6	LOS A	0.3	2.3	0.26	0.50	0.26	53.5
Approach		76	2	80	2.0	0.068	5.7	LOS A	0.3	2.3	0.26	0.50	0.26	53.8
West: Baan Baan Street														
10	L2	3	0	3	2.0	0.031	5.1	LOS A	0.1	1.1	0.26	0.52	0.26	52.7
11	T1	24	0	25	2.0	0.031	5.3	LOS A	0.1	1.1	0.26	0.52	0.26	53.7
12	R2	8	0	8	2.0	0.031	8.5	LOS A	0.1	1.1	0.26	0.52	0.26	53.3
Approach		35	1	37	2.0	0.031	6.0	LOS A	0.1	1.1	0.26	0.52	0.26	53.5
All Vehicles		389	6	409	1.5	0.150	5.9	LOS A	0.8	5.7	0.23	0.54	0.23	53.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

ANNEXURE D: SALES DATA
(3 SHEETS)

Date	Transactions	Date	Transactior	Percentile
17/06/2023	361	24/12/2022	177	0
16/06/2023	267	7/04/2023	205	1
10/06/2023	343	29/10/2022	247	2
9/06/2023	287	3/03/2023	257	3
3/06/2023	386	2/06/2023	260	4
2/06/2023	260	16/06/2023	267	5
27/05/2023	359	30/12/2022	271	6
26/05/2023	279	28/04/2023	272	7
20/05/2023	332	19/05/2023	274	8
19/05/2023	274	12/05/2023	276	9
13/05/2023	290	23/12/2022	276	10
12/05/2023	276	7/01/2023	277	11
6/05/2023	317	26/05/2023	279	12
5/05/2023	285	5/05/2023	285	13
29/04/2023	342	10/03/2023	285	14
28/04/2023	272	9/06/2023	287	15
22/04/2023	337	23/09/2022	288	16
21/04/2023	334	24/03/2023	289	17
15/04/2023	361	13/05/2023	290	17
14/04/2023	321	25/11/2022	291	18
8/04/2023	317	31/03/2023	295	19
7/04/2023	205	2/12/2022	295	20
1/04/2023	327	24/02/2023	296	21
31/03/2023	295	2/07/2022	296	22
25/03/2023	334	10/12/2022	299	23
24/03/2023	289	31/12/2022	300	24
18/03/2023	320	16/12/2022	302	25
17/03/2023	309	10/02/2023	303	26
11/03/2023	408	13/01/2023	303	27
10/03/2023	285	4/11/2022	304	28
4/03/2023	341	3/12/2022	306	29
3/03/2023	257	17/03/2023	309	30
25/02/2023	348	4/02/2023	310	31
24/02/2023	296	28/10/2022	310	32
18/02/2023	324	28/01/2023	313	33
17/02/2023	329	18/11/2022	313	34
11/02/2023	320	11/11/2022	316	35
10/02/2023	303	6/05/2023	317	36
4/02/2023	310	8/04/2023	317	37
3/02/2023	321	18/03/2023	320	38
28/01/2023	313	11/02/2023	320	39
27/01/2023	339	14/04/2023	321	40
21/01/2023	363	3/02/2023	321	41
20/01/2023	347	21/10/2022	322	42
14/01/2023	343	6/01/2023	323	43
13/01/2023	303	9/12/2022	323	44
7/01/2023	277	5/08/2022	323	45
6/01/2023	323	18/02/2023	324	46
31/12/2022	300	9/09/2022	325	47

30/12/2022	271	14/10/2022	326	48
24/12/2022	177	1/04/2023	327	49
23/12/2022	276	17/02/2023	329	50
17/12/2022	393	20/05/2023	332	50
16/12/2022	302	15/07/2022	332	51
10/12/2022	299	21/04/2023	334	52
9/12/2022	323	25/03/2023	334	53
3/12/2022	306	3/09/2022	335	54
2/12/2022	295	8/07/2022	335	55
26/11/2022	338	12/11/2022	336	56
25/11/2022	291	5/11/2022	336	57
19/11/2022	352	22/04/2023	337	58
18/11/2022	313	26/11/2022	338	59
12/11/2022	336	30/09/2022	338	60
11/11/2022	316	27/01/2023	339	61
5/11/2022	336	4/03/2023	341	62
4/11/2022	304	29/04/2023	342	63
29/10/2022	247	29/07/2022	342	64
28/10/2022	310	22/07/2022	342	65
22/10/2022	360	10/06/2023	343	66
21/10/2022	322	14/01/2023	343	67
15/10/2022	351	20/01/2023	347	68
14/10/2022	326	1/10/2022	347	69
8/10/2022	367	25/02/2023	348	70
7/10/2022	349	17/09/2022	348	71
1/10/2022	347	7/10/2022	349	72
30/09/2022	338	15/10/2022	351	73
24/09/2022	358	19/11/2022	352	74
23/09/2022	288	24/06/2022	353	75
17/09/2022	348	24/09/2022	358	76
16/09/2022	423	27/05/2023	359	77
10/09/2022	498	2/09/2022	359	78
9/09/2022	325	22/10/2022	360	79
3/09/2022	335	17/06/2023	361	80
2/09/2022	359	15/04/2023	361	81
27/08/2022	407	21/01/2023	363	82
26/08/2022	376	8/10/2022	367	83
20/08/2022	389	26/08/2022	376	83
19/08/2022	411	3/06/2023	386	84
13/08/2022	425	**30/07/2022**	**387**	**85**
12/08/2022	393	20/08/2022	389	86
6/08/2022	437	17/12/2022	393	87
5/08/2022	323	12/08/2022	393	88
30/07/2022	387	1/07/2022	399	89
29/07/2022	342	27/08/2022	407	90
23/07/2022	415	11/03/2023	408	91
22/07/2022	342	19/08/2022	411	92
16/07/2022	445	23/07/2022	415	93
15/07/2022	332	9/07/2022	419	94
9/07/2022	419	16/09/2022	423	95

8/07/2022	335	13/08/2022	425	96
2/07/2022	296	6/08/2022	437	97
1/07/2022	399	16/07/2022	445	98
25/06/2022	454	25/06/2022	454	99
24/06/2022	353	10/09/2022	498	100

ANNEXURE E: FUNCTION ATTENDANCE DATA
(2 SHEETS)

Event List

Date From - Date To: Wednesday, 29 June 2022 - Saturday, 17 June 2023
Event Category: CELEBRATION,CONFERENCE,SHOW,WAKE
Status: CONFIRMED
Venue Location Location Group: SINCLAIR ROOM

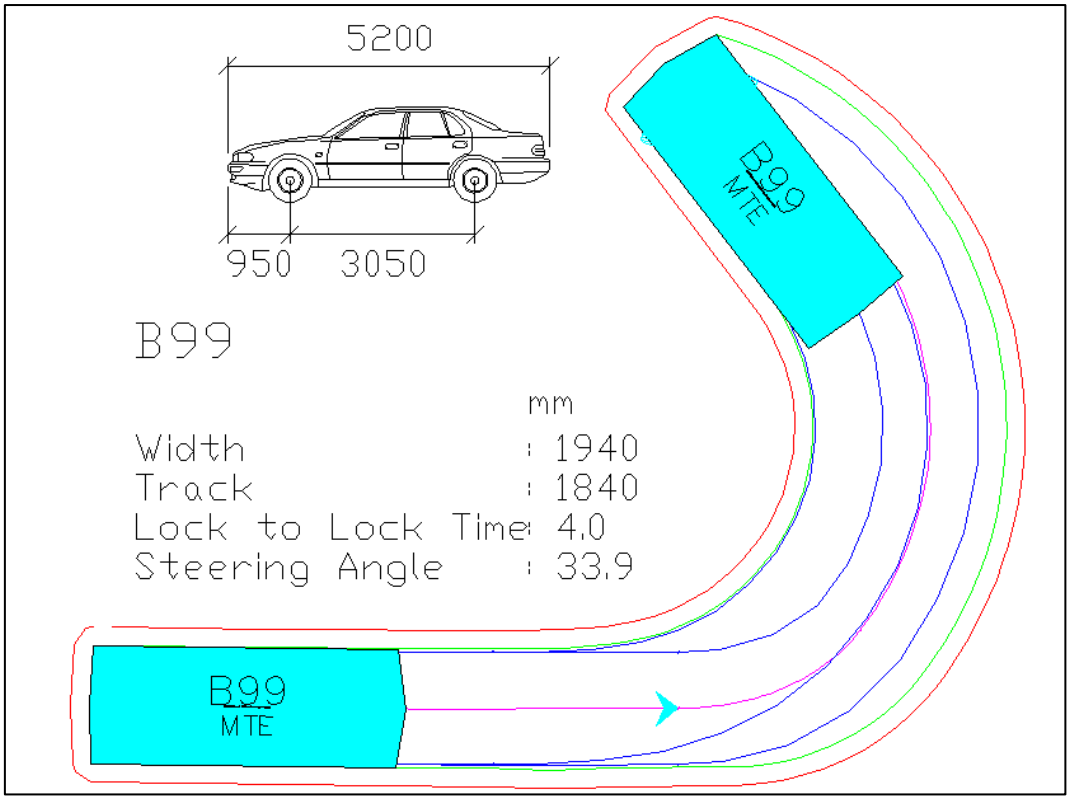
Book #	Status	Category	Sub-Category	Event Name	Client	Date From	Date To	Attendance
5992	CONFIRMED	CELEBRATION	CELEBRATION - CHRISTMA			17/12/2021	9/12/2022	100
5853	CONFIRMED	SHOW	SHOW - DINNER AND SHC			21/05/2022	25/02/2023	200
6224	CONFIRMED	CELEBRATION				9/07/2022	9/07/2022	53
6106	CONFIRMED	CELEBRATION	CELEBRATION - BIRTHDAY			16/07/2022	16/07/2022	50
6383	CONFIRMED	CELEBRATION	CELEBRATION - BIRTHDAY			30/07/2022	30/07/2022	60
6420	CONFIRMED	WAKE				5/08/2022	5/08/2022	100
6367	CONFIRMED	CELEBRATION	CELEBRATION - BIRTHDAY			13/08/2022	13/08/2022	90
6223	CONFIRMED	CONFERENCE	CONFERENCE - TRADE SHC			19/08/2022	19/08/2022	25
6434	CONFIRMED	WAKE				26/08/2022	26/08/2022	40
6438	CONFIRMED	CONFERENCE	CONFERENCE - Staff Traini			26/08/2022	26/08/2022	45
6366	CONFIRMED	CELEBRATION	CELEBRATION - ANNIVERS.			27/08/2022	27/08/2022	60
6433	CONFIRMED	CELEBRATION	CELEBRATION - REUNION			3/09/2022	3/09/2022	50
6229	CONFIRMED	CELEBRATION	CELEBRATION - REUNION			10/09/2022	10/09/2022	200
6219	CONFIRMED	CELEBRATION	CELEBRATION - BIRTHDAY			23/09/2022	23/09/2022	70
6049	CONFIRMED	CELEBRATION	CELEBRATION - BIRTHDAY			24/09/2022	24/09/2022	40
6208	CONFIRMED	CELEBRATION	CELEBRATION - ANNIVERS.			30/09/2022	30/09/2022	45
6467	CONFIRMED	CELEBRATION				7/10/2022	7/10/2022	50
6413	CONFIRMED	CELEBRATION				8/10/2022	8/10/2022	40
6103	CONFIRMED	CELEBRATION				15/10/2022	15/10/2022	80
6137	CONFIRMED	CELEBRATION				21/10/2022	21/10/2022	60
6201	CONFIRMED	CELEBRATION	CELEBRATION - BIRTHDAY			21/10/2022	21/10/2022	40
5641	CONFIRMED	CELEBRATION	CELEBRATION - REUNION			22/10/2022	22/10/2022	140
5997	CONFIRMED	CELEBRATION				29/10/2022	29/10/2022	60
5634	CONFIRMED	CELEBRATION	CELEBRATION - RETIREMEI			4/11/2022	4/11/2022	41
6417	CONFIRMED	CELEBRATION	CELEBRATION - ENGAGEM			12/11/2022	12/11/2022	60
6484	CONFIRMED	CONFERENCE				15/11/2022	15/11/2022	46
6451	CONFIRMED	CELEBRATION	CELEBRATION - BIRTHDAY			18/11/2022	18/11/2022	60
6404	CONFIRMED	CELEBRATION	CELEBRATION - Presentatic			19/11/2022	19/11/2022	100
6539	CONFIRMED	CELEBRATION				25/11/2022	25/11/2022	50
6556	CONFIRMED	WAKE	WAKE - Wake			25/11/2022	25/11/2022	80
6132	CONFIRMED	CELEBRATION				26/11/2022	26/11/2022	40
6464	CONFIRMED	CELEBRATION				2/12/2022	2/12/2022	0
6559	CONFIRMED	WAKE				2/12/2022	2/12/2022	50

Event name and client info redacted

5960	CONFIRMED	CELEBRATION			3/12/2022	3/12/2022	60
6547	CONFIRMED	CELEBRATION			10/12/2022	10/12/2022	60
5947	CONFIRMED	CELEBRATION			16/12/2022	17/12/2022	200
6432	CONFIRMED	CELEBRATION			7/01/2023	7/01/2023	40
6600	CONFIRMED	WAKE			13/01/2023	13/01/2023	50
6454	CONFIRMED	CELEBRATION			14/01/2023	14/01/2023	50
6532	CONFIRMED	CELEBRATION			14/01/2023	14/01/2023	70
6570	CONFIRMED	CELEBRATION			21/01/2023	21/01/2023	150
6440	CONFIRMED	CELEBRATION	CELEBRATION - REUNION		4/02/2023	4/02/2023	100
6680	CONFIRMED	CELEBRATION	CELEBRATION - BIRTHDAY		11/02/2023	11/02/2023	40
6706	CONFIRMED	CELEBRATION	CELEBRATION - CHRISTMA		17/02/2023	17/02/2023	50
6829	CONFIRMED	WAKE			10/03/2023	10/03/2023	40
6793	CONFIRMED	CONFERENCE	CONFERENCE - TRADE SHC		17/03/2023	17/03/2023	25
6531	CONFIRMED	CELEBRATION			18/03/2023	18/03/2023	100
6595	CONFIRMED	CELEBRATION	CELEBRATION - BIRTHDAY		25/03/2023	25/03/2023	40
6821	CONFIRMED	CELEBRATION			14/04/2023	14/04/2023	70
6599	CONFIRMED	CELEBRATION			15/04/2023	15/04/2023	80
6971	CONFIRMED	WAKE	WAKE - Wake		22/04/2023	22/04/2023	70
6574	CONFIRMED	CELEBRATION	CELEBRATION - Presentatic		28/04/2023	10/05/2024	151
7004	CONFIRMED	CELEBRATION			29/04/2023	29/04/2023	50
6964	CONFIRMED	CELEBRATION			5/05/2023	5/05/2023	120
6699	CONFIRMED	CELEBRATION			12/05/2023	12/05/2023	40
7120	CONFIRMED	CELEBRATION			13/05/2023	13/05/2023	50
7024	CONFIRMED	WAKE			19/05/2023	19/05/2023	50
6965	CONFIRMED	CELEBRATION			20/05/2023	20/05/2023	40
6384	CONFIRMED	CELEBRATION	CELEBRATION - BIRTHDAY		26/05/2023	26/05/2023	50
6960	CONFIRMED	CELEBRATION			27/05/2023	27/05/2023	60
7121	CONFIRMED	CELEBRATION			3/06/2023	3/06/2023	50
6405	CONFIRMED	CELEBRATION	CELEBRATION - BIRTHDAY		10/06/2023	10/06/2023	71

Event name and client info redacted

ANNEXURE F: SWEPT PATH TESTING
(5 SHEETS)

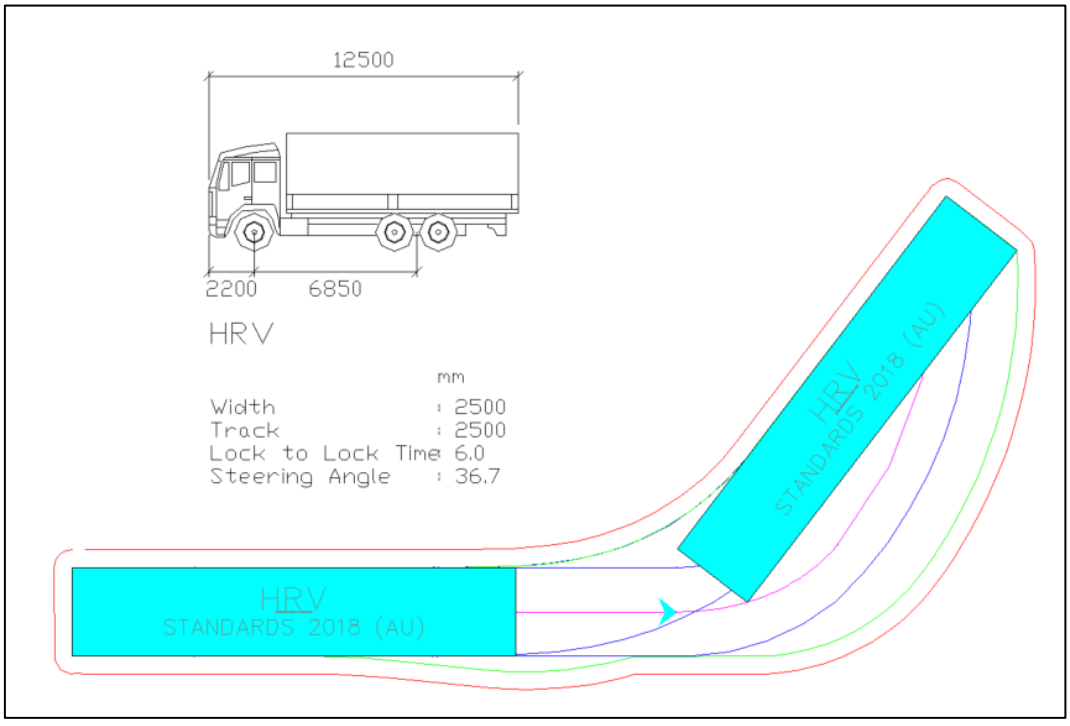


AUSTRALIAN STANDARD 99.8TH PERCENTILE SIZE VEHICLE (B99)

Blue – Tyre Path

Green – Vehicle Body

Red – 300mm Clearance



AUSTRALIAN STANDARD HEAVY RIGID VEHICLE (HRV)

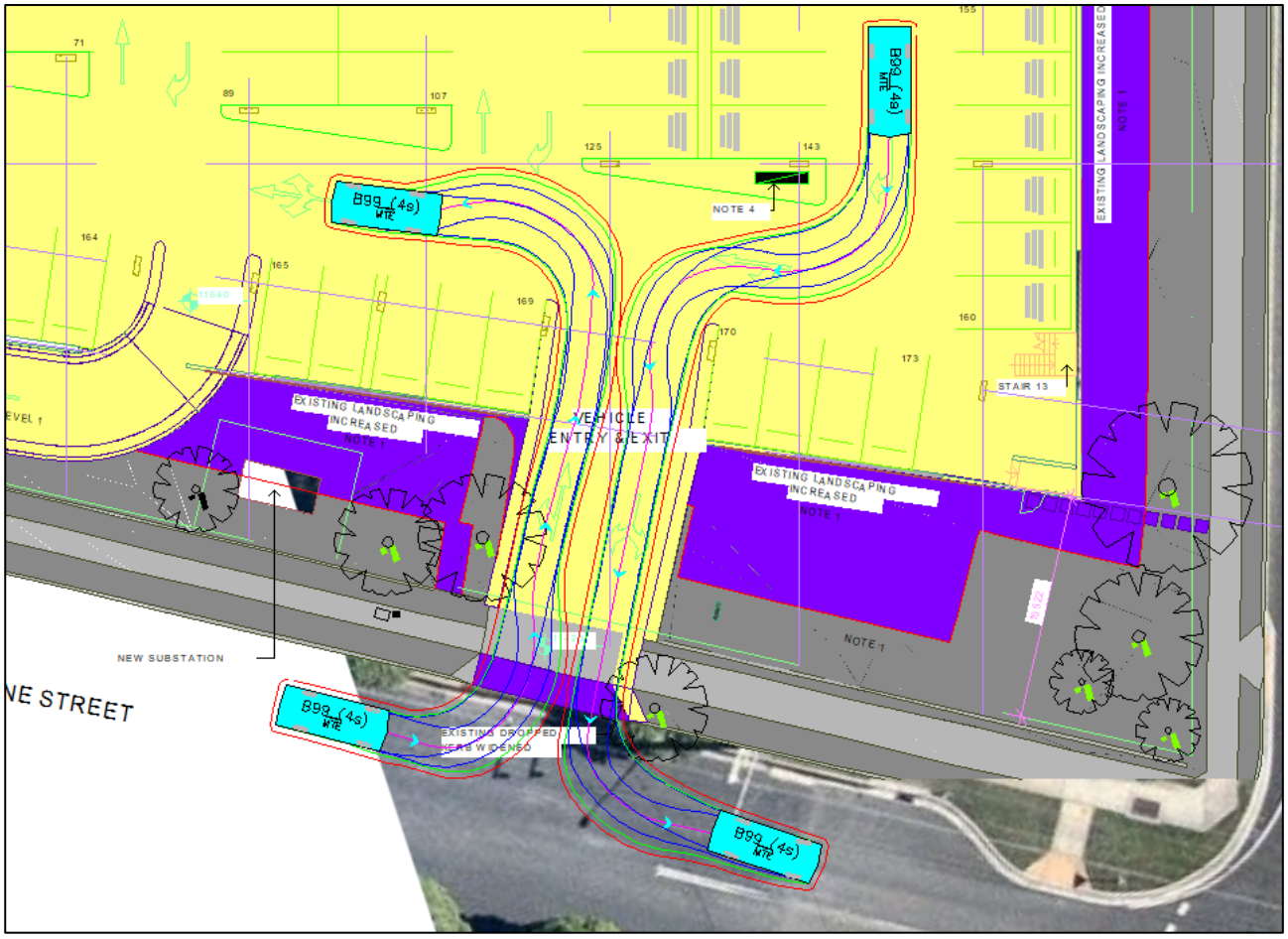
Blue – Tyre Path

Green – Vehicle Body

Red – 500mm Clearance

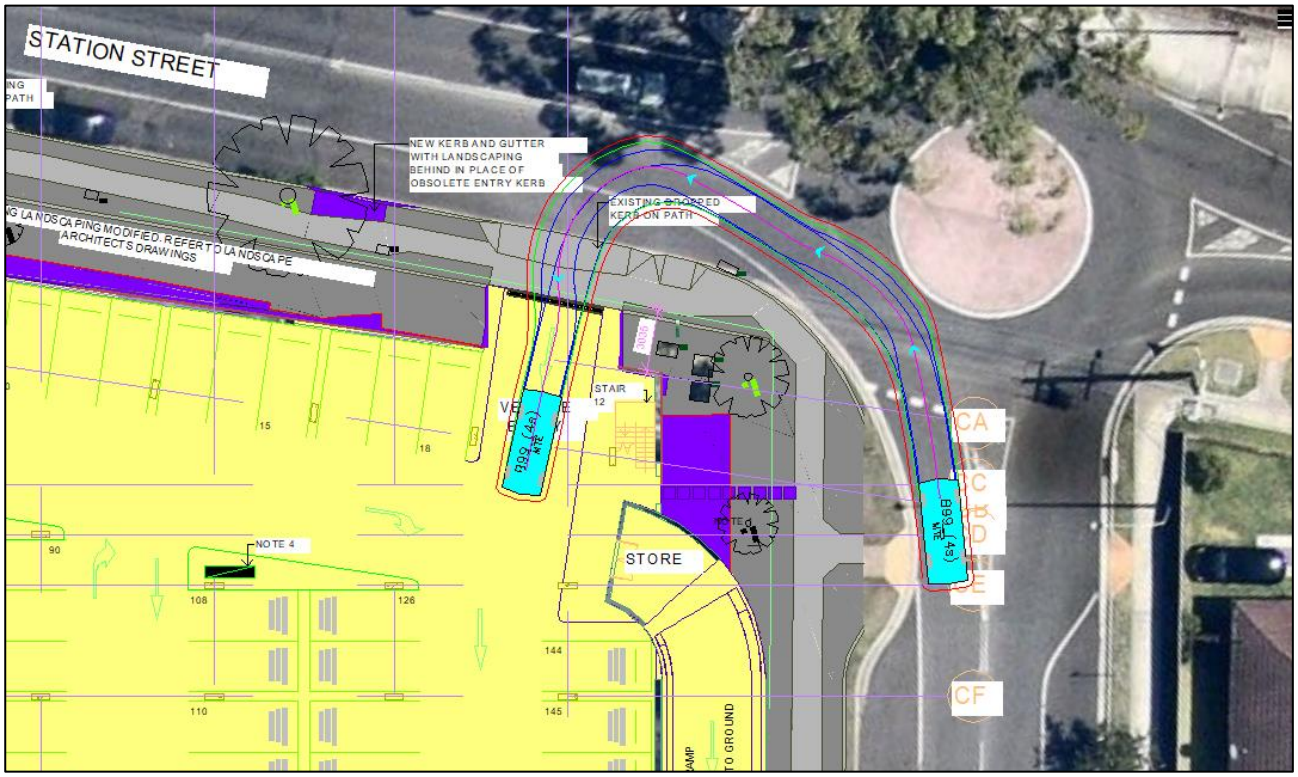
HRV Entry / Exit from Loading Dock

Successful – 2 Manoeuvres REVERSE IN / 1 Manoeuvre FORWARD OUT



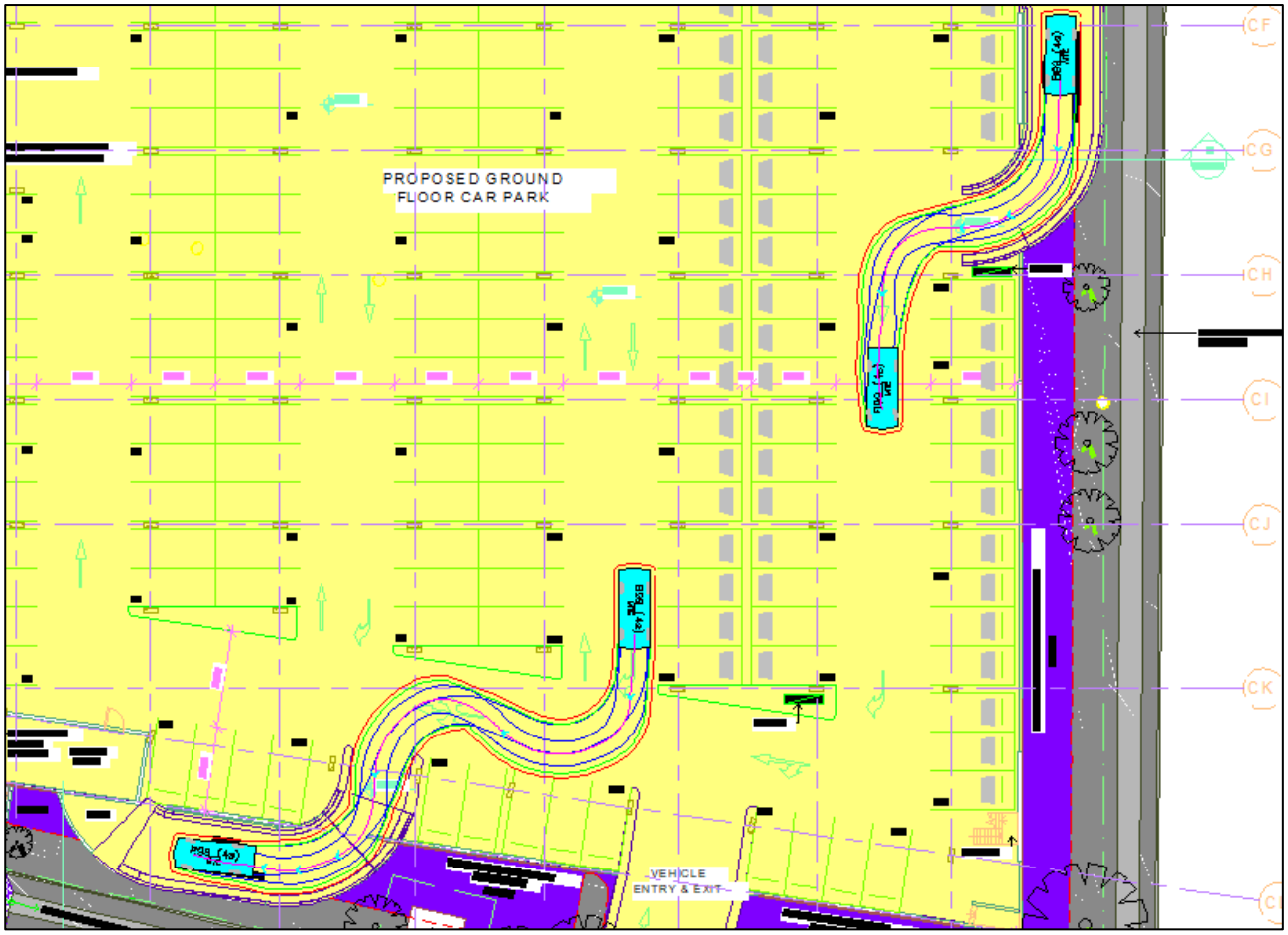
B99 Entry / Exit from Osborne Street

Successful



B99 Entry from Station Street

Successful



B99 Ramp Circulation

Successful


PORTE COCHERE
CLUB ENTRY
REFER TO ZONE A
NEW LIFT
STAIR 10 TO CLUB
STAIR 11 FROM CLUB TO CARPARK UPPER LEVEL
SPRINKLER ALARM VALVE RM
PROPOSED GROUND FLOOR CAR PARK
VEHICLE ENTRY
STAIR 12
STORE
RAMP
LEVEL 1 TO GROUND
NOTE 4
EXISTING FOOTPATH TO REMAIN
EXISTING LANDSCAPING INCREASED
NOTE 1
8/no. SECURE CYCLE PARKING
SWITCH ROOM
VOID
RAMP
GROUND TO LEVEL 1
STAIR 13
EXISTING FOOTPATH
NEW SUBSTATION
EXISTING DROPPED KERB WIDENED
OSBORNE STREET
LANDSCAPING MODIFIED, REFER TO LANDSCAPE ARCHITECTS DRAWINGS