TRAFFIC AND PARKING IMPACT ASSESSMENT OF LEISURE & ENTERTAINMENT PRECINCT PORT MACQUARIE AT CNR WARLTERS STREET & PARK STREET, PORT MACQUARIE

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Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

Development Type: **Leisure & Entertainment Precinct Port Macquarie**

Site Address: **Cnr Warlters Street & Park Street, Port Macquarie**

Prepared for: **MM Atelier Architects**

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1 INTRODUCTION

M^CLaren Traffic Engineering (MTE) was commissioned by *MM Atelier Architects* to provide a Traffic and Parking Impact Assessment of the Leisure & Entertainment Precinct Port Macquarie at Cnr Warlters Street & Park Street, Port Macquarie (proposed plans reproduced in **Annexure A**).

This report is an amended traffic report which responds to parking and traffic related Port Macquarie-Hastings Council comments on the original MTE Traffic Report dated December 2018 (ref: 18138.01FB). The applicant has made the following amendments to the development scale.

- Reduction in Cinema seats from 1,418 to 1,343;
- Elimination of the basement Car Wash Business;
- Reduction in floor area;
- Increase in Drive-Through Queueing area to comply with the DCP.

The updated scale is summarised in **Section 1.1**.

1.1 Description and Scale of Development

The scale of the development relevant to traffic and parking impacts includes:

- 1,123m^2 of ground floor commercial area to be occupied by 8 restaurant tenants (Tenancies 2-4 and 6-10);
    - 33% of GFA is Back of House Area
    - 67% of GFA is serviced area
- 30m^2 of ground floor commercial area to be occupied by a takeaway food/drink tenant (Tenancy 5);
- 302m^2 GLFA of ground floor commercial area to be occupied by 4 retail tenants (Tenancies 11-14);
- 196m^2 Drive-through Restaurant (Tenancy 1 – Guzman Y Gomez);
- 185m^2 Drive-through Restaurant (Tenancy 15 - Oporto);
- Cinema with 1,343 seats within 9 theatres (Tenancy 31);
- 2,160m^2 of Indoor Recreation area (Tenancy 21) including
    - Six (6) bowling lanes;
    - 395m^2 of games area;
    - 192m^2 of laser tag;
    - 192m^2 of dodgem cars;
    - 175m^2 trampoline room;
    - 70m^2 of party rooms;

- Bar area;

- 1,540m^2 Gymnasium (Tenancy 22);
- 566m^2 Function Centre, 371m^2 excluding back of house areas (Tenancy 41);
- 1 x four-bedroom manager's residence.

The proposal details parking and vehicular access as follows:

- A basement car park with a total of 153 car parking spaces and 12 motorbike spaces with basement access provided via a proposed one-way driveway on an internal access road and left turn only egress from the basement directly onto Warlters Street.

1.2 State Environmental Planning Policy (Infrastructure) 2007

Table 9 shows that the peak parking demand is expected to be over 200 vehicles. It follows that the proposed development qualifies as a development with relevant size and/or capacity under *Clause 104* of the *SEPP (Infrastructure) 2007* with access to any road. Accordingly, the development application must be referred to the Roads and Maritime Services (RMS).

1.3 Site Description

The site is currently zoned as B3 – Commercial Core Zone according to the Port Macquarie-Hastings Local Environmental Plan 2011. The subject site will have street frontages to both Park Street and Warlters Street. All access to the site will be made via Warlters Street, with the main egress onto Warlters Street, and a singular drive-through exit onto Park Street.

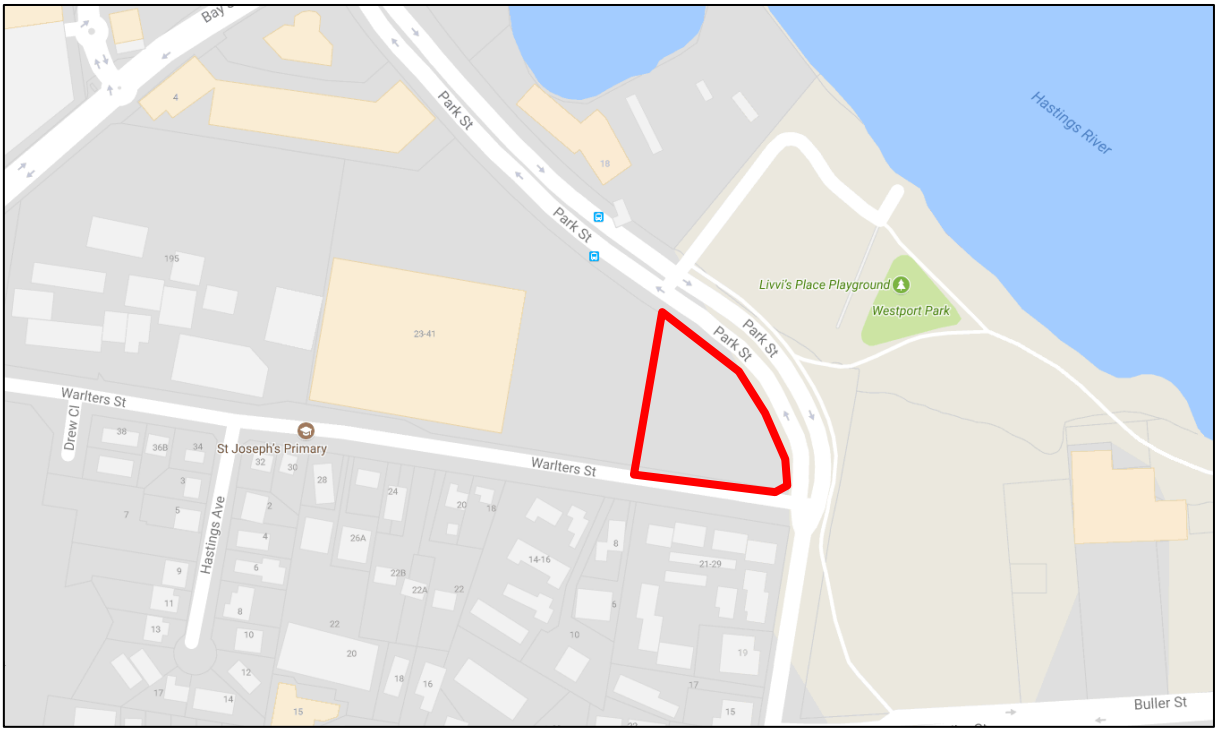
The site is generally surrounded by low to medium density residential dwellings to the south, and commercial businesses in all other directions including Kmart immediately to the west, Port Macquarie Marina directly across Park Street from and Port Macquarie Shops approximately 400m to the north.

1.4 Site Context

The site location is shown on aerial imagery and a map in **Figure 1** & **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 surrounding the site has the following characteristics:

Warlters Street

- Unclassified LOCAL road;
- Approximately 18m in width facilitating one traffic and cycling flow lane in each direction and a 5m width median;
- No speed limit signposted, 50km/hr limit applies;
- Unrestricted kerbside parking available with areas of 'NO STOPPING'.

Park Street

- Unclassified LOCAL road;
- Approximately 16m in width facilitating two traffic flow lanes in each direction and a 5m width median;
- Signposted 50km/hr speed limit;
- Areas of unrestricted kerbside parking permitted along both sides of the street.

Internal Access Road – Kmart Car Park

- Private road within the Kmart car park, which fronts the subject site to the west;
- Approximately 6m in width facilitating one traffic flow lane in each direction;
- Non-sign posted speed limit, 10km/h expected;

2.2 Existing Traffic Management

- Signalised Intersection of Warlters Street/ Park Street;

2.3 Existing Parking Environment

Parking counts were completed at the locations shown in **Figure 3** from 12:00pm-10:00pm on Friday 9th November and 3:00pm-10:00pm on Saturday 10th November 2018, and therefore encapsulate all parking activity attributed to all developments within the area (including Kmart, the boat ramp, and all other commercial tenancies surrounding the site) during the surveyed times. All surveyed parking areas are located within 200m walking distance to the subject site and are connected by footpaths and pedestrian crossings.

FIGURE 3: PARKING SURVEY LOCATIONS

Results of the parking counts are summarised in **Table 1** and **Table 2** below and reproduced in full in **Annexure B**).

TABLE 1: MINIMUM AVAILABLE PARKING - FRIDAY

Locations	3-4pm	4-5pm	5-6pm (1)	6-7pm (1)	7-8pm (1)	8-9pm (1)	9-9:30pm (1)	9:30-10pm
Boat Ramp	77	75	35	4	7	6	14	89
Kmart	148	176	183	135	117	122	158	245
Park Street	37	37	33	11	5	6	29	37
Warlters Street	28	27	30	22	24	24	24	37
Total	**290**	**315**	**281**	**172**	**153**	**158**	**225**	**408**

Note: (1) Time period affected by the Open-Air Cinema Event

TABLE 2: MINIMUM AVAILABLE PARKING - SATURDAY

Locations	12-1pm (1)	1-2pm (1)	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm	7-8pm	8-9pm	9-10pm
Boat Ramp (2)	0	0	35	44	49	51	55	53	53	54
Kmart	39	72	120	156	182	189	222	243	263	265
Park Street	13	17	35	37	37	37	37	37	37	37
Warlters Street	31	31	34	40	34	36	33	34	34	35
Total	**83**	**143**	**224**	**277**	**302**	**313**	**347**	**367**	**387**	**391**

Note: (1) Time period affected by the Foreshore Markets
(2) 56 spaces within the boat ramp are reserved for boats only on Saturdays, it has been assumed that all surveyed parked vehicles parked in the non-boat parking portion of the car park. Therefore, the available parking shown is a worst case

The above shows that there is extensive public parking available within the surrounding area. It is relevant to note that the Friday parking counts overlapped with a one-off open-air cinema event called *Cinema Under the Stars*, which occurred at Westport Park, located directly across Park Street from the subject site. This event began at 5:30pm with live music, kids activities, and an outdoor cinema which culminated at approximately 9:15pm.

Similarly, the Saturday parking counts overlapped with the *Foreshore Markets*, which is a monthly event occurring at Westport Park which starts in the morning and culminates at 1:00pm.

The parking count results (reproduced in full in **Annexure B**) show that the above events demanded significant additional parking. Further, these events represent peak traffic demanding events at Westport Park for Fridays and Saturdays. Therefore, the results summarised above represent a worst-case scenario for both Fridays and Saturdays.

2.4 Existing Traffic Environment

Traffic counts were completed at the following intersections of Port Macquarie during the AM and PM peak periods on Friday 2nd November 2018, and Saturday 3rd November 2018 and therefore encapsulate all traffic movements attributed all developments within the area (including Kmart, the boat ramp, and all other commercial tenancies surrounding the site) during the surveyed times.

- Park Street / Bay Street
- Park Street / Warlters Street
- Warlters Street / Kmart Access Driveway (west)
- Park Street / Kmart Access Driveway
- Warlters Street / Kmart Carpark Driveway (east)

Drive-through traffic counts were completed at the following drive-through locations on a Friday and a Saturday in order to determine the average time spent in a drive-through.

- Guzman Y Gomez - Acacia Ridge, QLD
- Oporto - Woodbine, NSW

Data is reproduced in its entirety in **Annexure C**, whilst a summary of the data used within this report is shown in **Table 3** below.

TABLE 3: DRIVE-THROUGH DATA SUMMARY

Drive-through Restaurant	Day	Mean Time to Order	Standard Deviation (seconds)
Oporto	Friday	75 seconds	28 seconds
Guzman Y Gomez		53 seconds	17 seconds

2.4.1 Intersection Performances

Existing intersection performances have been assessed using SIDRA INTERSECTION 8.0, the results of this analysis are summarised in **Table 4**.

TABLE 4: INTERSECTION PERFORMANCES (SIDRA INTERSECTION 8.0)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay (sec/veh)[2]	Level of Service[3]	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE							
Park Street / Bay Street	Friday PM	0.35	7.8 (Worst 13.5)	**A** (Worst B)	Roundabout	UT from Park Street	2 veh (13.8m) Park Street
	Saturday Midday	0.53	8.5 (Worst 15.1)	**A** (Worst B)		UT from Park Street	3.8 veh (26.7m) Bay Street
	Saturday PM	0.21	7.3 (Worst 12.4)	**A** (Worst A)		UT from Bay Street	1.3 veh (8.9m) Park Street
Park Street / Warlters Street	Friday PM	0.36	7.1 (Worst 23.0)	**A** (Worst B)	Signals	RT from Warlters Street	4.3 veh (30.5m) Park Street
	Saturday Midday	0.44	7.3 (Worst 23)	**A** (Worst B)		RT from Warlters Street	5.6 veh (39.2m) Park Street
	Saturday PM	0.58	12.6 (Worst 18.7)	**A** (Worst B)		LT from Park Street	3.3 veh (23.3m) Park Street
Warlters Street / Kmart Access Road	Friday PM	0.08	3.5 (Worst 7.2)	**N/A** (Worst A)	Give Way	UT from Warlters Street	0.2 veh (1.3m) Warlters Street
	Saturday Midday	0.06	4.7 (Worst: 6.9)	**N/A** (Worst A)		UT from Warlters Street	0.3 veh (2m) Warlters Street
	Saturday PM	0.03	4.6 (Worst 6.8)	**N/A** (Worst A)		UT from Warlters Street	0.1 veh (0.7m) Warlters Street
Park Street / Kmart Access Road	Friday PM	0.18	4.7 (Worst: 6.5)	**N/A** (Worst A)	Give Way	LT from Kmart Access Driveway	0.5 veh (3.2m) st: Kmart Access Driveway
	Saturday Midday	0.23	4.8 (Worst: 6.9)	**N/A** (Worst A)		LT from Kmart Access Driveway	0.7 veh (4.9m) st: Kmart Access Driveway
	Saturday PM	0.11	4.6 (Worst 6.1)	**N/A** (Worst A)		LT from Kmart Access Driveway	0.3 veh (0.9m) Kmart Access Driveway
Warlters Street / Kmart Carpark Driveway	Friday PM	0.08	0.7 (Worst 6)	**N/A** (Worst A)	Give Way	LT from Kmart Carpark Driveway	0 veh (0.3m) Kmart Carpark Driveway
	Saturday Midday	0.06	1.9 (Worst 5.9)	**N/A** (Worst A)		LT from Kmart Carpark Driveway	0.2 veh (1.1m) Kmart Carpark Driveway
	Saturday PM	0.04	1.1 (Worst 5.7)	**N/A** (Worst A)		LT from Kmart Carpark Driveway	0.0 veh (0.3m) Kmart Carpark Driveway

NOTES:
(1) 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) 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.

As shown, the two relevant intersections are currently performing at a high level of efficiency, all with a level of service "A" conditions in both the AM & PM peak hours. The level of service "A" performance is characterised by low approach delays and spare capacity.

2.5 Public Transport

The subject site has access to several existing bus routes (Route 322, 324, 325, 334, 334K, 335, 335W, 340, and 341) provided by *Busways* which run along Park Street, with the nearest bus stop located immediately in front of the site. The existing bus routes connect the site to several landmarks within Port Macquarie, as well as the nearby suburbs of Kempsey, Wauchope, Lake Cathie, Bonny Hills, Laurieton and Kendall.

Routes 322, 324, and 325 provide service from the site to Shelly Beach, Lighthouse Plaza and the Ruins Way and run between 7:00am-10:00pm on weekdays and weekends. All other routes terminate by 5:00pm on weekends and/or weekdays.

Site Location

FIGURE 4: PUBLIC TRANSPORT CONTEXT

2.6 Future Road and Infrastructure Upgrades

From Port Macquarie – Hastings City Council's Development Application tracker and website, it appears that there is no future planned road or public transport changes that will affect traffic conditions within the immediate vicinity of the subject.

3 PARKING ASSESSMENT

3.1 Parking Demand

Reference is made to *Port Macquarie-Hastings Development Control Plan 2013* and *RMS Guide to Traffic Generating Developments 2002* which provide car parking requirements for the subject development. The relevant car parking requirements are reproduced below.

Take away food and drink premises:

On-site seating & drive through

1 per 3 seats (internal and external) + queuing area for minimum of 8 cars from pickup point

No on-site seating

12 per 100 m^2 GFA + queueing area for minimum if 8 cars from pickup point;

12 per 100m^2 GFA + greater of either;

Retail

1 per 30m^2 GLFA or 1.5 spaces per shop, whichever is greater

Restaurant

In commercial zones: 1 per 30m^2 serviced floor area

Cinema

An application for a major commercial development must be accompanied by a Traffic Impact Study that makes adequate provision for public transport facilities and motorcycle and bicycle parking.

Recreation Facilities (indoor)

Bowling Alley: 3 per lane

Gymnasium: 7.5 Per 100m^2 GFA

Gymnasiums

7.5 spaces per 100m^2

Residential Flat Building

1.5 spaces per 3-4 bedroom unit

The resulting parking requirement for the development scale is summarised in **Table 5**.

TABLE 5: CAR PARKING REQUIREMENT

Description	Type	Scale	Rate	Parking Required	Authority
Cinema Based Entertainment Complex	Cinema	1,343 seats	Subject to Traffic Study	See Section 3.2.1	Traffic Study
	Bowling Alley	6 lanes	3 per lane	18 spaces	Council DCP RMS Guide
	Indoor Recreation	2,160m^2		See Section 3.2.6	Traffic Study
Retail	Retail Shops	302m^2 GLFA	1 per 30m^2 GLFA or 1.5 per shop	10	Council DCP
Food and Drink Premises	Drive-Through	381m^2	1 per 3 seats + queuing for 8 cars from pickup point	See Section 3.2.7	Council DCP
	Take Away	30m^2	12 per 100m^2 GFA	3.6(4)	Council DCP
	Restaurants	753m^2 serviced area	1 per 30m^2 serviced area	25	Council DCP
Gymnasium	UFC Gym / World Gym	1,540m^2	7.5 per 100m^2 GFA	115.5 (116) See Section 3.2.8	Council DCP
Function Centre		371m^2	10 spaces per 100m^2 serviced area	37 See Section 3.2.9	TPS Group Traffic Study
Residential Flat Building	Manager's Residence	One (1) 4-bedroom unit	1.5 spaces per unit	1.5 (2)	Council DCP

Considering that the staffing of the facility is shared between land-uses and that staff parking demand is included in the parking requirements for both the Cinema Complex and Restaurants in **Table 5** (i.e.. considered twice), the actual parking demand will be less than that reflected above. *McLaren Traffic Engineering* (*MTE*) has completed a parking study to determine the appropriate parking demand for the cinema-based entertainment complex. The cinema and amusement centre parking demand studies are in the following sections.

3.2 Cinema Based Entertainment Parking Demand Study

As referenced in **Section 3.1** of this report, *MTE* completed a parking demand study in order to determine the parking demand of the cinema in terms of number of car parking spaces per seats in the cinema.

3.2.1 Cinema Survey

MTE commissioned Curtis Traffic Surveys in 2016 to survey a 1,920-seat cinema in Warriewood. Over the three days surveyed (results shown in **Annexure D** for reference), the parking demand showed consistent rates compared to the daily ticket sales of 1 space

per 7.65 daily tickets with an R^2 value of 0.98 which is evidence of a very strong correlation. The 85th percentile occupancy of the cinema is considered the design occupancy, consistent with the RMS guide and standard traffic engineering practice. The previous six months of daily ticket sales for Fridays and Saturdays were collected and are reproduced in **Annexure D** with the 50th/85th percentiles for Friday being 560/1222 and Saturday being 1058/1617.

This data is used to project ticket sales for the proposed cinema on the subject site. The proposed cinema's seat capacity is 1,343 seats, which is approximately 70% of the seat capacity of the surveyed cinema at Warriewood. Assuming a direct correlation of ticket sales to seat capacity, the ticket sales of the proposed cinema project to 50th/85th percentile ticket sales of 392/856 for Friday and 741/1132 on Saturday evening.

The peak parking demand for the Warriewood Cinema occurred at 7:00pm. The Saturday midday (1pm) parking demand was approximately 26% of the Saturday evening peak (63/244 = 26%). The ticket sales therefore project to an 85th percentile of 295 tickets on Saturday Midday (26% of 1132).

Applying the Warriewood data, as can be seen in the following **Section 3.2.2**, the maximum calculated peak Saturday evening parking demand for the Port Macquarie cinema is therefore 148 spaces.

3.2.2 Cinema Parking Demand

Based on the ticket sales projection and parking demand rate (spaces per ticket sold) calculated in **Section 3.1.1** above, the parking demand for the proposed 1,343 seat cinema is shown in **Table 6** below.

TABLE 6: CALCULATED PARKING DEMANDS

Land Use	85th Percentile Ticket Sales	Rate (Tickets sold/space)	85th Percentile Parking Demand
Friday Evening	856	7.65	112 spaces
Saturday Midday	295		39 spaces
Saturday Evening	1132		148 spaces
Minimum Requirement			**148 spaces**

As shown above, the cinema demands a total of **148** car parking spaces based on the 85th percentile demand on Saturday evening.

The 148-space demand represents the peak weekly parking demand for the cinema. It is relevant to note that this peak correlates with increased availability of on-site parking at the Kmart car park, as shown in **Table 2**.

3.2.3 Dual Usage

The RMS '*Guide to Traffic Generating Developments*' notes for shopping centres and alike that "*When it can be demonstrated that the time of peak demand for parking associated with the proposed shopping centre and the adjacent land uses do not coincide, or where common usage reduced total demand, a lower level of parking provision may be acceptable*". Common usage, or dual use, of the surveyed cinema site in Warriewood was surveyed in

2016 and found after 5pm that 18% of cinema patrons also utilised the restaurant/bar on the site (data reproduced in **Annexure D**).

It is important to note that the Warriewood site is situated near a small variety of restaurants and other retail uses within the area. The Port Macquarie site is located very near the Settlement City Shopping Centre and includes much more retail and restaurant tenancies than the Warriewood site. Drivers arriving at the subject site will park for longer in one space while they patronise the cinema and any other surrounding business. An example for the subject site would be visiting any of the 16 ground floor tenancies, the indoor recreation centre or the gym on the first floor, or the function centre on the third floor.

Given the layout and location of the proposed cinema site in Port Macquarie, it is conservatively assumed that dual usage will be 15% of cinema patrons. This is a lesser figure than what was surveyed at the Warriewood site despite the subject site's superior opportunity for dual usage given the site surroundings. 15% dual usage is therefore a very conservative figure. Dual usage for the site would generally occur after normal business hours.

3.2.4 Alternative Transport

The parking demand is further reduced by use of public transport and other modes of transportation that would not require parking spaces. We can assume a small portion of the patrons for the cinema will walk, ride a bike, take a bus or taxi to the site, or get dropped off. The site has access to multiple bus routes which provide access to several areas within Port Macquarie. It can be assumed that a small portion of patrons from Port Macquarie will use the bus to travel to and from the cinema development.

According to 2016 Census Data (data reproduced in **Annexure E**), residential dwellings in Port Macquarie own an average of 1.48 vehicles per household, and 9% of residential dwellings do not own a vehicle. In comparison, residential dwellings in Warriewood own an average of 1.85 vehicles per household, and only 2% of residential dwellings do not own a vehicle. The nearby town of Mona Vale has a car ownership rate of 1.78 vehicles per household, while 6% of households do not own a vehicle. Therefore, we can assume a higher percentage of public transportation usership in Port Macquarie than in Warriewood.

Further, the site has proposed two (2) pick-up and drop-off zones along the Park Street frontage which will be limited to 5-minute parking. There is also unrestricted kerbside parking available on Park Street adjacent to the site which is likely to be used as a pick-up and drop-off area when available. The location of the pick-up and drop-off zones is shown in **Figure 5**.

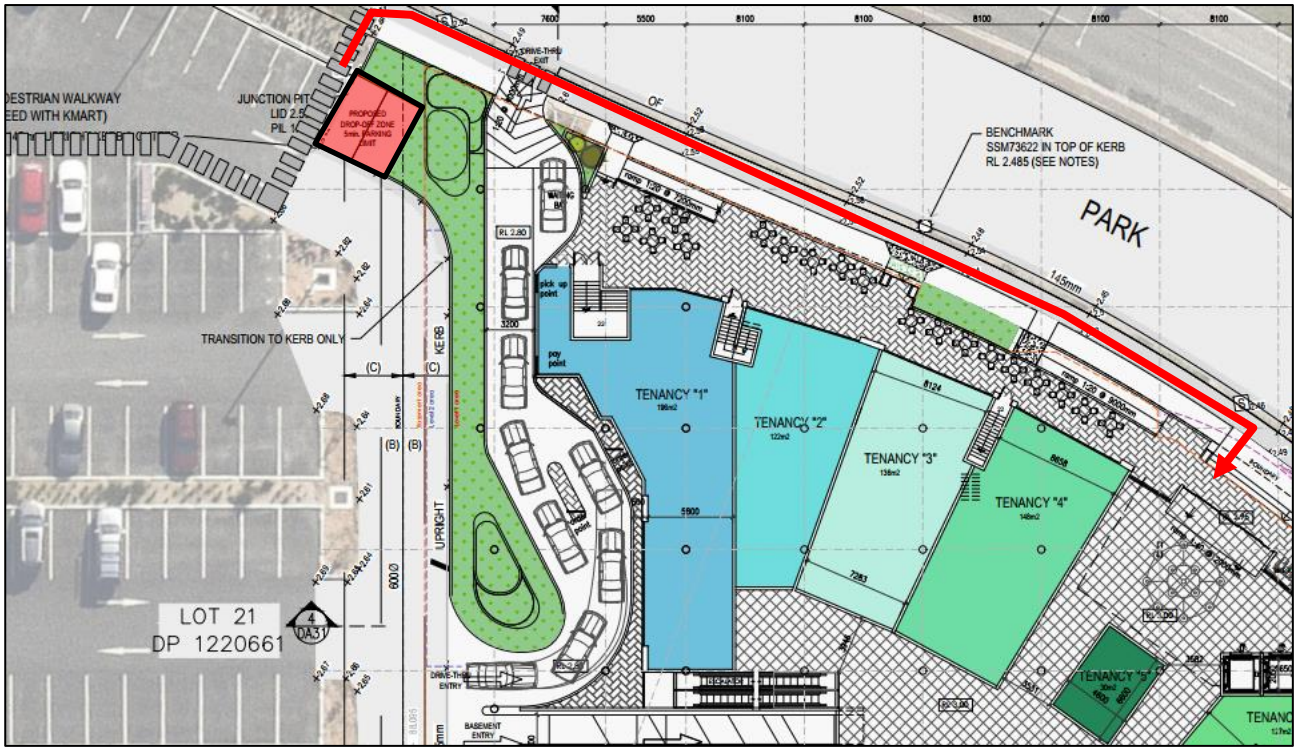


FIGURE 5: PICKUP AND DROPOFF SPACE LOCATION

Based upon the above, we can conservatively assume that 5% of patrons will arrive to the site via alternative transport methods such as riding a bike, public transportation and/or walking.

The assumed percentages of alternative transport and dual use will reduce the overall parking demand for the proposed cinema. The resulting car parking requirement is shown in **Table 7** below.

TABLE 7: CINEMA DUAL USE AND ALTERNATIVE TRANSPORT PARKING DEMAND REDUCTIONS

Day	85th Percentile Parking Demand	Dual Use Reduction*	Dual Use Parking Demand	Alternative Transport Reduction*	Resultant Parking Demand
Friday Evening	112 spaces	15%	95	5%	90 spaces
Saturday Midday	39 spaces		33		31 spaces
Saturday Evening	148 spaces		126		118 spaces
Minimum Requirement					**118 spaces**

***Note: Dual use and alternative transport reduction percentages are calculated from 85th percentile parking demand quantities.**

As shown in **Table 7**, the parking demand for the cinema is 118 spaces on Saturday evening after reductions for dual usage and alternative transport methods. These quantities provide the following parking rates for the 1,343-seat cinema development.

Friday Evening: 1 space per 14.9 seats (90 spaces);
Saturday Midday: 1 space per 43.3 seats (31 spaces);
Saturday Evening: 1 space per 11.4 seats (118 spaces).

3.2.5 Bowling Alley

The RMS Guide and the Council's DCP define parking demand for bowling alleys at 3 spaces per lane. This rate is taken to include 0.5 staff members per lane. 100% trade is expected to occur on weekday evenings and midday on weekends. Applying this rate to the proposed 6 lane bowling alley shown on the plans, this results in a peak patron parking demand of 15 spaces. A 15% dual use and a 5% alternative transport reduction is applied for patrons, and parking demand is shown in **Table 8** below:

TABLE 8: BOWLING ALLEY PATRON PARKING DEMAND

Day	Parking Demand	Dual Use Reduction*	Dual Use Parking Demand	Alternative Transport Reduction*	Resultant Parking Demand
Peak Demand	15 spaces	15%	13 spaces	5%	12 spaces
Minimum Requirement			**13 spaces**		**12 spaces**

As shown in the table above, the parking demand is 12 spaces after reductions for dual usage and alternative transport methods. The resultant parking demand rates are shown below. It is noted that the below rate is conservative for Friday and Saturday evenings, as the peak usage is expected to occur on weekday evenings and midday on weekends.

Friday Evenings: 2.0 spaces / lane (including staff)
Saturday Midday: 2.0 spaces / lane (including staff)
Saturday Evenings: 2.0 spaces / lane (including staff)

3.2.6 Amusement Centre Parking Demand Study

In terms of parking demand, amusement centres are each unique land uses with primary affecting factors being proximity to complimentary land uses, patronage of each unique isolated activity such as laser tag, children's playground, karaoke rooms, and proximity to public transport. For the purpose of assessment, comparison is drawn to a similar development at Salisbury Road, Asquith which is in the Hornsby LGA and was approved on the basis of the study completed by Lyle Marshall & Associates Pty Ltd (LMA) in November 2010 (relevant extracts reproduced in **Annexure F**). That study found an amusement centre of 1,576sqm GFA, including laser tag, generates weekend midday demand of 53 parking spaces for staff and patrons, including approximately 60 parents, 90 children and 8 staff. Friday evening parking demand was found to be less than 32 spaces or 60% of peak trade. Scaling these figures to the subject tenancy of approximately 1,024m^2 GFA (Total of all patron generating areas minus the bowling alley area) the isolated demand is expected to be 34 spaces on Saturday midday and 21 spaces for weekday and weekend evenings.

Considering the largely complimentary use of this tenancy to the cinema, bowling alley and dining, a 20% dual use/alternative transport reduction shall be applied.

Friday Evening Demand – 1 space per 60.2m^2 GFA (17 spaces);

Saturday Midday Demand – 1 space per 37.9m^2 GFA (27 spaces);

Saturday Evening Demand – 1 space per 60.2m^2 GFA (17 spaces).

3.2.7 Drive-Through Tenancies

The proposed plans show that Tenancy 1 and Tenancy 15 are restaurant locations that will be serviced by drive throughs. Tenancy 1 will be occupied by a Guzman Y Gomez franchise, and Tenancy 15 will be occupied an Oporto franchise. Parking demand for these land uses cannot be compared accurately to a typical restaurant because a portion of the patrons that will visit these tenancies will be through the drive through, and therefore won't require a parking space.

Reference is made to the RMS Guide *Section 5.8.1* which provides parking demand rates for Drive-in take-away food outlets. For developments with on-site seating and drive-through facilities, the parking requirement is the greater of 1 space per 2 seats (internal), or 1 space per 3 seats (internal and external). At this point in time, we do not have seating data for either the Guzman Y Gomez or Oporto developments. Therefore, the parking requirement must be determined from survey data.

Reference is made to the RTA (now RMS) *Land Use Traffic Generation Data and Analysis 22 Drive Through Restaurants (1992)* which provides survey details for several McDonalds and KFC fast food drive-through restaurants across NSW. It is important to note that the two proposed fast food drive-through tenancies are neither McDonalds nor KFC tenants and are considered to be tenancies which will result in lower peak parking demands. As such, it is considered that the RMS surveys of the KFC developments will be the more accurate portrayal of parking demand as these are considered to have lower peak patronages than McDonalds tenancies. Across all surveyed KFC drive-through developments, the maximum parking demand was 16 spaces on Friday and 18 spaces on Saturday for a 210m^2 GFA restaurant. Assuming a linear relationship between parking demand / GFA, a 15% dual use reduction, and a 5% alternative transport reduction, the parking demand for both drive-through fast food tenancies is shown below. It is reasonable to assume that the Saturday lunchtime (Midday) demand is expected to be 85% of the Saturday evening demand:

Friday Evening Demand – 1 space per 16.4m^2 GFA (23 spaces);

Saturday Midday Demand – 1 space per 17.2m^2 GFA (22 spaces);

Saturday Evening Demand – 1 space per 14.6m^2 GFA (26 spaces).

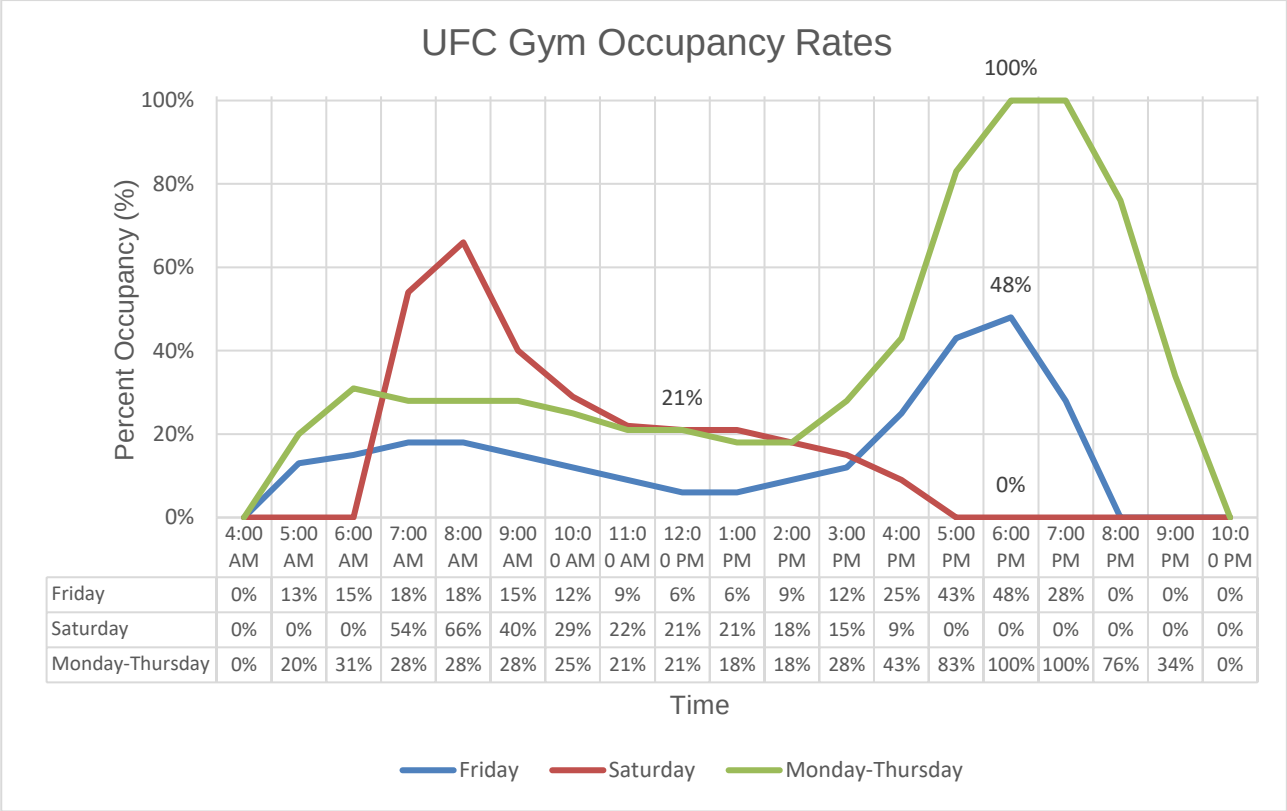
3.2.8 Gymnasium

Parking rates for gymnasium premises are provided by the Council DCP as 7.5 spaces per 100m^2. This rate is derived from the RMS Guide to Traffic Generating Developments, which also notes a minimum requirement of 4.5m spaces per 100m^2. The rates provide only PM parking rates, but it does not provide an AM peak parking rates. It is further noted that the *RMS Guide* rates are based upon surveys that were completed in the 1980s and 1990s,

none of which are in the Port Macquarie area. The nature and profile of gymnasium develops has significantly changed since these surveys, with class-based exercise and 24-hour gym access becoming the norm progressively since the 2000's. As such, a parking profile based upon patron usage is to be developed. The proposed gym is a UFC Gym franchise, which focuses on class-based exercise programs. In order to develop a usage profile for the gym component of the development, a review of Google data of 'popular times' has been undertaken of the following UFC Gym locations.

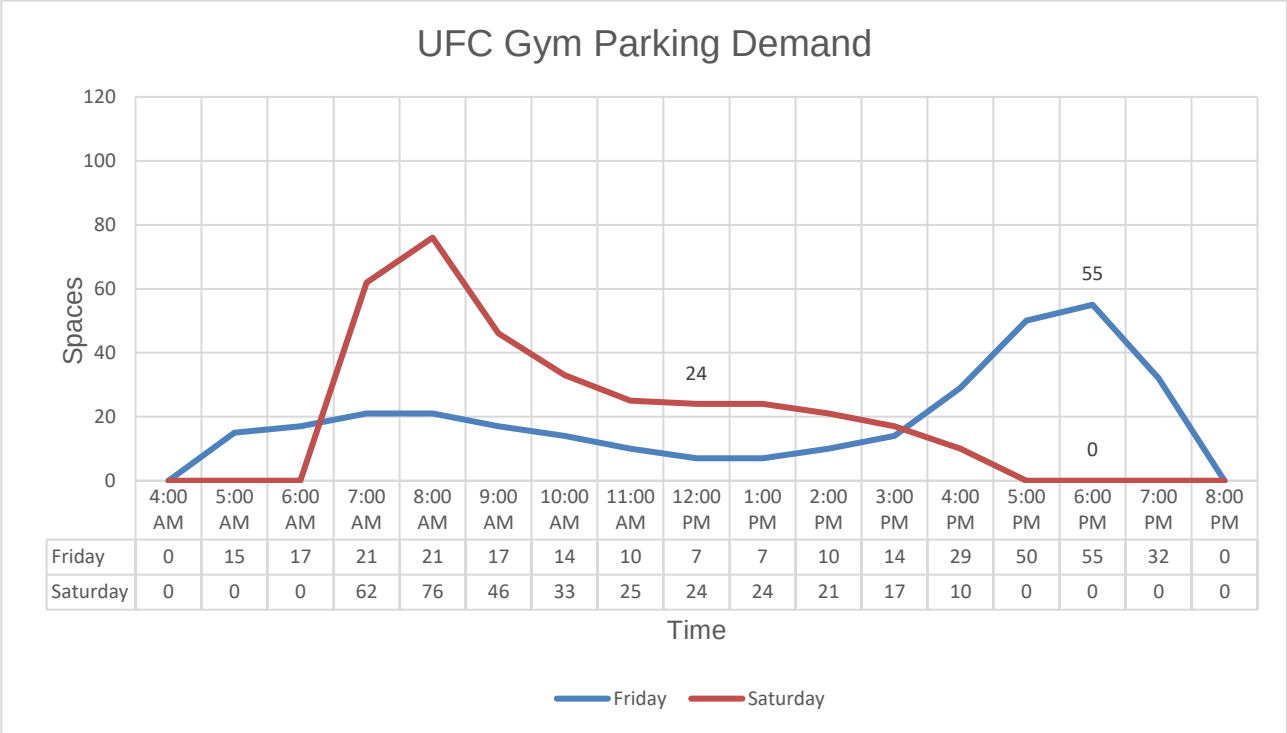
- *UFC Gym – Castle Hill*:
    - Opening Hours - Monday-Thursday 5am-10pm, Friday 5am-8pm, Saturday 7am-5pm
- *UFC Gym – Wetherill Park*:
    - Opening Hours - Monday-Thursday 5am-10pm, Friday 5am-8pm, Saturday 7am-5pm
- *UFC Gym – Gregory Hills*:
    - Opening Hours – Monday-Thursday 5:30am-10pm, Friday 5:30am-8pm, Saturday 7am-5pm
- *UFC Gym – Penrith*:
    - Opening Hours – Monday-Thursday 5am-10pm, Friday 5am-8pm, Saturday 7am-5pm

The popular usage and parking profiles are shown in **Figure 6** and **Figure 7**, respectively. The parking profile utilises the Council's DCP rate of 7.5 spaces per 100m^2 as the peak parking rate, when theoretically 4.5 spaces per 100m^2 could be used to calculate minimum parking demand. Further, the occupancy rates shown in **Figure 6** are the maximum values observed from all surveyed sites. Therefore, the popular usage and parking profile figures are very conservative.



	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM
Friday	0%	13%	15%	18%	18%	15%	12%	9%	6%	6%	9%	12%	25%	43%	48%	28%	0%	0%	0%
Saturday	0%	0%	0%	54%	66%	40%	29%	22%	21%	21%	18%	15%	9%	0%	0%	0%	0%	0%	0%
Monday-Thursday	0%	20%	31%	28%	28%	28%	25%	21%	21%	18%	18%	28%	43%	83%	100%	100%	76%	34%	0%

FIGURE 6: UFC GYM POPULAR USAGE PROFILE



	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
Friday	0	15	17	21	21	17	14	10	7	7	10	14	29	50	55	32	0
Saturday	0	0	0	62	76	46	33	25	24	24	21	17	10	0	0	0	0

FIGURE 7: UFC GYM PARKING DEMAND PROFILE – PORT MACQUARIE

UFC Gym locations clearly experience their peak parking demand (100%) from Monday-Thursday from 6-7pm. Friday evenings, by comparison, only experience a maximum 48% parking demand. Similarly, the gyms are only 21% occupied midday Saturday. It should be

noted that all of the UFC Gym locations are closed at 5pm on a Saturday, meaning it will not interfere with the cinema's peak parking demand on Saturday evenings.

The UFC Gym at Port Macquarie has a peak parking demand of 116 spaces which occurs on Monday-Thursday evenings. The peak parking demand on Friday evenings is therefore 55 spaces (48% of 116), whilst the Saturday midday peak is 24 spaces (21% of 116).

The resultant parking rates are shown below:

Friday Evening: 1 space per 28m^2 (55 spaces)
Saturday Midday: 1 space per 64m^2 (24 spaces)
Saturday Evening: Closed (0 spaces)

3.2.9 Function Centre

Neither the RMS Guide or the Council's DCP specifies parking rates for function centres. The amended plans have detailed a total Function Centre GFA of 566m^2, which includes 195m^2 of Back of House area. Therefore, the net function centre area available for use (or serviced area) is 371m^2. TPS Group has suggested that a rate of 10 spaces per 100m^2 serviced area would be acceptable. The application of the suggested rate results in a parking requirement of 37 spaces.

MTE agrees that 37 spaces is adequate for the function room use. The generally accepted car occupancy rate of 3 persons per vehicle for function centres results in a patron capacity of 111 people, or 1 person per 3.3m^2, which is considered reasonable for function centres.

3.3 Cumulative Parking Demand

The development's parking demand has been calculated in the above sections and is summarised in **Table 9** below.

TABLE 9: CUMULATIVE CINEMA BASED ENTERTAINMENT COMPLEX PARKING DEMAND

Use	Peak Period	Scale	Rate	Parking Demand	Parking Provided
CINEMA BASED ENTERTAINMENT COMPLEX					
Cinema	Friday Evening	1,343 seats	1 space / 14.9 seats	90 spaces	
	Saturday Midday		1 space per 43.3 seats	31 spaces	
	Saturday Evening		1 space / 11.4 seats	118 spaces	
Bowling Alley	Friday Evening	6 lanes	2.0 spaces / lane	12 spaces	
	Saturday Midday		2.0 spaces / lane		
	Saturday Evening		2.0 spaces / lane		
Amusement Centre	Friday Evening	1,024m^2	1 space / 60.2m^2 GFA	17 spaces	
	Saturday Midday		1 space / 37.9m^2 GFA	27 spaces	
	Saturday Evening		1 space / 60.2m^2 GFA	17 spaces	
Gymnasium UFC Gym	Friday Evening	1,540m^2	1 space per 28m^2	55 spaces	
	Saturday Midday		1 space per 64m^2	24 spaces	
	Saturday Evening		N/A - closed	0 spaces	
Function Centre	Friday Evening	371m^2 111 people(1)	10 spaces per 100m^2 serviced area	37 spaces	
	Saturday Midday				
	Saturday Evening				
Manager's Unit	All Peaks	One (1) four-bedroom unit	1.5 spaces per unit	2 spaces	
GROUND FLOOR TENANCIES					
Guzman Y Gomez and Oporto	Friday Evening	381m^2	1 space per 16.4m^2 GFA	23 spaces	
	Saturday Midday		1 space per 17.2m^2 GFA	22 spaces	
	Saturday Evening		1 space per 14.6m^2 GFA	26 spaces	
Take Away Food Premises	Friday Evening	30m^2	Ancillary(3)	0 spaces	
	Saturday Midday				
	Saturday Evening				
Restaurants	Friday Evening	753m^2 Serviced Area	1 space / 30m^2 serviced area	25 spaces	
	Saturday Midday(2)				
	Saturday Evening				
Retail	Friday Evening	302m^2 GLFA	1 per 30m^2 GLFA 1.5 per shop	10 spaces	
	Saturday Midday				
	Saturday Evening				
Total	**Friday Evening**			**271 spaces**	**153 spaces + 12 motorbike**
	Saturday Midday			**190 spaces**	
	Saturday Evening			**247 spaces**	

Note: (1) Based on a rate of 3.3m^2 per person in the areas excluding Back of House, which is considered reasonable for a function room of this size

(2) MTE has assumed that all restaurants will be open for lunchtime and will operate at full capacity

(3) The take away food premises is not a drive through and is therefore not expected to demand any unique trips. All patrons to the take away food premises are expected to be passers by or patrons who are already in the precinct.

As shown in **Table 9** above, the maximum parking demand is **271** spaces, which occurs on Friday evening. The proposal provides a total of **153** off-street car parking spaces and 12

motorbike spaces, which results in a shortfall of **122** spaces in the Friday evening peak, **41** spaces in the Saturday midday peak and **98** spaces in the Saturday evening peak.

Although there is a shortfall in parking within the basement, **Table 1** and **Table 2** show that there is ample available public parking within the area which can satisfy the shortfall during these times. This is shown in **Table 10** and **Table 11** below:

TABLE 10: AVAILABLE ON-STREET PARKING

Basement Parking Shortfall		
Friday Evening	**Saturday Midday**	**Saturday Evening**
-118	-37	-94

TABLE 11: PARKING SHORTFALL JUSTIFICATION

Locations	Available Parking(1)			Resultant Parking		
	Friday Evening	**Saturday Midday**	**Saturday Evening**	**Friday Evening**	**Saturday Midday**	**Saturday Evening**
Boat Ramp(2)	6	0	51	6	0	51
Kmart	122	39	189	4	2	95
Park Street	6	13	37	6	11	37
Warlters Street	24	31	36	24	31	36
Totals	**158**	**83**	**313**	**40**	**44**	**219**

Note: (1) Friday Evening minimum parking occurs at 7-8pm, and on Saturday at 5-6pm
(2) The development does not rely on the Boat Ramp car park in any peak

As shown above, the onsite Kmart carpark has a minimum spare capacity of 122 spaces on Friday evening and 189 spaces on Saturday evening. This adjacent Kmart carpark alone can accommodate the shortfall of the proposed development during all three peaks, with a spare capacity of 4 spaces on Friday evening, 2 spaces on Saturday Midday and 95 spaces on Saturday evening.

After the Foreshore Market ends at 1:00pm on Saturday, an additional 60 spaces become available by 2:00pm, and an additional 141 are available by 3:00pm. Therefore, the parking conditions in the Kmart car park under typical conditions are highly likely to be satisfactory, with significant spare capacity. The above assessment is considered a worst-case result due to the following factors:

- Parking which overflows the onsite basement is likely to spread across all available public car parking within the area, not just the Kmart site;
- Peak parking demands for the proposed uses are assumed to occur within one hour, when realistically they will be spread across a few hours throughout the evening (i.e. from 5-8pm);
- Both Friday and Saturday available parking results were majorly influenced by the *Cinema Under the Stars* and *Foreshore Market* events, which are one-off and monthly events respectively;

- *MTE* has not counted the motorbike parking spaces toward parking demand. The provision of 12 motorbike spaces would theoretically reduce the parking shortfall by 12 spaces;
- The assessment assumes that the function centre operates at full capacity (37 spaces) during all three peaks;
- The assessment assumes that the manager's residence will be fully occupied (2 spaces) during all three peaks. The manager's residence is intended for use by the site's owner and will only be occasionally occupied when the owner is in town.

In view of the above, the provision of 153 spaces in the basement satisfies the peak parking demands of the proposed development.

It is important to note that the parking shortfall for the proposed development occurs during the peak operating time of the cinema (Friday night, Saturday night, and Saturday midday). The peak operating times of Kmart are generally mornings/early afternoons, particularly on Saturdays and Sundays. It has been shown that there are still 44 vacant parking spaces within walking distance during the Saturday midday peak, even with all of the worst-case scenario factors listed above.

The proposed development is not expected to operate at or near peak capacity on Sundays or during the weekdays. Therefore, it is highly likely that there will be no shortfall of parking on Sunday or other weekday mornings/early afternoons, and all parking demand can be accommodated within the basement.

3.4 Bicycle & Motorcycle Parking Requirements

The Council's DCP requires that bicycle and motorcycle parking must be considered for all developments however, it does not specifically state or require the provision of bicycle or motorcycle parking for the proposed uses. Data from the *Australian Bureau of Statistics Motor Vehicle Census 2017* indicates that 4.5% of all registered vehicles in Australia are motorcycles. As a result, it is considered that some provision for motorcycle parking should be made. Applying the above rate to the amount of car parking available to the development (264 spaces) results in 12 motorcycle spaces to be used. 12 motorcycle parking spaces have been provided on site.

The site is located within the city centre and has access via flat terrain to the CBD and surrounding residential localities, therefore some percentage of trips are expected to be via bicycle. Further, the site is located very near to the Foreshore shared path, which provides safe and convenient access to the boat ramp, which is directly across Park Street from the site. It is therefore recommended that a bicycle parking area with lockable rails be provided in a convenient location on the ground floor, where space is permitting.

3.5 Servicing & Loading

Table 5.1 of the RMS Guide has the following minimum requirements for the provision of service and loading bays for specific development types:

Supermarkets, shops, and restaurants: 1 space per 400m^2 GFA

Other Uses: 1 space per 2,000m^2

The ground floor of the development contains eleven (11) restaurant tenancies, all of which have less than 400m^2 GFA. Therefore, the RMS Guide does not require that any of these tenancies provide a service and loading bay. Further, as these tenancies are not supermarkets, they are not expected to receive a large amount of deliveries throughout the day.

Similarly, the Gym, the Amusement centre and the Cinema are not expected to receive a large amount of deliveries. Further, the Gym has less than 2,000m^2 GFA and therefore does not require a service and loading bay as per the RMS requirements.

The proposed plans provide two (2) service and loading bays, one of adequate in size for two HRVs within the development. These loading bays should be shared between the all uses within the development and should operate under a plan of management to ensure efficiency of use.

Swept path analysis has been undertaken (with results reproduced in **Annexure G**) showing an HRV and an MRV entering and exiting the respective loading areas. It is relevant to note that any heavy delivery vehicle (HRV or MRV) cannot access the western loading bay whilst the eastern loading bay is occupied. The use of the loading bays should operate under a plan of management such that the western loading bay is the first bay occupied, and that the western bay need not be occupied whilst a delivery vehicle is in the eastern loading bay. Given that the site shares an access from Warlters Street with Kmart, it is proposed that the loading dock for the subject development should restrict access for HRVs between 10am-5pm. The site can be serviced by smaller trucks within these hours, and all trucks outside of these hours.

3.6 Disabled Parking

The Council DCP does not specify disabled parking rates. The proportion of spaces to be allocated as disabled spaces must be in accordance with AS2890.6-2009 (disabled) and the *Building Code of Australia (BCA)*. A restaurant is a Class 6 building under the BCA. All other uses within the development are considered Class 5 under the BCA. Class 5 and Class 6 buildings have the following requirements for disabled parking provision:

> *Class 5 buildings are office buildings that are used for professional or commercial purposes, excluding Class 6, 7, 8 or 9 buildings.*
>
> *1 space for every 100 carparking spaces or part thereof.*
>
> *Class 6 buildings are typically shops, restaurants and cafés. They are a place for the sale of retail goods or the supply of services direct to the public.*
>
> *1 space for every 50 carparking spaces or part thereof.*

The above parking requirements result in a total requirement for four (4) disabled parking spaces to be provided on site. A total of four (4) disabled spaces are provided, satisfying the BCA requirement.

3.7 Drive-Through Exit Sightlines

The proposed development consists of a drive-through exit at ground floor level, which is a left out only drive-through onto Park Street. Pedestrian sight triangles which comply with *Figure 3.3* of *AS2890.1:2004* must be maintained at all drive-through exits to increase pedestrian safety within the corridor. In addition to the pedestrian sight triangles, it is recommended that a stop line, stop sign, and speed hump be installed at the end of the drive-through and priority be given to pedestrians at all times. These measures will further improve pedestrian safety near the drive-through exits.

In addition to providing compliant pedestrian sightlines, the drive-through exit must provide sufficient sightlines to approaching vehicles on Park Street. *Figure 3.2* of *AS2890.1:2004* provides sight distance requirements for access driveways. Park Street has a speed limit of 50km/h, which gives a minimum required stopping sight distance (SSD) of 45 metres for vehicles approaching the drive-through exits from the frontage road. Vehicles which exit onto Park Street via the drive-through exit have unrestricted sight distance to the intersection for approximately 50 metres to the east on Park Street, which complies with *AS2890.1:2004*. The Park Street verge for 15 metres immediately to the east of the drive-through exit must be free of any sightline obstructions such as street trees, or anything that would restrict driver sightlines along Park Street.

3.8 Required Internal Design Changes

The proposed plans provide one basement level containing 153 car spaces and 12 motorbike spaces and is accessed by two (2) separate one-way ramps. Swept path testing has been undertaken showing circulation within the basements, with results reproduced in **Annexure G**, demonstrating the following compliance issues with the internal carpark:

- The loading arrangements support two HRVs simultaneously. However, the western bay is only accessible when the eastern bay is vacant. Appropriate signage should be placed at the loading bay entry and a plan of management must be followed to accommodate this arrangement;
- A minimum of 2.2m of headroom must be provided at all points within the basement, except for above disabled and shared spaces, where 2.5m is required;
- All parking spaces shall provide 300mm clearance to high obstructions such as walls and stairwells. Standard visitor parking spaces are required to be 2.6m in width. Rows of parking which are adjacent to a wall should be reduced to the minimum width requirement such that 300mm clearance is provided to all high obstructions;
- Visitor car parking spaces to be 2.6m in width, with the exception of small car spaces, which can be 2.3m in width;

The above required changes can be resolved after DA approval.

3.9 Car Park Design & Compliance

The proposed car parking layout has been assessed to generally achieve the relevant objectives and requirements of AS2890.1, AS2890.2 and AS2890.6 subject to the required

changes described in **Section 3.8**. The carpark has the following features relevant to traffic and parking impact:

- 5.8m parking aisles;
- 300mm clearance must be provided to all high obstruction such as walls and stairwells;
- Disabled spaces 2.6m x 5.4m with adjacent 2.6m x 5.4m shared space;
- Maximum ramp grade of 20%;
- Kerb to kerb ramp width of 4.0m for exit ramp;
- Wall to wall ramp with of 4.8 for entry ramp.

It is usual and expected that a design certificate be required at the Construction Certificate stage to account for any design changes during the Development Application process.

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 Restaurants and drive through take away

Traffic generation rates for the relevant land uses are provided in the Roads and Maritime Services (RMS) Guide to Traffic Generating Developments (2002) and recent supplements and are as follows:

> *Restaurants*
>
> *Evening peak hour vehicle trips = 5 per 100m^2 gross floor area*
>
> *Drive-in take away food outlets*
>
> *Rates – Kentucky Fried Chicken*
>
> *100 veh/hr for average development*
>
> *The proportion of passing trade is typically at least 50%. This discount should be taken into account in assessing external traffic impact*

It is reasonable to assume that restaurants will experience the same evening peak hour trip volumes on Friday and Saturday evenings. The total ground floor area of restaurants that do not have drive-throughs is 1,123m^2. The resultant traffic generation is 56 evening peak hour vehicle trips.

As stated previously in this report, MTE has undertaken drive-through surveys for an Oporto Restaurant in Woodbine, NSW, and a Guzman Y Gomez in Acacia Ridge, QLD, which are of similar size and in similar locations as the proposed Oporto and Guzman Y Gomez tenancies within the precinct. Relevant results of the survey are shown in **Table 3** and reproduced in full in **Annexure B.**

TABLE 12: OPORTO AND GUZMAN Y GOMEZ SURVEY RESULTS

Fast Food Restaurant	Peak Drive-Through Traffic	
	Friday Evening	Saturday Evening
Guzman Y Gomez	44 trips (22 in, 22 out) from 4-5pm	38 trips (19 in, 19 out) from 4-5pm
Oporto	80 trips (40 in, 40 out) from 6-7pm	46 trips (23 in, 23 out) from 7-8pm
Total	**124 trips (62 in, 62 out)**	**84 trips (42 in, 42 out)**

As shown above, the surveyed fast food tenancies generate a maximum of **124 trips (62 in, 62 out)** on Friday evening and **84 trips (42 in, 42 out)** trips on Saturday evening. It is relevant to note that the peak periods of each tenancy differ. It is therefore a conservative assumption that all peak generated traffic volumes occur during the same 1-hour period.

MTE has been advised that Guzman Y Gomez and Oporto complete approximately 48% and 60% of sales through the drive-throughs, respectively. The total traffic generation of the drive-throughs have been calculated based on this distribution and are shown in **Table 13** below.

TABLE 13: TOTAL DRIVE-THROUGH TAKE AWAY GENERATED TRAFFIC

Fast Food Restaurant	Peak Drive-Through Traffic		Drive-through Sales Rate	Total Generated Traffic	
	Friday Evening	Saturday Evening		Friday Evening	Saturday Evening
Guzman Y Gomez	44 trips	38 trips	48%	92 trips	79 trips
Oporto	80 trips	46 trips	60%	133 trips	77 trips
Total				**225 trips**	**156 trips**
				(112 in, 113 out)	**(78 in, 78 out)**

As shown above, the two drive-through fast food tenancies are expected to generate a total of **225 trips (112 in, 113 out)** on Friday evening and **156 trips (78 in, 78 out)** on Saturday evening.

With regard for Saturday midday peak traffic generation, it is considered reasonable that the peak traffic generation during this time will be equivalent to the Friday evening peak traffic generations of **92** trips and **133** trips for the Guzman Y Gomez and Oporto tenancies respectively. Reference is made to *RTA's* (Now RMS) *Land Use Traffic Generation Data and Analysis 22: Drive-Through Restaurants 1992* which provides traffic generations rates

based upon extensive surveys of McDonalds and KFC restaurants. With regard for both McDonalds and KFC tenancies, the report states:

> *Peak site visitation rates…generally occurring during the weekend early evening and weekend lunchtime.*

Therefore, the use of the Friday evening peak traffic generation as the weekend midday peak traffic is considered acceptable.

It is important to note that passing trade can be assumed to be a minimum of 50% of trips. Passing trade represents trips that are already going through the road network system which stop off quickly at the tenancy whilst en-route to another destination, then continue on their way afterwards. Thus, they will not be counted as new generated trips within the surrounding intersections. The resultant vehicle trips for the ground floor restaurant developments is shown below. Trips are assumed to be 50% IN and 50% OUT.

Restaurants:

Friday Evening: 60 trips / hour (30 in, 30 out);
Saturday Evening: 60 trips / hour (30 in, 30 out);

Drive Through Take Away:

Friday Evening: 225 trips / hour (112 in, 113 out);
113 trips / hour (57 in, 56 out) after reduction for passing trade;
Saturday Midday: 225 trips / hour (112 in, 113 out)
113 trips / hour (57 in, 56 out) after reduction for passing trade;
Saturday Evening: 156 trips / hour (78 in, 78 out);
78 trips / hour (39 in, 39 out) after reduction for passing trade.

4.1.2 Cinema

The RMS Guide does not specify trip generation for a cinema. The best approximation is the TSA survey (reproduced in **Annexure D**) which shows the evening peak of 127 trips on Friday and 94 trips on Saturday for the 7-screen development at Warriewood. For the subject 9-screen development, this scales to 14.5 trips per screen on Fridays, 10.7 trips per screen on Saturday evenings and 2.7 trips per screen on Saturday middays including the 15% dual use discount and the 5% alternative transport discount. The TSA surveys shows approximately a 70% IN and 30% OUT distribution during both the Friday evening peak hour and the Saturday midday peak hour.

The proposed cinema has 9 screens. Based on the rates calculated above, the cinema will generate 131 trips and 96 trips in the Friday evening and Saturday evening peak hours, respectively. *MTE* assumes these generated volumes will occur in conjunction with the peak traffic hour of the surrounding network. This represents a worst-case scenario analysis. Peak hour in/out distributions for the proposed development are assumed to be the same as the surveyed Warriewood cinema. The resulting trips generated in the Friday and Saturday peak hours are shown below.

Friday Evening: 131 trips / hour (92 in, 39 out)
Saturday Midday: 24 trips / hour (17 in, 7 out)
Saturday Evening: 96 trips / hour (67 in, 29 out)

4.1.3 Retail

The RMS Guide provides the following traffic generation rates for retail premises:

Friday Peak - 5.6 trips per 100m^2

Saturday Peak (midday) – 10.7 trips per 100m^2.

The subject site has a total of 302m^2 retail area, which results in a total trip generation of 14 trips on Friday evening and 26 trips on Saturday midday after reductions for alternative transport and dual use. It is assumed that retail trips are split evenly between entering and exiting trips during the peaks. The peak Saturday trip generation occurs midday with generation reducing significantly in the evening. It is conservatively assumed that the Saturday evening peak generation is equivalent to Friday evening. The following trips generated in the Friday and Saturday peak hours are shown below.

Friday Evening:14 trips (7 in, 7 out)
Saturday Midday: 26 trips (13 in; 13 out)
Saturday Evening: 14 trips (7 in, 7 out)

4.1.4 Bowling Alley

While the RMS does not specify a trip generation rate and relevant detailed survey data is not available, it is assumed that the average duration of stay for patrons would be approximately 90 minutes. The discount parking demand is 2.5 spaces per lane including an estimated 0.5 spaces per lane for staff. This suggests a patron demand of 2.0 cars per bowling lane for customers, with an entry and exit trip in 90 minutes, or generation of 2.67 patron trips per bowling lane per hour (16 trips). Staff trips would equate to 0.5 trips per lane in the peak arrival period or 3 staff trips. Total then is 16 + 3= 19 trips in the peak hour, assumed to be 75% IN and 25% OUT in the evening peak hour.

Friday Evening: 19 trips / hour (14 in, 5 out)
Saturday Midday: 19 trips / hour (14 in, 5 out)
Saturday Evening - 19 trips / hour (14 in, 5 out)

4.1.5 Amusement Centre

The RMS does not specify a trip generation rate for amusement centres, and relevant detailed survey data is not available. Therefore, the trip generation rate for amusement centres must be calculated through a first principle assessment.

It is assumed that the average duration of stay for patrons would be approximately one hour. The Saturday midday, and evening peak parking demands for the amusement centre outlined in *Section 3.2.6* of this report are 1 space per 37.9m^2 GFA and 1 space per 60.2m^2 GFA, respectively. The amusement centre area is considered to be 1,024m^2, which includes all of the patron generating areas, excluding the bowling lanes. Therefore, 27 spaces will be

used during an hour within the peak Saturday midday period, and 17 spaces will be used during an hour within the peak evening periods of the tenancy. Given this, the following trip generation rates apply. Trips are assumed to be 50% IN and 50% OUT during both peak periods.

Friday Evening: 34 trips / hour (17 in, 17 out);
Saturday Midday: 54 trips / hour (27 in, 27 out);
Saturday Evening: 34 trips / hour (17 in, 17 out).

4.1.6 Gymnasium

The gymnasium will to use up to 55 spaces during the Friday evening period and 24 spaces in the Saturday midday period. It is assumed that the average rate of stay at a gym is approximately 1 hour, which is considered conservative. Given this, the following trip generation rates apply. Trips are assumed to be 50% IN and 50% OUT during both peak periods.

Friday Evening: 110 trips / hour (55 in, 55 out);
Saturday Midday: 48 trips / hour (24 in, 24 out);
Saturday Evening: 0 trips / hour (0 in, 0 out).

4.1.7 Function Centre

The RMS guide does not provide traffic generation rates for multi-purpose venues and as such, a traffic generation based on first principles has been adopted for the multi-purpose venue. The function centre is expected to use 37 spaces. As a worst case, it is assumed that when a function finishes 90% of the cars arrive / depart within one hour resulting in a traffic generation of **34** vehicle trips for both arrival and departure. Further, if one function finishes and another begins, one can expect a total of 68 vehicle trips (34 vehicles departing the completed function and 34 vehicles arriving for the function which is about to begin).

The proposed development is therefore expected to generate a total of **74** additional peak hour vehicle trips arriving/departing during each peak period.

Friday Evening: 68 trips / hour (34 in, 34 out);
Saturday Midday: 68 trips / hour (34 in, 34 out);
Saturday Evening: 68 trips / hour (34 in, 34 out).

4.1.8 Manager's Residence

Though the manager's residence is a unit, it will be assessed as a low-density residential dwelling given that it is the only residence on site. Reference is made to the RMS Guide to Traffic Generating Developments, specifically the supplementary Technical Direction 2013, which provides traffic generation rates for Low density residential dwellings.

Low-density Residential Dwelling: 0.71 trips per dwelling (in Regional areas)

The manager's residence is expected to generate a maximum of one (1) trip in any one peak hour. It is important to note that the residence will be unoccupied for the majority of the year.

4.1.9 Cumulative Trip Generation

The cumulative trip generation for all uses within the cinema-based development is summarised in **Table 14** below.

TABLE 14: CUMULATIVE TRAFFIC GENERATION

Use	Peak Period	Trips Generated	In	Out
CINEMA BASED ENTERTAINMENT COMPLEX				
Cinema	Friday Evening	131 trips	92	39
	Saturday Midday	24 trips	17	7
	Saturday Evening	96 trips	67	29
Bowling Alley	Friday Evening	19 trips	14	5
	Saturday Midday	19 trips	14	5
	Saturday Evening	19 trips	14	5
Amusement Centre	Friday Evening	34 trips	17	17
	Saturday Midday	54 trips	27	27
	Saturday Evening	34 trips	17	17
Gymnasium	Friday Evening	110 trips	55	55
	Saturday Midday	48 trips	24	24
	Saturday Evening	0 trips	0	0
Function Centre	Friday Evening	68 trips	34	34
	Saturday Midday			
	Saturday Evening			
Manager's Residence	All Peaks	1 trip	0	1
GROUND FLOOR TENANCIES				
Drive Through Restaurants	Friday Evening	113 trips	57	56
	Saturday Midday	113 trips	57	56
	Saturday Evening	78 trips	39	39
Take Away Food Premises	Friday Evening	Ancillary(1)	0	0
	Saturday Midday			
	Saturday Evening			
Restaurants	Friday Evening	60 trips	30	30
	Saturday Midday	60 trips	30	30
	Saturday Evening	60 trips	30	30
Retail	Friday Evening	14 trips	7	7
	Saturday Midday	26 trips	13	13
	Saturday Evening	14 trips	7	7
Total Trip Generation	**Friday Evening**	**550 trips**	**306 trips**	**244 trips**
	Saturday Midday	**413 trips**	**216 trips**	**197 trips**
	Saturday Evening	**370 trips**	**208 trips**	**162 trips**

Note (1) The take away food premises is not a drive through and is therefore not expected to demand any unique trips. All patrons to the take away food premises are expected to be passers-by or patrons who are already in the precinct.

As shown in **Table 13** above, the total traffic generated by the development is **550** trips (306 in, 244 out) on Friday evening, 413 trips (216 in, 197 out) on Saturday midday and **370** trips (208 in, 162 out) on Saturday evenings.

4.2 Traffic Assignment

The road network and the 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 north via the Bay Street / Park Street intersection;
- 25% to/from the northwest via the Bay Street / Park Street intersection;
- 70% to/from the south via the Warlters Street / Park Street intersection;

4.3 Traffic Impact

The traffic generation outlined in **Section 4.1 & 4.2** above has been added to the existing traffic volumes recorded. The intersections' performances have been assessed using SIDRA INTERSECTION 8.0. The purpose of these assessments is to compare the existing operations to the future scenario under the increased traffic load. The SIDRA results show the traffic impact on the surrounding road network during the following peak periods:

- Friday Evening: 3:15pm-4:15pm;
- Saturday Midday: 12pm-1pm;
- Saturday Evening: 5pm-6pm.

It is noted that the peak hours for the proposed uses will be offset slightly from one another. As a worst-case scenario, the peak generated traffic has been assumed to coincide with the peak traffic volumes above, with all generated traffic occurring within the one hour.

The future SIDRA results are shown in **Table 16** below, whilst the existing SIDRA results are shown in **Table 15**.

TABLE 15: EXISTING INTERSECTION PERFORMANCES (SIDRA 8)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay (sec/veh)[2]	Level of Service[3]	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE							
Park Street / Bay Street	Friday PM	0.35	7.8 (Worst 13.5)	**A** (Worst B)	Roundabout	UT from Park Street	2 veh (13.8m) Park Street
	Saturday Midday	0.53	8.5 (Worst 15.1)	**A** (Worst B)		UT from Park Street	3.8 veh (26.7m) Bay Street
	Saturday PM	0.21	7.3 (Worst 12.4)	**A** (Worst A)		UT from Bay Street	1.3 veh (8.9m) Park Street
Park Street / Warlters Street	Friday PM	0.36	7.1 (Worst 23.0)	**A** (Worst B)	Signals	RT from Warlters Street	4.3 veh (30.5m) Park Street
	Saturday Midday	0.44	7.3 (Worst 23)	**A** (Worst B)		RT from Warlters Street	5.6 veh (39.2m) Park Street
	Saturday PM	0.21	6.3 (Worst 18.7)	**A** (Worst B)		T from Park Street	2.3 veh (16.0m) Park Street
Warlters Street / Kmart Access Road	Friday PM	0.08	3.5 (Worst 7.2)	**N/A** (Worst A)	Give Way	UT from Warlters Street	0.2 veh (1.3m) Warlters Street
	Saturday Midday	0.06	4.7 (Worst: 6.9)	**N/A** (Worst A)		UT from Warlters Street	0.3 veh (2m) Warlters Street
	Saturday PM	0.03	4.6 (Worst 6.8)	**N/A** (Worst A)		UT from Warlters Street	0.1 veh (0.7m) Warlters Street
Park Street / Kmart Access Road	Friday PM	0.18	4.7 (Worst: 6.5)	**N/A** (Worst A)	Give Way	LT from Kmart Access Driveway	0.5 veh (3.2m) st: Kmart Access Driveway
	Saturday Midday	0.23	4.8 (Worst: 6.9)	**N/A** (Worst A)		LT from Kmart Access Driveway	0.7 veh (4.9m) st: Kmart Access Driveway
	Saturday PM	0.11	4.6 (Worst 6.1)	**N/A** (Worst A)		LT from Kmart Access Driveway	0.3 veh (0.9m) Kmart Access Driveway
Warlters Street / Kmart Carpark Driveway	Friday PM	0.08	0.7 (Worst 6)	**N/A** (Worst A)	Give Way	LT from Kmart Carpark Driveway	0 veh (0.3m) Kmart Carpark Driveway
	Saturday Midday	0.06	1.9 (Worst 5.9)	**N/A** (Worst A)		LT from Kmart Carpark Driveway	0.2 veh (1.1m) Kmart Carpark Driveway
	Saturday PM	0.04	1.1 (Worst 5.7)	**N/A** (Worst A)		LT from Kmart Carpark Driveway	1.0 veh (0.3m) Kmart Carpark Driveway

Notes: See notes from **Table 4**

TABLE 16: FUTURE INTERSECTION PERFORMANCES (SIDRA 8)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay (sec/veh)[2]	Level of Service[3]	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE							
Park Street / Bay Street	Friday PM	0.43	8.0 (Worst: 14.1)	**A** (Worst A)	Roundabout	UT from Park Street	2.6 veh (18m) Bay Street
	Saturday Midday	0.60	8.9 (Worst 15.1)	**A** (Worst B)		UT from Park Street	5.1 veh (36m) Bay Street
	Saturday PM	0.25	7.4 (Worst 12.4)	**A** (Worst A)		UT from Park Street	1.3 veh (9.3) Park Street
Park Street / Warlters Street	Friday PM	0.51	9.5 (Worst 22.8)	**A** (Worst B)	Signals	RT from Warlters Street	6.7 veh (47.3m) Park Street
	Saturday Midday	0.56	9.3 (Worst 24.2)	**A** (Worst B)		RT from Warlters Street	7.8 veh (54.7m) Park Street
	Saturday PM	0.56	11 (Worst 17.8)	**A** (Worst B)		RT from Park Street	4 veh (28m) Park Street
Warlters Street / Kmart Access Road	Friday PM	0.08	3.5 (Worst 7.2)	**N/A** (Worst A)	Give Way	UT from Warlters Street	0.2 veh (1.3m) Warlters Street
	Saturday Midday	0.06	4.7 (Worst: 6.9)	**N/A** (Worst A)		UT from Warlters Street	0.3 veh (2m) Warlters Street
	Saturday PM	0.03	4.6 (Worst 6.8)	**N/A** (Worst A)		UT from Warlters Street	0.1 veh (0.7m) Warlters Street
Park Street / Kmart Access Road	Friday PM	0.18	4.9 (Worst: 6.6)	**N/A** (Worst A)	Give Way	LT from Kmart Access Driveway	0.7 veh (5.1m) st: Kmart Access Driveway
	Saturday Midday	0.23	4.9 (Worst: 7)	**N/A** (Worst A)		LT from Kmart Access Driveway	1 veh (6.9m) st: Kmart Access Driveway
	Saturday PM	0.11	4.6 (Worst 6.1)	**N/A** (Worst A)		LT from Kmart Access Driveway	0.3 veh (1.9m) Kmart Access Driveway
Warlters Street / Kmart Carpark Driveway	Friday PM	0.20	3.4 (Worst 6)	**N/A** (Worst A)	Give Way	RT from Warlters Street	1 veh (7.2m) Warlters Street
	Saturday Midday	0.16	3.3 (Worst 5.9)	**N/A** (Worst A)		RT from Warlters Street	0.8 veh (5.5m) Warlters Street
	Saturday PM	0.13	3.8 (Worst 5.7)	**N/A** (Worst A)		RT from Warlters Street	0.6 veh (4.4m) Warlters Street
Basement Carpark Exit / Warlters Street	Friday PM	0.17	4.2 (Worst 5.9)	**N/A** (Worst A)	Give Way	LT from Basement Exit	0.7 veh (5.2m) Basement Exit
	Saturday Midday	0.12	2.9 (Worst 6.1)	**N/A** (Worst A)		LT from Basement Exit	0.5 veh (3.5m) Basement Exit
	Saturday PM	0.11	3.9 (Worst 5.8)	**N/A** (Worst A)		LT from Basement Exit	0.5 veh (3.3m) Basement Exit

Notes: See notes from **Table 4**

As shown in **Table 15** and **Table 16**, the surrounding intersections remain unaltered under the future scenario. The existing LoS has been retained with minimal delays and additional capacity maintained.

It is noted that the Right Turn bay from Warlters Street into the Kmart carpark driveway will experience a 98th percentile queue of 7.2m. The right turn bay is designed to be 35m in length, which satisfies the 98th percentile queue.

Additionally, the right turn bay into the Kmart Access Road from Warlters Street has been shortened to 45m from its existing length of 60m. The 98th percentile queue for this right turn is 2m. Therefore, the redesigned right turn bay will satisfy the 98th percentile queue comfortably under the future conditions.

4.4 Drive-Through Queueing Analysis

The drive through tenancies have been assessed in terms of the length of queueing area required. Results of the analysis are shown in **Table 17** below:

TABLE 17: DRIVE-THROUGH QUEUEING ANALYSIS

Tenancy	Peak Arrival Rate based on Traffic Generation in Table 13	Service Bays	Queueing Bays Required (98th percentile queue)	Queueing Bays Provided
Oporto (Tenancy 15)	0.67 cars / min	3	4	4
Guzman Y Gomez - GYG (Tenancy 1)	0.37 cars / min	2	2	5

As shown above, the Oporto (Tenancy 15) and the Guzman Y Gomez (GYG) (Tenancy 1) require 4 and 2 queueing bays respectively. Both sites provide eight (8) queueing spaces for vehicles, which complies with the DCP requirement and represents a surplus of space compared to the relevant survey data and analysis shown in **Table 17**.

5 CONCLUSION

The traffic and parking impacts of the proposed cinema-based entertainment centre and restaurant facilities at Cnr Warlters Street & Park Street, Port Macquarie, as shown in reduced plans in **Annexure A** to this report, have been assessed.

The proposed design includes some **153** car parking spaces and 12 motorbike spaces. An empirical study of survey data shows that the development will generate a peak parking requirement of **271** spaces on Friday evenings, **190** spaces on Saturday midday and **247** spaces on Saturday evenings.

Parking surveys were undertaken showing **158**, **83**, and **313** available public parking spaces within the surrounding road network and public car parks during the Friday PM, Saturday midday and Saturday PM peak periods. The basement provision of 153 car parking spaces and 12 motorbike spaces is sufficient to satisfy the calculated demand, with occasional minor overflow into the Kmart car park during peak operating periods.

The surveys were undertaken in concurrence with a one-off *Cinema Under the Stars* event on Friday and the monthly *Foreshore Markets* on Saturday, which both demanded a significant amount of parking. Therefore, the available parking volumes are very conservative.

The site provides two (2) service and loading bays for HRVs. The land uses within the development are not expected to have a large scale of deliveries, thus the loading bays are should be shared between the land uses under a plan of management.

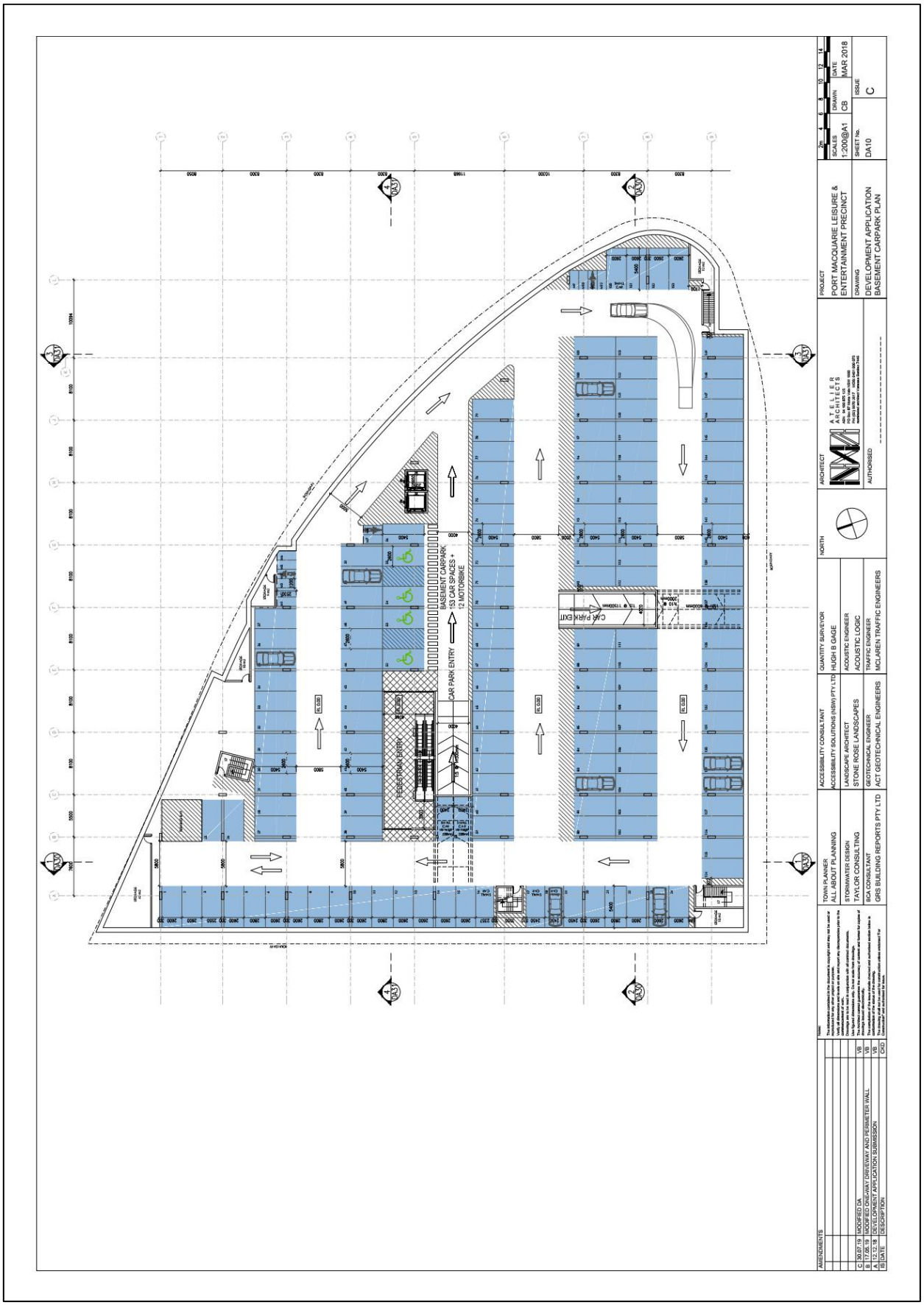
The car parking and access areas have been assessed to generally comply with the relevant objectives and requirements of *AS2890.1*, *AS2890.2* and *AS2890.6*; subject to the required changes described in **Section 3.8**. Additionally, it is required that a minimum of 2.2m height clearance will be necessary at all points of travel within the basement (2.5m for disabled parking spaces and adjacent shared spaces).

The peak traffic generation of the site, estimated at some **550** trips on the Friday PM peak period (306 IN/244 OUT), **413** trips on the Saturday Midday peak period (216 IN, 197 OUT) and **370** trips in the Saturday PM peak period (208 IN, 162 OUT) has been shown to have no noticeable impact on the surrounding road network in terms of traffic flow efficiency. The assessment assumed that the peak generated volumes coincide with the network peak periods and is therefore a conservative assessment.

In view of the foregoing, the traffic and parking impacts of the proposed cinema-based entertainment centre and restaurant facilities are fully supported.

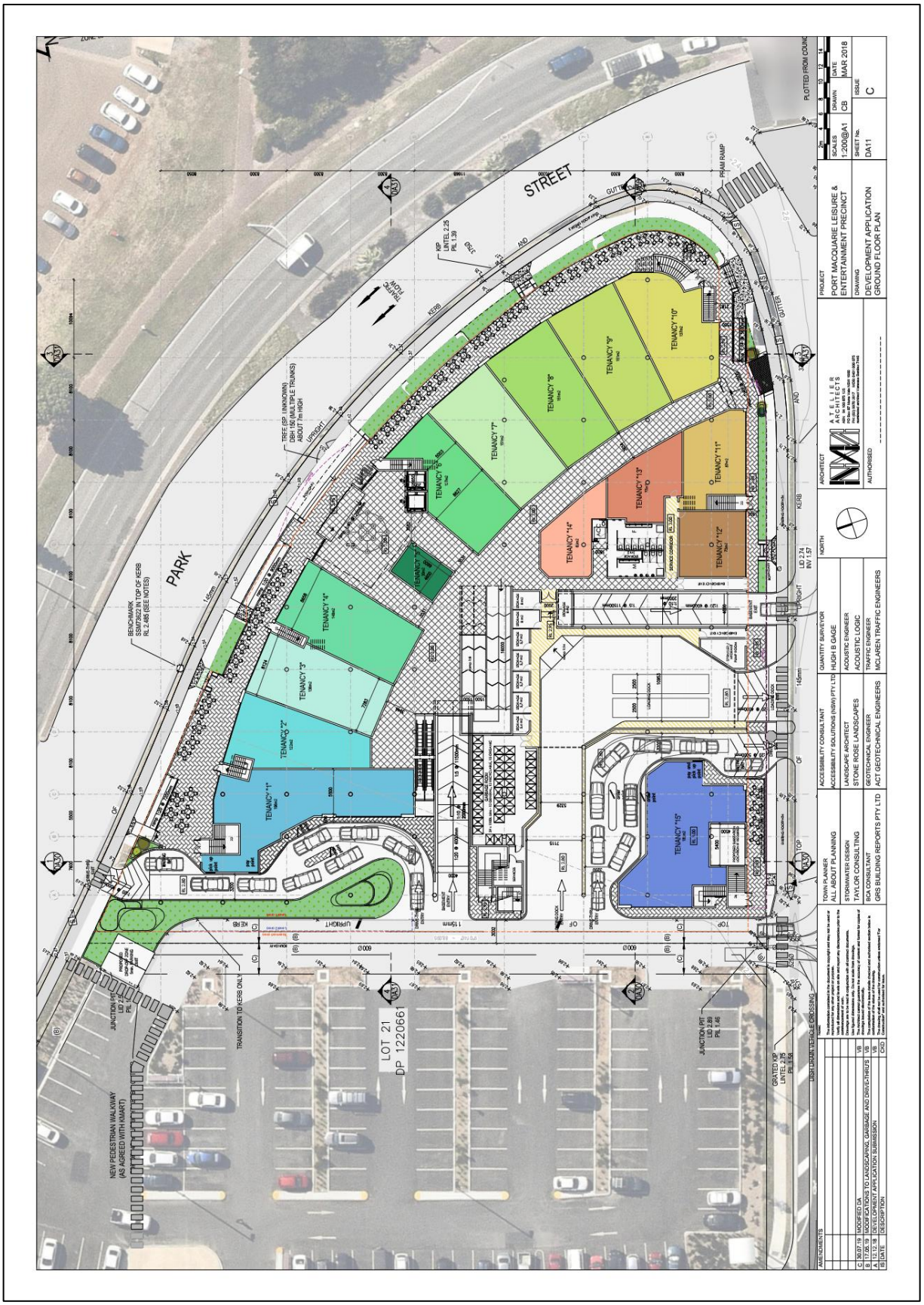
ANNEXURE A: REDUCED PLANS

(SHEET 1 OF 2)



ANNEXURE A: REDUCED PLANS

(SHEET 2 OF 2)



ANNEXURE B: PARKING SURVEYS

(SHEET 1 OF 2)

Curtis Traffic Surveys

Job:	181101mcl (18_138)
Client:	McLaren Traffic Engineering
Day, date	9/11/18
Location:	Port Macquarie
Weather:	Fine
Surveyor	MC

Parking round commencing...

Zone	Street			Side of Street	Capacity	Restricti	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	18:30
a	Boat ramp c.p				108	'	19	19	21	22	24	26	27	28	40	50	64	77	94	98	99
b	K-Mart east				133	'	35	37	40	41	25	27	26	28	27	25	30	34	45	51	66
c	K-Mart north				139	'	59	68	75	83	71	65	61	51	57	64	59	58	56	57	52
dn	Warlters St	Hartingr Av	Park St	north	14	'	10	9	8	8	10	8	3	2	2	2	2	2	1	1	0
ds	Warlters St	Park St	Hartingr Av	south	36	u	15	16	16	14	13	15	15	16	17	17	18	18	19	21	22
e	Park St	Warlterrs St	boat ramp	north	18	u	0	0	0	0	0	0	0	0	0	1	3	10	12	12	13
f	Park St	Kmart	Warlterrs St	south	19	u	0	0	0	0	0	0	0	0	0	0	1	6	5	6	7

Zone	Street			Side of Street	Capacity	Restricti	18:45	19:00	19:15	19:30	19:45	20:00	20:15	20:30	20:45	21:00	21:15	21:30	21:45	22:00
a	Boat ramp c.p				108	'	99	95	93	93	92	92	93	93	90	89	85	15	10	7
b	K-Mart east				133	'	75	80	89	92	95	95	97	99	91	86	79	24	15	10
c	K-Mart north				139	'	54	57	58	58	56	60	53	46	41	39	35	22	12	11
dn	Warlters St	Hartingr Av	Park St	north	14	'	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ds	Warlters St	Park St	Hartingr Av	south	36	u	26	28	30	30	29	26	26	26	25	23	21	12	13	13
e	Park St	Warlterrs St	boat ramp	north	18	u	13	14	15	15	15	15	15	14	11	10	5	1	0	0
f	Park St	Kmart	Warlterrs St	south	19	u	10	12	14	16	16	17	16	15	14	13	8	1	0	0
																Kmart closes @ 21:00				

FRIDAY 9TH NOVEMBER 2018 (3PM-10PM)

ANNEXURE B: PARKING SURVEYS

(SHEET 2 OF 2)

Curtis Traffic Surveys

Job:	181101mcl (18_138)
Client:	McLaren Traffic Engineering
Day, date	10/11/18
Location:	Port Macquarie
Weather:	Occasional showers
Surveyor	MC

Parking round commencing...

Zone	Street	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	16:15	16:30	16:45	17:00
a	Boat ramp c.p	110	108	87	75	56	43	35	30	23	21	17	16	15	12	11	9	7	7	7	8	7
b	K-Mart east	120	121	123	113	104	97	95	92	80	65	59	57	47	43	38	35	31	29	25	23	21
c	K-Mart north	102	105	110	111	109	103	100	97	93	87	80	81	76	73	71	62	59	60	57	63	66
dn	Warlters St	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	1	1	1	1
ds	Warlters St	22	20	19	19	20	19	17	17	16	16	16	16	15	10	11	13	15	14	14	12	13
e	Park St	12	12	10	8	6	6	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0
f	Park St	16	15	14	12	8	4	3	3	2	2	2	2	1	0	0	0	0	0	0	0	0

Zone	Street	17:15	17:30	17:45	18:00	18:15	18:30	18:45	19:00	19:15	19:30	19:45	20:00	20:15	20:30	20:45	21:00	21:15	21:30	21:45	22:00
a	Boat ramp c.p	5	5	2	1	0	1	0	2	3	2	4	5	3	3	3	3	2	1	1	1
b	K-Mart east	18	15	11	8	5	3	3	4	4	3	3	2	2	2	2	2	2	0	0	0
c	K-Mart north	65	61	53	47	45	47	41	37	25	19	18	16	7	8	8	5	5	5	1	1
dn	Warlters St	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ds	Warlters St	13	14	14	14	15	16	16	15	15	15	15	15	15	14	13	13	14	14	14	14
e	Park St	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
f	Park St	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SATURDAY 10TH NOVEMBER 2018 (12PM-10PM)

ANNEXURE C – TRAFFIC SURVEYS

ANNEXURE C: TRAFFIC SURVEYS

(SHEET 1 OF 10)

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVE

Intersection of Bay St and Park St, Port Macquarie

GPS	-31.42736, 152.89702						
Date:-	Fri 02/11/18	North:-	Park St	Survey	AM:	3:00 PM-3:00 PM
Weather:-	Overcast	East:-	N/A		PM:	3:00 PM-10:00 PM
Suburban	Port Macquarie	South:-	Park St	Traffic	AM:	N/A
Custome	McLaren	West:-	Bay St		PM:	3:15 PM-4:15 PM

All Vehicles

Time		North Approach Park S			South Approach Park S			West Approach Bay St			Hourly Total	
Period Star	Period End	U	R	SB	U	NB	L	U	R	L	Hour	Peak
15:00	15:15	0	15	54	29	58	89	3	78	25	1510	
15:15	15:30	1	23	63	38	64	91	14	87	33	1513	Peak
15:30	15:45	0	17	63	42	62	71	8	64	30	1429	
15:45	16:00	1	28	58	41	77	71	3	83	26	1432	
16:00	16:15	1	19	59	37	63	71	7	70	27	1407	
16:15	16:30	0	9	43	40	64	73	7	69	25	1408	
16:30	16:45	2	22	50	31	70	77	8	79	21	1412	
16:45	17:00	0	19	57	22	64	83	5	91	22	1362	
17:00	17:15	0	17	60	32	57	65	8	93	23	1299	
17:15	17:30	1	10	59	26	57	67	10	81	23	1212	
17:30	17:45	2	23	51	24	56	47	5	76	26	1093	
17:45	18:00	0	17	46	35	52	51	8	72	19	982	
18:00	18:15	1	12	40	31	50	50	4	67	13	873	
18:15	18:30	0	13	26	31	42	30	9	44	20	788	
18:30	18:45	0	12	32	31	38	32	5	32	17	761	
18:45	19:00	1	8	36	25	37	30	7	33	14	741	
19:00	19:15	0	6	33	33	22	33	16	28	12	705	
19:15	19:30	0	10	23	25	34	44	10	26	16	693	
19:30	19:45	0	12	29	33	35	28	9	29	4	633	
19:45	20:00	0	12	17	25	19	39	6	28	9	553	
20:00	20:15	0	5	50	27	21	31	5	17	15	497	
20:15	20:30	0	8	28	17	29	19	8	12	7	435	
20:30	20:45	0	5	23	18	17	20	3	9	4	402	
20:45	21:00	0	7	15	26	17	10	6	11	7	393	
21:00	21:15	0	5	13	22	25	29	3	10	2	367	
21:15	21:30	0	5	26	14	17	18	5	9	1		
21:30	21:45	0	6	14	15	20	15	4	11	5		
21:45	22:00	0	4	14	10	9	13	9	10	4		

Peak Time		North Approach Park S			South Approach Park S			West Approach Bay St			Peak
Period Star	Period End	U	R	SB	U	NB	L	U	R	L	total
15:15	16:15	3	87	243	158	266	304	32	304	116	1513

FRIDAY SURVEYS

ANNEXURE C: TRAFFIC SURVEYS

(SHEET 2 OF 10)

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVE

Intersection of Warlters St and Park St, Port Macquar

GPS	-31.4302, 152.89983						
Date:	Fri 02/11/18	North:	Park St	Survey	AM:	3:00 PM-3:00 PM
Weather:	Overcast	East:	N/A		PM:	3:00 PM-10:00 PM
Suburban	Port Macquarie	South:	Park St	Traffic	AM:	N/A
Custome	McLaren	West:	Warlters St		PM:	3:15 PM-4:15 PM

All Vehicles

Time		North Approach Park S			South Approach Park S			est Approach Warlters			Hourly Total	
eriod Star	Period End	U	R	SB	U	NB	L	U	R	L	Hour	Peak
15:00	15:15	0	10	154	0	147	22	0	30	3	1547	
15:15	15:30	0	5	167	0	176	23	0	40	13	1554	Peak
15:30	15:45	0	2	167	0	152	20	0	34	8	1477	
15:45	16:00	0	3	157	0	163	19	0	25	7	1435	
16:00	16:15	0	1	157	0	159	26	0	24	6	1397	
16:15	16:30	0	2	134	0	155	22	0	29	5	1377	
16:30	16:45	0	3	139	0	156	11	0	27	5	1360	
16:45	17:00	0	1	150	0	142	12	0	28	3	1330	
17:00	17:15	0	5	172	0	132	17	0	25	2	1298	
17:15	17:30	0	3	155	0	135	11	0	24	2	1220	
17:30	17:45	0	4	138	0	130	16	0	17	6	1112	
17:45	18:00	0	1	144	0	128	15	0	14	2	993	
18:00	18:15	1	0	128	0	111	12	0	20	3	874	
18:15	18:30	0	1	104	0	90	8	2	16	1	780	
18:30	18:45	0	2	88	0	72	11	0	18	1	736	
18:45	19:00	0	2	85	0	79	6	0	12	1	722	
19:00	19:15	0	1	88	0	70	6	0	13	3	671	
19:15	19:30	0	2	75	0	75	7	0	16	3	655	
19:30	19:45	0	2	78	0	77	6	0	13	2	607	
19:45	20:00	0	0	58	0	55	7	0	11	3	535	
20:00	20:15	0	1	90	0	61	5	0	6	2	497	
20:15	20:30	0	1	53	0	61	7	0	8	0	438	
20:30	20:45	0	1	55	0	41	3	0	6	0	396	
20:45	21:00	0	1	51	0	36	2	0	4	2	382	
21:00	21:15	0	1	41	0	52	3	0	9	0	353	
21:15	21:30	0	2	47	0	37	0	0	1	1		
21:30	21:45	0	1	41	0	40	2	0	8	0		
21:45	22:00	0	1	34	0	28	1	0	3	0		

Peak Time		North Approach Park S			South Approach Park S			est Approach Warlters			Peak
eriod Star	Period End	U	R	SB	U	NB	L	U	R	L	total
15:15	16:15	0	11	648	0	650	88	0	123	34	1554

FRIDAY SURVEYS

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Warlters St and Kmart Access, Port Ma

GPS	-31.42994, 152.89906						
Date:	Fri 02/11/18	North:	Kmart Access	Survey	AM:	3:00 PM-3:00 PM
Weather:	Overcast	East:	Warlters St		PM:	3:00 PM-10:00 PM
Suburban	Port Macquarie	South:	N/A	Traffic	AM:	N/A
Customer	McLaren	West:	Warlters St		PM:	3:15 PM-4:15 PM

All Vehicles

Time		North Approach Kmart Acc			East Approach Warlters			West Approach Warlters			Hourly Total	
Period Sta	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
15:00	15:15	0	1	9	1	11	9	0	16	9	282	
15:15	15:30	1	2	11	2	12	15	0	37	18	290	Peak
15:30	15:45	0	1	15	3	12	7	0	11	12	246	
15:45	16:00	0	0	15	1	8	12	0	15	16	241	
16:00	16:15	0	3	9	4	16	6	0	13	13	224	
16:15	16:30	0	1	15	2	18	4	0	10	4	209	
16:30	16:45	0	1	20	1	10	4	0	8	12	195	
16:45	17:00	1	0	19	0	10	4	0	8	8	187	
17:00	17:15	0	2	13	3	13	6	0	7	5	183	
17:15	17:30	0	2	17	1	4	2	0	7	7	173	
17:30	17:45	0	1	12	0	10	7	0	5	13	165	
17:45	18:00	0	5	7	3	11	5	1	7	7	147	
18:00	18:15	0	3	14	0	6	3	0	6	7	127	
18:15	18:30	0	1	13	2	6	3	0	1	6	116	
18:30	18:45	0	1	10	1	8	3	0	4	3	117	
18:45	19:00	0	2	11	1	2	5	0	2	3	114	
19:00	19:15	0	0	11	2	4	2	0	2	7	110	
19:15	19:30	0	0	14	1	5	3	0	4	6	98	
19:30	19:45	0	3	10	0	4	5	0	3	2	84	
19:45	20:00	0	0	9	1	4	1	0	3	4	70	
20:00	20:15	0	1	6	0	2	3	0	2	2	57	
20:15	20:30	0	2	8	1	4	1	1	0	2	60	
20:30	20:45	0	1	3	0	0	3	0	2	4	44	
20:45	21:00	0	1	3	0	1	1	0	3	0	45	
21:00	21:15	0	3	9	0	1	3	0	1	2	38	
21:15	21:30	0	0	0	1	0	1	0	1	0		
21:30	21:45	0	2	5	0	0	2	0	3	2		
21:45	22:00	0	0	0	0	0	1	0	1	0		

Peak Time		North Approach Kmart Acc			East Approach Warlters			West Approach Warlters			Peak
Period Sta	Period End	U	R	L	U	R	WB	U	EB	L	total
15:15	16:15	1	6	50	10	48	40	0	76	59	290

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVE

Intersection of Park St and Kmart Access, Port Macqu

GPS	-31.42975, 152.89945						
Date:-	Fri 02/11/18	North:-	N/A	Survey	AM:	3:00 PM-3:00 PM
Weather:-	Overcast	East:-	Park St		PM:	3:00 PM-10:00 PM
Suburban	Port Macquarie	South:-	Kmart Access	Traffic	AM:	N/A
Customer	McLaren	West:-	Park St		PM:	3:15 PM-4:15 PM

All Vehicles

Time		East Approach Park St			th Approach Kmart Acc			West Approach Park St			Hourly Total	
eriod Star	Period End	U	VB	L	U	R	L	U	R	EB	Hour	Peak
15:00	15:15	0	127	12	0	0	39	0	0	163	1424	
15:15	15:30	0	165	20	0	0	34	0	0	179	1430	Peak
15:30	15:45	0	133	19	0	0	31	0	0	153	1359	
15:45	16:00	0	149	18	0	0	34	0	0	148	1330	
16:00	16:15	0	146	13	0	0	36	0	0	152	1310	
16:15	16:30	0	150	13	0	0	31	0	0	133	1291	
16:30	16:45	0	128	14	0	0	29	0	0	136	1269	
16:45	17:00	0	139	13	0	0	29	0	0	148	1230	
17:00	17:15	0	127	9	0	0	21	0	0	171	1190	
17:15	17:30	0	124	6	0	0	18	0	0	157	1120	
17:30	17:45	0	114	11	0	0	14	0	0	129	1031	
17:45	18:00	0	114	15	0	0	22	0	0	138	948	
18:00	18:15	0	102	13	0	0	20	0	0	123	839	
18:15	18:30	0	88	11	0	0	17	0	0	100	731	
18:30	18:45	0	67	8	0	0	19	0	0	91	689	
18:45	19:00	0	81	4	0	0	12	0	0	83	672	
19:00	19:15	0	57	3	0	0	10	0	0	80	637	
19:15	19:30	0	78	8	0	0	12	0	0	76	648	
19:30	19:45	0	72	8	0	0	9	0	0	79	592	
19:45	20:00	0	56	10	0	0	12	0	0	67	525	
20:00	20:15	0	53	7	0	0	15	0	0	86	483	
20:15	20:30	0	57	2	0	0	4	0	0	55	424	
20:30	20:45	0	42	2	0	0	5	0	0	52	392	
20:45	21:00	0	35	5	0	0	11	0	0	52	382	
21:00	21:15	0	46	3	0	0	12	0	0	41	341	
21:15	21:30	0	38	4	0	0	2	0	0	42		
21:30	21:45	0	40	1	0	0	7	0	0	43		
21:45	22:00	0	27	1	0	0	1	0	0	33		

Peak Time		East Approach Park St			th Approach Kmart Acc			West Approach Park St			Peak
eriod Star	Period End	U	WB	L	U	R	L	U	R	EB	total
15:15	16:15	0	593	70	0	0	135	0	0	632	1430

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Warlters St and Kmart Carpark, Port M

GPS	-31.43, 152.88866						
Date:	Fri 02/11/18	North:	Kmart Carpark	Survey	AM:	3:00 PM-3:00 PM
Weather:	Overcast	East:	Warlters St		PM:	3:00 PM-10:00 PM
Suburban	Port Macquarie	South:	N/A	Traffic	AM:	N/A
Customer	McLaren	West:	Warlters St		PM:	3:15 PM-4:15 PM

All Vehicles

Time		th Approach Kmart Car			ast Approach Warlters			est Approach Warlters			Hourly Total	
eriod Star	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
15:00	15:15	0	0	8	0	0	22	0	23	0	249	
15:15	15:30	0	0	2	0	0	27	0	52	0	253	Peak
15:30	15:45	0	0	9	0	0	23	0	31	0	230	
15:45	16:00	0	0	2	0	0	20	0	30	0	214	
16:00	16:15	0	0	4	0	0	27	0	26	0	208	
16:15	16:30	0	0	9	0	0	24	0	24	1	199	
16:30	16:45	0	0	3	0	0	15	0	29	0	175	
16:45	17:00	0	0	3	0	0	14	0	29	0	169	
17:00	17:15	0	0	4	0	0	22	0	22	0	158	
17:15	17:30	0	0	3	0	0	7	0	24	0	143	
17:30	17:45	0	0	4	0	0	18	0	19	0	137	
17:45	18:00	0	0	2	0	0	18	0	15	0	127	
18:00	18:15	0	0	1	0	0	10	0	22	0	112	
18:15	18:30	0	0	4	0	0	9	0	15	0	104	
18:30	18:45	0	0	2	0	0	13	0	16	0	104	
18:45	19:00	0	0	0	0	0	7	0	12	1	97	
19:00	19:15	0	0	2	0	0	9	0	14	0	97	
19:15	19:30	0	0	0	0	0	9	0	19	0	85	
19:30	19:45	0	0	1	0	0	9	0	14	0	72	
19:45	20:00	0	0	1	0	0	6	0	13	0	57	
20:00	20:15	0	0	0	0	0	5	0	8	0	45	
20:15	20:30	0	0	0	0	0	6	0	9	0	46	
20:30	20:45	0	0	0	0	0	4	0	5	0	35	
20:45	21:00	0	0	0	0	0	2	0	6	0	36	
21:00	21:15	0	0	0	0	0	4	0	9	1	32	
21:15	21:30	0	0	0	0	0	2	0	2	0		
21:30	21:45	0	0	0	0	0	2	0	8	0		
21:45	22:00	0	0	2	0	0	1	0	1	0		

Peak Time		th Approach Kmart Car			ast Approach Warlters			est Approach Warlters			Peak
eriod Star	Period End	U	R	L	U	R	WB	U	EB	L	total
15:15	16:15	0	0	17	0	0	97	0	139	0	253

ANNEXURE C: TRAFFIC SURVEYS

(SHEET 6 OF 10)

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Bay St and Park St, Port Macquai

GPS	-31.42736, 152.89702					
Date:	Sat 03/11/18	North:	Park St	Survey	AM:	12:00 PM-12:00 PM
Weather:	Overcast	East:	N/A		PM:	12:00 PM-10:00 PM
Suburbs:	Port Macquarie	South:	Park St	Traffic	AM:	N/A
Customer:	McLaren	West:	Bay St		PM:	12:00 PM-1:00 PM

All Vehicles

Time		North Approach Park S			South Approach Park S			West Approach Bay St			Hourly Total	
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	Hour	Peak
12:00	12:15	0	26	71	46	87	120	9	135	20	1881	Peak
12:15	12:30	1	17	66	50	76	135	11	110	25	1805	
12:30	12:45	0	19	59	40	69	104	14	89	18	1742	
12:45	13:00	2	22	77	50	73	107	11	103	19	1753	
13:00	13:15	0	19	53	57	60	105	5	122	17	1723	
13:15	13:30	1	25	68	34	57	112	6	115	10	1681	
13:30	13:45	1	24	54	45	71	95	13	93	27	1642	
13:45	14:00	2	25	55	59	47	101	5	119	21	1578	
14:00	14:15	0	25	70	47	45	94	4	94	17	1555	
14:15	14:30	0	19	83	41	64	75	9	84	14	1553	
14:30	14:45	0	21	58	40	71	68	5	75	21	1557	
14:45	15:00	0	22	69	43	57	85	5	107	23	1511	
15:00	15:15	0	19	76	45	53	79	2	93	27	1423	
15:15	15:30	0	18	59	32	59	87	5	110	23	1354	
15:30	15:45	1	16	52	34	60	71	4	68	7	1295	
15:45	16:00	1	15	58	35	51	54	10	81	18	1255	
16:00	16:15	0	28	54	42	35	57	2	84	23	1199	
16:15	16:30	1	19	54	34	41	79	3	81	22	1164	
16:30	16:45	1	23	50	28	32	57	3	59	20	1067	
16:45	17:00	0	23	44	27	41	44	3	62	23	1017	
17:00	17:15	0	19	35	38	49	60	7	57	25	989	
17:15	17:30	0	12	43	30	49	46	4	41	12	915	
17:30	17:45	0	11	35	34	43	36	8	47	9	878	
17:45	18:00	1	16	56	29	48	33	3	40	13	847	
18:00	18:15	0	15	42	28	44	28	6	40	13	793	
18:15	18:30	0	14	36	29	36	38	6	23	18	777	
18:30	18:45	0	13	38	24	35	33	2	38	9	751	
18:45	19:00	0	16	28	29	38	29	7	33	5	731	
19:00	19:15	0	13	25	42	41	40	2	29	8	685	
19:15	19:30	1	12	25	23	40	32	4	27	10	617	
19:30	19:45	0	6	30	30	29	35	5	28	9	563	
19:45	20:00	0	10	21	20	23	30	5	20	10	518	
20:00	20:15	0	10	22	26	27	26	4	8	9	508	
20:15	20:30	0	6	12	25	19	25	8	18	7	497	
20:30	20:45	0	5	25	35	22	21	2	12	5	485	
20:45	21:00	0	7	20	27	22	28	9	11	5	453	
21:00	21:15	0	11	25	24	19	17	4	14	7	401	
21:15	21:30	0	3	21	25	23	15	5	12	4		
21:30	21:45	0	1	20	27	18	18	1	8	2		
21:45	22:00	0	1	14	16	15	17	6	4	4		

Peak Time		North Approach Park S			South Approach Park S			West Approach Bay St			Peak total
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	
12:00	13:00	3	84	273	186	305	466	45	437	82	1881

SATURDAY SURVEYS

ANNEXURE C: TRAFFIC SURVEYS

(SHEET 7 OF 10)

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Warlters St and Park St, Port Mac

GPS	-31.4302, 152.84482						
Date:	Sat 03/11/18	North:	Park St	Survey	AM:	12:00 PM-12:00 PM	
Weather:	Overcast	East:	N/A		PM:	12:00 PM-10:00 PM	
Suburb:	Port Macquarie	South:	Park St	Traffic	AM:	N/A	
Customer:	McLaren	West:	Warlters St		PM:	12:00 PM-1:00 PM	

All Vehicles

Time		North Approach Park St			South Approach Park St			East Approach Warlters			Hourly Total	
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	Hour	Peak
12:00	12:15	0	8	227	0	207	31	0	34	8	1887	Peak
12:15	12:30	0	3	189	0	215	18	0	38	12	1827	
12:30	12:45	0	7	169	0	191	25	0	31	1	1764	
12:45	13:00	0	1	210	0	185	27	0	34	16	1714	
13:00	13:15	0	4	197	0	185	26	0	35	8	1664	
13:15	13:30	0	5	190	0	170	21	0	21	5	1611	
13:30	13:45	0	2	156	0	172	15	0	25	4	1602	
13:45	14:00	0	4	200	0	168	21	0	28	2	1578	
14:00	14:15	0	7	184	0	139	19	0	49	4	1549	
14:15	14:30	0	3	177	0	159	27	0	35	2	1532	
14:30	14:45	0	7	142	0	144	25	0	30	2	1485	
14:45	15:00	0	4	186	0	149	22	0	30	3	1472	
15:00	15:15	0	5	189	0	140	14	0	29	8	1394	
15:15	15:30	0	1	180	0	121	14	0	32	8	1326	
15:30	15:45	0	1	139	0	158	14	0	25	0	1271	
15:45	16:00	0	1	173	0	110	13	0	15	4	1181	
16:00	16:15	0	0	157	0	117	13	0	28	2	1133	
16:15	16:30	0	6	145	0	119	12	0	18	1	1070	
16:30	16:45	0	2	126	0	99	10	0	10	0	997	
16:45	17:00	0	5	117	0	114	16	0	16	0	967	
17:00	17:15	0	3	113	0	104	10	0	20	4	931	
17:15	17:30	0	2	99	0	95	9	0	20	3	871	
17:30	17:45	0	0	97	0	89	12	0	15	4	824	
17:45	18:00	0	2	106	0	103	8	0	11	2	803	
18:00	18:15	0	0	95	0	83	6	0	10	0	738	
18:15	18:30	0	2	77	0	80	8	0	11	3	744	
18:30	18:45	0	3	84	0	92	5	0	12	0	727	
18:45	19:00	0	2	71	0	79	4	0	9	2	703	
19:00	19:15	0	1	92	0	93	4	0	7	3	687	
19:15	19:30	0	3	74	0	78	3	0	5	1	612	
19:30	19:45	0	3	73	0	84	3	0	7	2	560	
19:45	20:00	0	2	61	0	65	5	0	11	7	532	
20:00	20:15	0	2	52	0	58	7	0	4	2	492	
20:15	20:30	0	0	53	0	53	3	0	3	0	483	
20:30	20:45	0	3	71	0	59	2	0	9	0	485	
20:45	21:00	0	2	58	0	43	1	0	5	2	439	
21:00	21:15	0	0	53	0	55	3	0	5	0	410	
21:15	21:30	0	0	64	0	42	3	0	4	1		
21:30	21:45	0	2	51	0	41	2	0	1	1		
21:45	22:00	0	1	37	0	35	5	0	4	0		

Peak Time		North Approach Park St			South Approach Park St			East Approach Warlters			Peak
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	total
12:00	13:00	0	19	795	0	798	101	0	137	37	1887

SATURDAY SURVEYS

ANNEXURE C: TRAFFIC SURVEYS

(SHEET 8 OF 10)

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Warlters St and Kmart Access, Pc

GPS	-31.42994, 152.84806						
Date:	Sat 03/11/18	North:	Kmart Accss	Survey	AM:	12:00 PM-12:00 PM	
Weather:	Overcast	East:	Warlters St		PM:	12:00 PM-10:00 PM	
Suburb:	Port Macquarie	South:	N/A	Traffic	AM:	N/A	
Customer:	McLaren	West:	Warlters St		PM:	12:00 PM-1:00 PM	

All Vehicles

Time		rt Approach Kmart Acc			rt Approach Warlters			rt Approach Warlters			Hourly Total	
Period Sta	Period En	U	R	L	U	R	WB	U	EB	L	Hour	Peak
12:00	12:15	0	1	16	1	31	7	0	4	17	283	Peak
12:15	12:30	0	1	28	5	13	3	1	9	7	282	
12:30	12:45	0	1	17	3	21	7	1	2	7	279	
12:45	13:00	0	2	21	1	21	6	0	11	18	266	
13:00	13:15	0	3	28	1	22	6	0	7	9	238	
13:15	13:30	0	2	14	0	21	4	0	6	17	245	
13:30	13:45	0	2	16	0	12	3	0	4	9	249	
13:45	14:00	0	0	13	1	20	3	0	5	10	263	
14:00	14:15	0	5	34	3	15	9	0	3	14	275	
14:15	14:30	0	0	27	0	23	10	0	3	5	256	
14:30	14:45	0	2	22	0	21	8	0	1	6	231	
14:45	15:00	1	2	22	1	16	7	2	5	8	213	
15:00	15:15	0	3	21	2	16	3	0	9	10	185	
15:15	15:30	0	0	15	4	8	2	0	8	6	170	
15:30	15:45	0	2	14	0	14	3	0	3	6	172	
15:45	16:00	0	1	11	0	10	3	0	5	6	154	
16:00	16:15	1	3	25	0	7	1	0	1	11	156	
16:15	16:30	0	3	14	1	14	8	1	2	2	141	
16:30	16:45	0	1	7	0	9	2	0	1	4	127	
16:45	17:00	0	3	11	2	13	5	0	0	4	138	
17:00	17:15	0	1	10	4	6	6	0	3	4	128	
17:15	17:30	0	1	13	1	6	4	0	3	3	111	
17:30	17:45	0	1	13	0	8	1	0	3	9	109	
17:45	18:00	0	1	11	1	8	1	0	2	4	96	
18:00	18:15	0	0	4	2	3	2	0	2	4	85	
18:15	18:30	0	1	7	1	6	2	0	5	7	83	
18:30	18:45	0	2	7	0	4	2	0	4	3	70	
18:45	19:00	0	0	7	2	4	0	0	2	2	67	
19:00	19:15	0	1	7	1	2	1	0	2	1	73	
19:15	19:30	0	1	5	0	3	2	0	1	4	74	
19:30	19:45	0	0	9	1	3	2	0	2	2	65	
19:45	20:00	0	2	3	1	5	3	0	8	1	58	
20:00	20:15	0	0	4	1	1	8	0	1	1	46	
20:15	20:30	0	0	1	0	1	2	0	2	1	35	
20:30	20:45	0	0	5	1	0	2	0	1	3	36	
20:45	21:00	0	1	4	0	1	3	0	2	0	31	
21:00	21:15	0	0	4	0	0	1	0	0	0	26	
21:15	21:30	0	0	1	1	1	1	0	2	2		
21:30	21:45	0	0	0	2	1	2	0	1	1		
21:45	22:00	0	0	0	0	0	3	0	2	1		

Peak Time		rt Approach Kmart Acc			rt Approach Warlters			rt Approach Warlters			Peak
Period Sta	Period En	U	R	L	U	R	WB	U	EB	L	total
12:00	13:00	0	5	82	10	86	23	2	26	49	283

SATURDAY SURVEYS

ANNEXURE C: TRAFFIC SURVEYS

(SHEET 9 OF 10)

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Park St and Kmart Access, Port M

GPS	-31.432675, 152.849485						
Date:	Sat 03/11/18	North:	N/A	Survey	AM:	12:00 PM-12:00 PM	
Weather:	Overcast	East:	Park St		PM:	12:00 PM-10:00 PM	
Suburb:	Port Macquarie	South:	Kmart Access	Traffic	AM:	N/A	
Customer:	McLaren	West:	Park St		PM:	12:00 PM-1:00 PM	

All Vehicles

Time		East Approach Park St			South Approach Kmart Ac			West Approach Park St			Hourly Total	
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	Hour	Peak
12:00	12:15	0	195	25	0	0	41	0	0	222	1800	Peak
12:15	12:30	0	204	25	0	0	55	0	0	189	1754	
12:30	12:45	0	162	22	0	0	40	0	0	167	1692	
12:45	13:00	0	183	14	0	0	51	0	0	205	1669	
13:00	13:15	0	158	31	0	0	50	0	0	198	1624	
13:15	13:30	0	152	27	0	0	47	0	0	185	1553	
13:30	13:45	0	156	25	0	0	38	0	0	149	1521	
13:45	14:00	0	143	23	0	0	40	0	0	202	1473	
14:00	14:15	0	123	21	0	0	42	0	0	180	1449	
14:15	14:30	0	150	19	0	0	35	0	0	175	1449	
14:30	14:45	0	126	15	0	0	31	0	0	148	1436	
14:45	15:00	0	144	18	0	0	40	0	0	182	1425	
15:00	15:15	0	132	14	0	0	35	0	0	185	1358	
15:15	15:30	0	128	17	0	0	46	0	0	175	1283	
15:30	15:45	0	137	8	0	0	22	0	0	142	1218	
15:45	16:00	0	111	14	0	0	24	0	0	168	1150	
16:00	16:15	0	86	14	0	0	26	0	0	165	1076	
16:15	16:30	0	115	17	0	0	23	0	0	146	1031	
16:30	16:45	0	84	14	0	0	16	0	0	127	946	
16:45	17:00	0	87	21	0	0	19	0	0	116	910	
17:00	17:15	0	99	7	0	0	29	0	0	111	885	
17:15	17:30	0	92	8	0	0	20	0	0	96	831	
17:30	17:45	0	88	6	0	0	20	0	0	91	787	
17:45	18:00	0	85	5	0	0	19	0	0	109	775	
18:00	18:15	0	86	4	0	0	11	0	0	91	722	
18:15	18:30	0	74	9	0	0	15	0	0	74	744	
18:30	18:45	0	78	16	0	0	13	0	0	86	743	
18:45	19:00	0	75	8	0	0	14	0	0	68	720	
19:00	19:15	0	82	9	0	0	29	0	0	94	688	
19:15	19:30	0	80	3	0	0	13	0	0	75	605	
19:30	19:45	0	81	6	0	0	11	0	0	72	545	
19:45	20:00	0	65	5	0	0	9	0	0	54	510	
20:00	20:15	0	56	6	0	0	7	0	0	62	496	
20:15	20:30	0	59	6	0	0	6	0	0	40	468	
20:30	20:45	0	52	1	0	0	12	0	0	70	463	
20:45	21:00	0	46	1	0	0	9	0	0	63	430	
21:00	21:15	0	49	1	0	0	4	0	0	49	378	
21:15	21:30	0	39	0	0	0	3	0	0	64		
21:30	21:45	0	46	0	0	0	3	0	0	53		
21:45	22:00	0	39	0	0	0	1	0	0	27		

Peak Time		East Approach Park St			South Approach Kmart Ac			West Approach Park St			Peak
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	total
12:00	13:00	0	744	86	0	0	187	0	0	783	1800

SATURDAY SURVEYS

ANNEXURE C: TRAFFIC SURVEYS

(SHEET 10 OF 10)

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Warlters St and Kmart Carpark, P

GPS	-31.43, 152.89[illegible]						
Date:	Sat 03/11/18	North:	Kmart Carpark	Survey	AM:	12:00 PM-12:00 PM	
Weather:	Overcast	East:	Warlters St		PM:	12:00 PM-10:00 PM	
Suburb:	Port Macquarie	South:	N/A	Traffic	AM:	N/A	
Customer:	McLaren	West:	Warlters St		PM:	12:00 PM-1:00 PM	

All Vehicles

Time		k Approach Kmart Car			rt Approach Warlters			rt Approach Warlters			Hourly Total	
riod Sta	Period En	U	R	L	U	R	WB	U	EB	L	Hour	Peak
12:00	12:15	0	0	19	0	0	39	0	21	0	294	Peak
12:15	12:30	0	0	7	0	0	22	0	43	0	285	
12:30	12:45	0	0	14	0	0	30	0	19	0	264	
12:45	13:00	0	0	16	0	0	30	0	34	0	247	
13:00	13:15	0	0	4	0	0	29	0	37	0	221	
13:15	13:30	0	0	6	0	0	25	0	20	0	236	
13:30	13:45	0	0	10	0	0	16	0	20	0	254	
13:45	14:00	0	0	11	0	0	24	0	19	0	266	
14:00	14:15	0	0	18	0	0	26	0	41	0	273	
14:15	14:30	0	0	6	0	0	34	0	29	0	244	
14:30	14:45	0	0	6	0	0	29	0	23	0	227	
14:45	15:00	0	0	5	0	0	26	0	30	0	212	
15:00	15:15	0	0	8	0	0	20	0	28	0	183	
15:15	15:30	0	0	10	0	0	13	0	29	0	168	
15:30	15:45	0	0	8	0	0	18	0	17	0	154	
15:45	16:00	0	0	4	0	0	12	0	16	0	133	
16:00	16:15	0	0	5	0	0	10	0	26	0	135	
16:15	16:30	0	0	0	0	0	21	0	17	0	134	
16:30	16:45	0	0	2	0	0	12	0	8	0	129	
16:45	17:00	0	0	3	0	0	19	0	12	0	135	
17:00	17:15	0	0	6	0	0	16	0	18	0	125	
17:15	17:30	0	0	6	0	0	10	0	17	0	100	
17:30	17:45	0	0	2	0	0	9	0	17	0	92	
17:45	18:00	0	0	0	0	0	10	0	14	0	84	
18:00	18:15	0	0	1	0	0	6	0	8	0	78	
18:15	18:30	0	0	0	0	0	11	0	14	0	78	
18:30	18:45	0	0	2	0	0	8	0	10	0	64	
18:45	19:00	0	0	2	0	0	6	0	10	0	61	
19:00	19:15	0	0	0	0	0	5	0	10	0	68	
19:15	19:30	0	0	0	0	0	5	0	6	0	68	
19:30	19:45	0	0	0	0	0	6	0	11	0	63	
19:45	20:00	0	0	4	0	0	8	0	13	0	59	
20:00	20:15	0	0	0	0	0	9	0	6	0	44	
20:15	20:30	0	0	0	0	0	3	0	3	0	37	
20:30	20:45	0	0	2	0	0	4	0	7	0	39	
20:45	21:00	0	0	1	0	0	3	0	6	0	30	
21:00	21:15	0	0	2	0	0	2	0	4	0	29	
21:15	21:30	0	0	1	0	0	3	0	4	0		
21:30	21:45	0	0	0	0	0	3	0	1	0		
21:45	22:00	0	0	0	0	0	5	0	4	0		

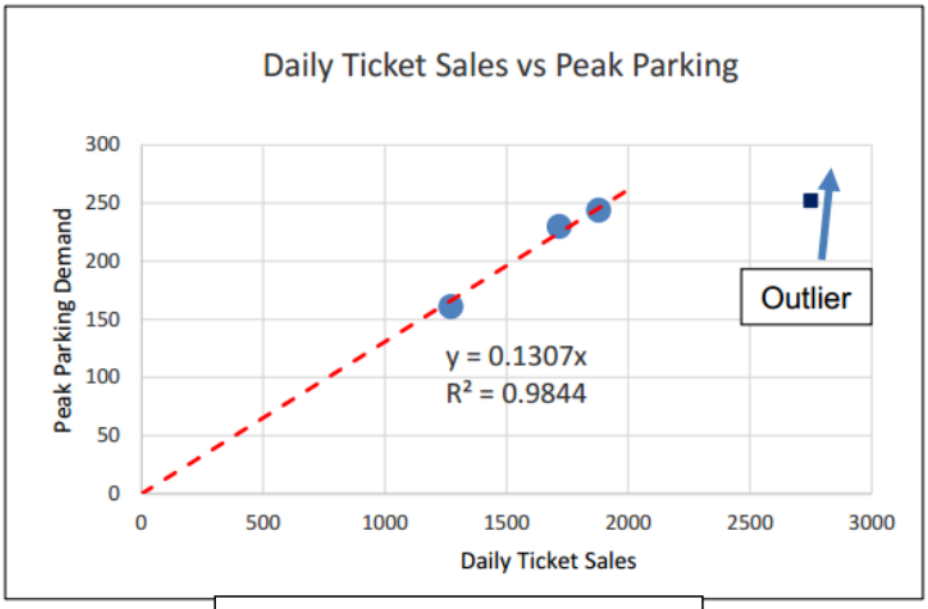
Peak Time		k Approach Kmart Car			rt Approach Warlters			rt Approach Warlters			Peak
riod Sta	Period En	U	R	L	U	R	WB	U	EB	L	total
12:00	13:00	0	0	56	0	0	121	0	117	0	294

SATURDAY SURVEYS

ANNEXURE D: WARRIEWOOD SURVEYS

(SHEET 1 OF 3)

Day/Date	Maximum Parking Demand	Time Of Maximum Parking	Daily Ticket Sales
Friday – 08/01/2016	161	9:00PM	1271
Saturday – 09/01/2016	244	7:00PM	1879
Friday – 15/01/2016	252	7:30PM	2750
Saturday – 16/01/2016	230	7:30PM	1716



Regression Analysis

Day/Date	Tickets sold after 5pm	Restaurant Patrons after 5pm	Dual Use
Friday – 08/01/2016	530	95	18%

ANNEXURE D: WARRIEWOOD SURVEYS

(SHEET 2 OF 3)

Curtis Traffic Surveys		Patrons in venue
Job:	160101mcl	
Day, date	08/01/16	
Location:	United Cinemas 4 Vuko Pl	
Weather:	Fine	
Client:	McLaren Traffic Engineering	

Time	Baroccobar	Funfair
17:00	Grey denotes no headcount	
17:15	0	7
17:30	0	3
17:45	2	0
18:00	10	1
18:15	14	2
18:30	9	0
18:45	13	4
19:00	8	4
19:15	8	3
19:30	8	2
19:45	10	0
20:00	10	0
20:15	12	0
20:30	14	2
20:45	10	2
21:00	4	9
21:15	4	15
21:30	4	5
21:45	4	0
22:00	2	0

Curtis Traffic Surveys		Patrons in venue
Job:	160101mcl	
Day, date	09/01/16	
Location:	United Cinemas 4 Vuko Pl	
Weather:	Fine	
Client:	McLaren Traffic Engineering	

Time	Baroccobar	Funfair
09:00		
09:15		
09:30		
09:45		
10:00	0	0
10:15	0	0
10:30	1	0
10:45	0	0
11:00	0	0
11:15	0	2
11:30	0	8
11:45	2	4
12:00	0	5
12:15	0	5
12:30	0	5
12:45	0	5
13:00	0	6
13:15	6	6
13:30	9	5
13:45	5	2
14:00	8	3
14:15	10	4
14:30	4	0
14:45	3	0
15:00	5	6
15:15	3	11
15:30	5	4
15:45	8	0
16:00	7	1
16:15	9	2
16:30	14	3
16:45	15	13
17:00	8	4
17:15	8	3
17:30	7	2
17:45	9	0
18:00	13	0
18:15	21	2
18:30	28	5
18:45	20	4
19:00	17	4
19:15	10	5
19:30	9	5
19:45	9	5
20:00	8	7
20:15	6	6
20:30	5	8
20:45	6	2
21:00	7	0
21:15	11	2
21:30	12	3
21:45	9	0
22:00	5	0

ANNEXURE D: WARRIEWOOD SURVEYS

(SHEET 3 OF 3)

Friday Tickets	Friday Percentile	Saturday tickets	Saturday Percentile
385	4	752	4
432	8	812	8
433	12	832	12
435	16	846	15
438	20	882	19
444	24	893	23
482	28	907	27
488	32	916	31
501	36	926	35
530	40	927	38
531	44	977	42
539	48	1050	46
580	52	1055	50
594	56	1061	54
598	60	1133	58
641	64	1152	62
676	68	1200	65
825	72	1233	69
1104	76	1250	73
1204	80	1345	77
1218	84	1490	81
1234	88	1607	85
1325	92	1630	88
1443	96	1664	92
1589	100	1783	96
		2916	100

ANNEXURE E: 2016 CAR OWNERSHIP CENSUS DATA

(SHEET 1 OF 2)

Australian Bureau of Statistics

Australian Bureau of Statistics

2011 Census - Dwelling Characteristics
Number of Motor Vehicles (ranges) (VEHRD) by SSC and Number of Bedrooms in Private Dwelling (ranges) (BEDRD)
Counting: Dwellings, Location on Census Night

Filters:
Default Summation Dwellings, Location on Census Night

SSC		Mona Vale					
Number of Bedrooms in Private Dwelling (ranges) (BEDRD)		One bedroom	Two bedrooms	Three bedrooms	Four bedrooms	Five bedrooms	Six bedrooms or more
	Number of Motor Vehicles (ranges) (VEHRD)						
	No motor vehicles	58	81	55	5	0	0
	One motor vehicle	150	404	471	156	27	7
	Two motor vehicles	34	289	641	417	104	22
	Three motor vehicles	3	26	146	150	73	12
	Four or more motor	3	7	37	99	43	15
	Total	244	812	1348	831	245	53

Data Source: Census of Population and Housing, 2011, TableBuilder

NFO Cells in this table have been randomly adjusted to avoid the release of confidential data. No reliance should be placed on small cells.

	Mona Vale	Narrabeen	Warriewood	Port Macquarie
Total Cars	6275	4267	3601	24417
Total Households	3533	3073	1947	16547
Cars per Household	1.78	1.39	1.85	1.48
% of Households with No Cars	6%	12%	2%	9%

	Mona Vale	Warriewood	Port Macquarie
Total Cars	6275	3601	24417
Total Households	3533	1947	16547
Cars per Household	1.78	1.85	1.48
% of Households with No Cars	6%	2%	9%

ANNEXURE E: 2016 CAR OWNERSHIP CENSUS DATA

(SHEET 2 OF 2)

Narrabeen					
One bedroom	Two bedrooms	Three bedrooms	Four bedrooms	Five bedrooms	Six bedrooms or more
181	174	23	4	0	0
311	906	184	41	8	6
91	585	191	97	23	4
4	50	57	50	19	3
3	21	11	20	9	6
583	1727	468	211	66	18

Port Macquarie					
One bedroom	Two bedrooms	Three bedrooms	Four bedrooms	Five bedrooms	Six bedrooms or more
319	741	389	51	7	4
375	2530	3732	1011	105	17
38	585	2663	1917	329	39
6	76	521	497	148	27
13	26	127	165	66	23
754	3957	7429	3647	653	107

Warriewood					
One bedroom	Two bedrooms	Three bedrooms	Four bedrooms	Five bedrooms	Six bedrooms or more
6	16	21	0	0	0
26	154	274	117	14	7
0	96	420	363	81	9
0	13	70	107	36	11
0	0	26	39	20	5
42	280	810	629	152	34

Total					
One bedroom	Two bedrooms	Three bedrooms	Four bedrooms	Five bedrooms	Six bedrooms or more
563	1004	487	62	8	8
863	3999	4650	1325	162	38
162	1559	3914	2803	533	70
17	157	784	802	272	49
23	58	204	328	136	43
1630	6779	10047	5313	1117	210

ANNEXURE F: AMUSEMENT CENTRE REPORT EXTRACTS

(SHEET 1 OF 1)

C. D'ANNUNZIO

PARKING REPORT
FOR PROPOSED RECREATIONAL FACILITY
(PLAY CENTRE FOR CHILDREN AND
LASER GAME FACILITY)
AT
UNIT 2, NO. 57 SALISBURY ROAD,
ASQUITH

Prepared by:

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

Suite 8 871 Pacific Highway
CHATSWOOD NSW 2067

Phone: (02) 94198191
Fax: (02) 94198107

Job No.: 1176/10
Report No.: 31/10

NOVEMBER 2010

Table 3.3 Peak Patronage and Parking Demand

Time	Number of		Staff	Patrons	Total
	Adults	Children	Cars	Cars	Cars
1.00pm	58	95	8	43	51
2.00pm	59	79	8	45	53

The peak parking demand was **0.75** cars per adult for patrons and **1** per staff on duty.