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**Division of RAMTRANS Australia ABN: 45067491678 RPEQ: 19457**

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

12th November 2019 Reference: 190226.05FA

MM Atelier Architects
PO Box 87, Mona Vale NSW
Attention: Vanessa Benitez

**LETTER OF RESPONSE TO COUNCIL CONCERNS FOR PROPOSED LEISURE AND ENTERTAINMENT PRECINCT AT WARLTERS STREET & PARK STREET, PORT MACQUARIE**

Dear Vanessa,

Reference is made to your request to provide Letter of Response to Council Concerns for the Proposed Leisure and Entertainment Precinct at Warlters Street & Park Street, Port Macquarie (Concept Site layout in **Annexure A**). This letter is in response to concerns raised by Port Macquarie-Hastings Council stemming from a meeting on 4th November 2019 between the applicant and Council officers. The outstanding concerns are shown in italics below, followed by M^CLaren Traffic Engineering's (MTE) response.

> *Warlters Street will ultimately become a thoroughfare. The Council engineers are not satisfied that this future thoroughfare has been taken into account in the traffic analysis. They are concerned that the proposed right-hand turning aisle is too short and will result in vehicles backing up at the Park Street and Warlters Street signalised intersection, causing trouble there.*

**MTE Response**: Port Macquarie-Hastings Council completed a Traffic Study for their LGA in October 2019. Within this report the Council lists a series of localised urban works which includes the upgrade of Bay Street / Warlters Street / Aston Street to a roundabout in order to *improve access to the Settlement City area*. MTE accepts that this treatment will increase through traffic along Warlters Street and will provide a more efficient route for vehicles traveling between the west along Bay Street and the south along Park Street.

It is important to note that the Council's Traffic Study does not provide detail about the expected future volumes along Warlters Street. Based upon the surrounding road network and the paths to and from the Settlement City Area, MTE has conservatively assumed that there will be an additional 600 bidirectional vehicles along Warlters Street. This would result in the redirection of traffic according to **Figure 1**.

The basis of this assumption is that through traffic on Park Street and Warlters Street will be similar in volume. MTE has assumed a slightly higher volume on Warlters Street, which is conservative given that Park Street provides access to a larger portion of the attractions within the Settlement City Area, specifically the existing shopping centre.

In the larger context, the connection of Bay Street and Warlters Street will not attract traffic other than traffic associated with the Settlement City Area (i.e. traffic between Port Macquarie and the Pacific Highway). Hastings River Drive and the Oxley Highway are the major roads connecting the Pacific Highway to Port Macquarie. The Warlters Street thoroughfare would be a significant detour for traffic not associated with the Settlement City Area or the few residential dwellings accessed from Warlters Street and Hastings Avenue.

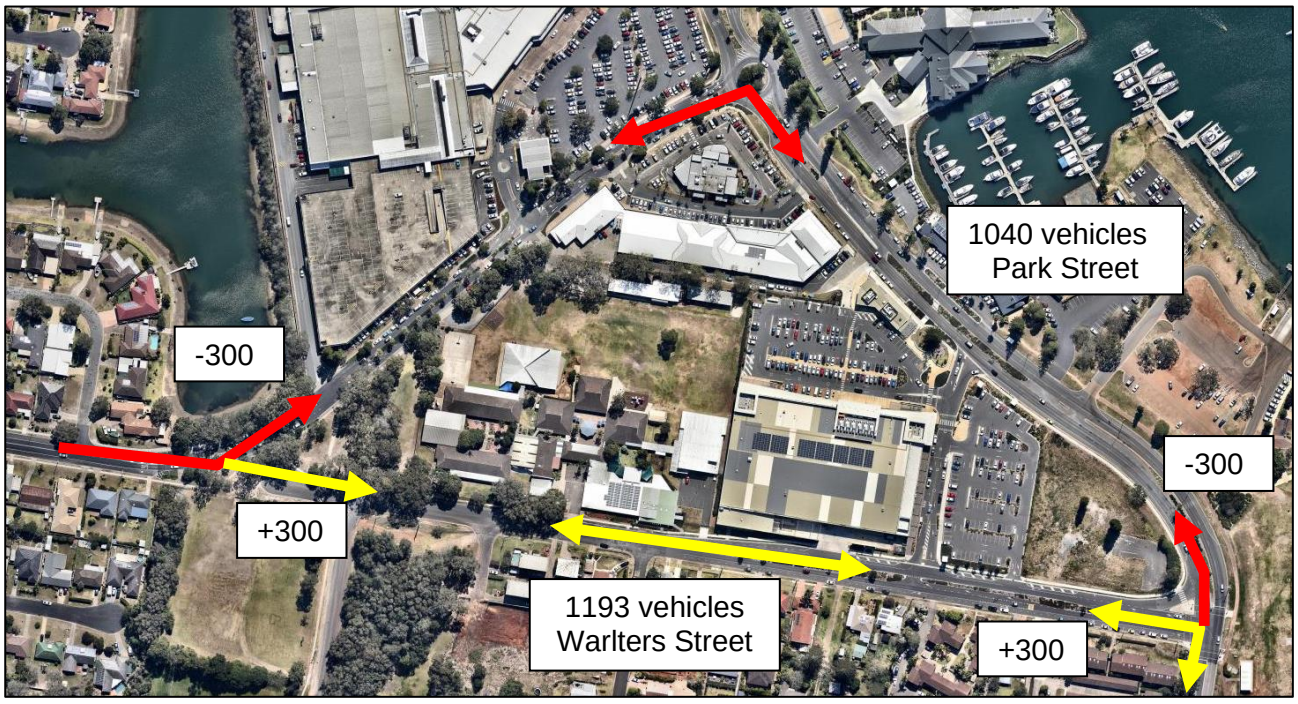



**FIGURE 1: MTE TRAFFIC DISTRIBUTION – WARLTERS STREET UPGRADE**

MTE has utilised SIDRA Intersection 8 to model the effects of the proposed intersection at Warlters Street / Bay Street on the following intersections, with specific regard to the proposed right turn bays into the site and the Warlters Street approach to the Park Street intersection:

- Park Street / Warlters Street;
- Warlters Street / Proposed RT Access;
- Warlters Street / Existing Kmart Access;
- Warlters Street / Proposed Basement Egress.

The purpose of this assessment is to compare the future traffic scenario without a Warlters Street thoroughfare to a scenario inclusive of the Warlters Street thoroughfare. The results of this assessment are shown in **Table 1** and **Table 2**.

## TABLE 1: INTERSECTION PERFORMANCES (SIDRA INTERSECTION 8)

| Intersection | Period | Traffic Volume(veh)(1) | Level of Service | Average Delay (sec/veh)(2) |
|---|---|---|---|---|
| **Future Scenario – No Warlters Street Thoroughfare** | | | | |
| Park Street / Warlters Street | FRI PM | 2400 | A | 9.4 |
| | SAT Midday | 2774 | A | 9.7 |
| | SAT PM | 1535 | A | 9.8 |
| Warlters Street / Proposed RT Access | FRI PM | 599 | (Worst A) | (Worst 6.0) |
| | SAT Midday | 581 | (Worst A) | (Worst 5.9) |
| | SAT PM | 357 | (Worst A) | (Worst 5.8) |
| Warlters Street / Existing Kmart Access | FRI PM | 322 | (Worst A) | (Worst 7.2) |
| | SAT Midday | 313 | (Worst A) | (Worst 6.9) |
| | SAT PM | 142 | (Worst A) | (Worst 6.8) |
| Warlters Street / Proposed Basement Egress (2) | FRI PM | 637 | (Worst A) | (Worst 5.9) |
| | SAT Midday | 631 | (Worst A) | (Worst 6.1) |
| | SAT PM | 537 | (Worst A) | (Worst 5.8) |
| **Future Scenario – Warlters Street Thoroughfare** | | | | |
| Park Street / Warlters Street | FRI PM | 3032 | B | 13.0 |
| | SAT Midday | 2806 | B | 12.3 |
| | SAT PM | 2166 | B | 11.3 |
| Warlters Street / Proposed RT Access | FRI PM | 954 | (Worst A) | (Worst 7.7) |
| | SAT Midday | 944 | (Worst A) | (Worst 7.4) |
| | SAT PM | 774 | (Worst A) | (Worst 7.0) |
| Warlters Street / Existing Kmart Access | FRI PM | 1231 | (Worst A) | (Worst 9.8) |
| | SAT Midday | 1213 | (Worst A) | (Worst 9.2) |
| | SAT PM | 988 | (Worst A) | (Worst 8.9) |
| Warlters Street / Proposed Basement Egress(3) | FRI PM | 1283 | (Worst A) | (Worst 7.3) |
| | SAT Midday | 1278 | (Worst A) | (Worst 7.7) |
| | SAT PM | 1183 | (Worst A) | (Worst 7.1) |

Note: (1): Traffic Volumes are inclusive of a 2% growth p.a. for 10 years along Park Street and Bay Street

(2): The overall average delay and LoS for a give-way intersection is not a pertinent statistic. Rather, the worst delay and LoS has been reported for give-way intersections

(3): The basement exit is a left-out configuration only, therefore it is unaffected by the westbound traffic on Warlters Street

## TABLE 2: RIGHT TURN QUEUE LENGTH COMPARISON

| Movement | 95th Percentile Queue(1) | | Available Queuing Area |
|---|---|---|---|
| | No Warlters St Thoroughfare | Warlters St Thoroughfare | |
| Existing RT into Kmart | 2.2m | 2.8m | 48m |
| Proposed RT into Site | 7.2m | 9.5m | 27m |
| RT from Warlters Street onto Park Street | 21.6m | 28.2m | 45m |

Note (1): The 95th percentile queue in this column represents the worst-case queue throughout the Friday PM, Saturday Midday and Saturday PM periods

As shown, the future scenario with the Warlters Street thoroughfare will operate at a satisfactory Level of Service. The LoS in the future condition is LoS "B" which is representative of spare capacities. It is reasonable to assume that the Bay Street / Park Street intersection will improve in terms of intersection performance given that the Warlters Street upgrade will provide an alternative route for vehicles traveling through the Settlement City area. Detailed SIDRA outputs for the pre-thoroughfare scenario are reproduced in **Annexure B**, whilst the post-thoroughfare SIDRA results are reproduced in **Annexure C**.

As a sensitivity assessment, MTE has undertaken a study to determine the traffic volumes required to overload the right turn bays. Specifically, MTE increased the bidirectional through volumes on Warlters Street until any of the three (3) affected right turns approached their queueing capacities. The results of this experiment are summarised in **Table 3** and **Table 4**.

**TABLE 3: SENSITIVITY ANALYSIS VARIABLES**

| Independent Variable | Dependent Variable (Affected Right Turns) |
|---|---|
| Through Volume Eastbound Warlters | Existing RT into Kmart |
| | Proposed RT into Site |
| RT Volume from Warlters Street onto Park Street | RT from Warlters Street onto Park Street |

**TABLE 4: SENSITIVITY ANALYSIS RESULTS**

| Dependent Variable (Affected Right Turns) | Additional Bidirectional Volumes[1] (vehicles) | | Expected 95th Percentile Queue Length [3] | Available Queuing Area |
|---|---|---|---|---|
| | Conservative Estimation[2] | Limiting Volumes | | |
| Existing RT into Kmart | +600 | +840 | 3.4m | 48m |
| Proposed RT into Site | | | 22.8m | 27m |
| RT from Warlters Street onto Park Street | | | **42.0m** | **45m** |

Note: (1) Due to the Warlters Street Thoroughfare
(2) As summarised in **Figure 1**
(3): The 95th percentile queue in this column represents the worst-case queue throughout the Friday PM, Saturday Midday and Saturday PM periods

As shown, it would take an additional 840 bidirectional vehicles along Warlters Street for the right turn from Warlters Street onto Park Street to approach its capacity. This additional volume is considered an unreasonable and unrealistic outcome due to Settlement City Shopping Centre being the main draw of this area and the most convenient route to the shopping centre is via Park Street or Bay Street, not Warlters Street. Detailed SIDRA results of the additional 840 bidirectional vehicles are provided in **Annexure D**.

*The car parking requirements do not comply with a DCP*

**MTE Response**: The Council does not provide parking requirements for function centres or cinemas; therefore, MTE has assessed the parking requirement on a reasonable first principles assessment and a regression analysis which has been used for several United Cinema developments.

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 2000s. As such, a parking profile based upon patron usage was developed. This profile is provided in a previous MTE submission to Council (ref: 190226.02FA).

Notwithstanding the above, Council's DCP parking requirements are for standalone developments and therefore do not consider potential for parking reductions due to dual usage or town centre locality. The site consists of a variety of land uses and is located in Port Macquarie City Centre, within walking distance of Settlement City Shopping Centre. It is highly likely that there will be some level of multipurpose trips, which would theoretically reduce the parking demand below the Council DCP rates.

The *RMS Guide to Traffic Generating Developments 2002* (RMS Guide) notes that the shopping centre parking rates are based on unrestrained demand for parking in isolation to adjacent developments. Specifically, the RMS Guide states:

> *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 reduces total demand, a lower lever of parking provision may be acceptable.*

In the case of the subject development, there is expected to be a significant amount of common usage both within the proposal itself and also with the Settlement City Shopping Centre. Therefore, the proposal's location within the shopping and entertainment precinct would result in a reduced parking demand compared to locations elsewhere in Port Macquarie. This is consistent with other approved developments in NSW.

> *Patrick Galbraith-Robertson is not satisfied that sufficient parking to service the development is being provided within the basement and the Kmart parking area. Patrick believes that the revised traffic report still relies on on-street parking and parking in the Westport carpark.*

**MTE Response**: Patrons arriving to the site will occupy parking areas in the following order:

- Basement car park;
- Kmart car parks;
- On-street (Park St and Warlters St);
- Boat Ramp car park.

Kmart closes at 7:00pm on Saturday evening. Therefore, a large amount of parking becomes available in the Kmart carpark during the Saturday PM period. Site photographs of a nearly empty Kmart car park at 8pm on 25th October 2019 are provided in **Annexure E**.

*Table 10* and *Table 11* of the MTE TPIA (reproduced in **Figure 2** below) shows that the cinema overflow during the peak periods is accommodated wholly within the Kmart carpark. The available parking on-street and in the boat ramp car park do not change.

**TABLE 10: AVAILABLE ON-STREET PARKING**

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

50 additional spaces on non-market days

**54** = 172-118
**2** = 39-37
**95** = 189 - 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) | 75 | 0 | 51 | 75 | 0 | 51 |
| Kmart | 172 | 39 | 189 | **54** | **2** | **95** |
| Park Street | 37 | 13 | 37 | 37 | 13 | 37 |
| Warlters Street | 26 | 31 | 36 | 26 | 31 | 36 |
| **Totals** | **310** | **83** | **313** | **192** | **46** | **219** |

Note: (1) Friday Evening minimum parking occurs at 4-5pm, and on Saturday at 5-6pm
(2) The development does not rely on the Boat Ramp car park in any peak

**FIGURE 2: MTE TRAFFIC AND PARKING ANALYSIS EXCERPT (DURING FORESHORE MARKETS ON MIDDAY SATURDAY)**

The basement parking shortfall is representative of the number of vehicles that overflow from the basement car park. The tables show that the shortfall can be wholly accommodated within the Kmart car park, as none of the on-street or Boat Ramp parking availability changes once the shortfall is accommodated.

> *Patrick would like to see the baseline supporting data for MTE's traffic and parking assessments.*

**MTE Response**: The baseline parking data, ticket sales data and detailed regression analysis and is reproduced in **Annexure F**. Over three surveyed days in 2016, 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 0.9844, which is evidence of a very strong correlation. The previous six months of daily ticket sales for Friday and Saturday were collected (also reproduced in **Annexure F**) with the 85$^{th}$ percentile for Friday being 1,222 and Saturday being 1,617 for the 1,920-seat cinema in Warriewood.

> *Patrick feels there is too much likely overlap of peak parking periods for the various proposed uses and that the combined peak periods for these various uses will result in a regular overall parking shortfall for the site.*

**MTE Response**: A detailed parking profile was completed for the charts produced within the MTE Addendum Letter (ref: 190226.04FA). The profiles are based on (in order of availability) typical land use visitation profiles and reasonable estimation. The regular parking shortfall can be accommodated in the Kmart car park, both with and without functions occurring. The profiles are reproduced in **Table 5** and **Table 6,** resulting in the parking shortfall graphs shown in **Annexure G**.

## TABLE 5: FRIDAY PEAK SITE USAGE BY LAND USE

| Time | Cinema(1) | Amusement Centre(1) | Gym(1) | Function Centre(2) | Fast Food(2) | Restaurant(2) | Retail(2) | Managers Residence(2) | Bowling(1) |
|---|---|---|---|---|---|---|---|---|---|
| 3:00pm | 22% | 10% | 12% | 100% | 10% | 10% | 20% | 100% | 43% |
| 4:00pm | 22% | 14% | 25% | 100% | 10% | 10% | 50% | 100% | 60% |
| 5:00pm | 28% | 24% | 43% | 100% | 50% | 50% | 60% | 100% | 70% |
| 6:00pm | 40% | 60% | 48% | 100% | 60% | 60% | 100% | 100% | 60% |
| 7:00pm | 75% | 79% | 28% | 100% | 100% | 100% | 100% | 100% | 52% |
| 8:00pm | 75% | 52% | 0% | 100% | 100% | 100% | 90% | 100% | 52% |
| 9:00pm | 38% | 14% | 0% | 100% | 50% | 50% | 50% | 100% | 32% |
| 10:00pm | 38% | 0% | 0% | 100% | 50% | 50% | 10% | 100% | 0% |

Note: (1) Based upon known visitation profiles
(2) Estimates based upon expected outcomes from experience

## TABLE 6:SATURDAY PEAK SITE USAGE BY LAND USE

| Time | Cinema(1) | Amusement Centre(1) | Gym(1) | Function Centre(2) | Fast Food(2) | Restaurant(2) | Retail(2) | Managers Residence(2) | Bowling(1) |
|---|---|---|---|---|---|---|---|---|---|
| 12:00pm | 10% | 81% | 21% | 100% | 85% | 85% | 85% | 100% | 45% |
| 1:00pm | 26% | 74% | 21% | 100% | 85% | 85% | 85% | 100% | 47% |
| 2:00pm | 47% | 60% | 18% | 100% | 50% | 50% | 50% | 100% | 42% |
| 3:00pm | 59% | 51% | 15% | 100% | 10% | 10% | 10% | 100% | 41% |
| 4:00pm | 82% | 69% | 9% | 100% | 10% | 10% | 10% | 100% | 61% |
| 5:00pm | 100% | 86% | 0% | 100% | 50% | 50% | 50% | 100% | 83% |
| 6:00pm | 99% | 86% | 0% | 100% | 50% | 50% | 50% | 100% | 85% |
| 7:00pm | 92% | 72% | 0% | 100% | 100% | 100% | 100% | 100% | 100% |
| 8:00pm | 96% | 72% | 0% | 100% | 100% | 100% | 100% | 100% | 84% |
| 9:00pm | 79% | 34% | 0% | 100% | 50% | 50% | 50% | 100% | 26% |
| 10:00pm | 79% | 34% | 0% | 100% | 30% | 30% | 30% | 100% | 0% |

Note: (1) Based upon known visitation profiles
(2) Estimates based upon expected outcomes from experience

*Patrick would like to understand the parking and traffic arguments for other United Cinemas locations to compare those developments with the subject development.*

**MTE Response**: A summary of the approved parking demands for other United Cinema locations compared to the subject proposal is summarised in **Table 7**. The Warriewood Cinema data collected December 2015 was used to generate the parking demands for each of the other cinemas.

**TABLE 7: UNITED CINEMA PARKING COMPARISON**

| Location | Site Context | Seats | Parking Demand | Parking Rate |
|---|---|---|---|---|
| Mulgrave, NSW(1) | Sydney Sub-Metro Area; High reliance on private vehicles. **Fringe Area/Industrial** | 2,174 | 239 | 1 space per 9.1 seats |
| Queanbeyan, NSW(1) | Regional Area; High reliance on private vehicles. **Shopping/Entertainment Precinct** | 1,315 | 116 | 1 space per 11.3 seats |
| Wodonga, Victoria(1) | Regional Area; High reliance on private vehicles. **Shopping/Entertainment Precinct** | 2,030 | 155 | 1 space per 13.1 seats |
| Warriewood, NSW(2) | Sydney Sub-Metro Area; Moderate reliance on public buses, no train line. **Fringe Area/Industrial** | 1,920 | 188 | 1 space per 10.2 seats |
| Port Macquarie, NSW (Subject Proposal) | Regional Area; Moderate reliance on public buses, no train line. **Shopping/Entertainment Precinct** | 1,343 | 118 | 1 space per 11.4 seats |

Notes: (1) – These cinemas used data from the Warriewood Cinema surveys as the underlying data.

As shown, the Port Macquarie proposal requires **1 space per 11.4 seats**. This is directly in line with the other four (4) cinema locations for which MTE has been involved. More importantly, this is consistent to other locations within a shopping and entertainment precinct.

> *There is confusion about whether or not the outdoor terrace area at the ground floor was included in the parking demand. Patrick noted that 1/3 of the GFA was already counted by McLaren as back of house area.*

**MTE Response**: Council's car parking requirements are based on "serviced area". Although the term is not defined in Council's DCP, serviced area is taken to be any area, indoor or outdoor, that is used to seat patrons. It is relevant to note that this area is not protected from the elements, and it is therefore reasonable to expect that it will not be utilised by patrons in bad weather. The tenancies are large enough to provide indoor seating which will be utilised in bad weather, or outdoor seating which will be used in good weather. Also, the seating area is common amongst all development patrons with no table service specifically tying it to the ground floor food tenancies. Even so, some consideration should be given to restaurant patrons using this seating area, thus increasing the "serviced area" of the restaurants.

As shown in *Table 11* of the MTE TPIA (Ref: 190226.03FB), there is a minimum of two (2) available spaces in the Kmart car park when the outdoor terrace area is not considered. However, it is important to note that this time was heavily affected by the monthly Foreshore Markets at the

adjacent Westport Park. MTE an additional Saturday survey on 17th August 2019 when there were no events at Westport Park. The results are compared to the original MTE survey in **Table 8**.

**TABLE 8: PARKING AVAILABILITY RELATIVE TO FORESHORE MARKET EVENTS**

| Survey Date | Foreshore Markets | Time | Kmart Parking | Cinema Overflow | Available Parking(1) |
|---|---|---|---|---|---|
| 10th November 2018 | Yes | 12:30pm | 233 | 37 | 2 spaces |
| 17th August 2019 | No | 12:00pm | 183 | 37 | 52 spaces |

Note (1) Represents the additional available parking in the Kmart carpark area for any increase in "serviced area" due to outdoor terrace area

As shown, there would be an additional 2 and 52 spaces available for parking associated with the outdoor seating area during and not during the Foreshore Markets, respectively. This available parking theoretically supports an additional 60m$^2$ (2 times 30m$^2$) of serviced area during the Foreshore Markets and 1,560m$^2$ (52 times 30m$^2$) of serviced area when no events are on at Westport Park.

The outdoor terrace areas for the ground floor tenancies are provided in **Table 9** for discussion purposes.

**TABLE 9: OUTDOOR TERRACE AREAS BY GROUND FLOOR TENANCY**

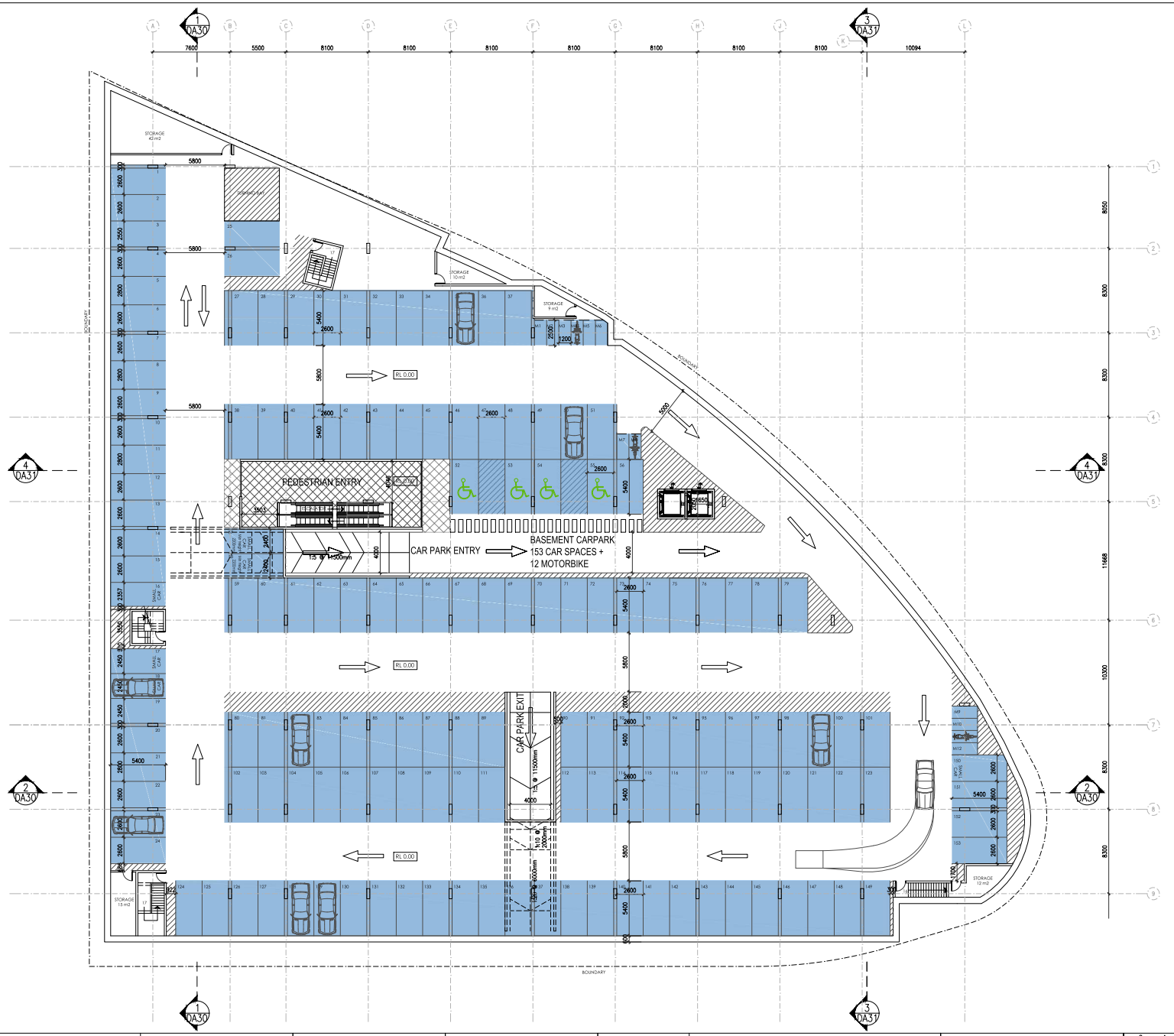
| Tenancy | Area (m$^2$) |
|---|---|
| Tenancy 1 | 21 |
| Tenancy 2 | 19 |
| Tenancy 3 + 4 | 28 |
| Tenancy 6 + 7 + 8 | 40 |
| Tenancy 9 + 10 | 33 |
| Tenancy 15 | 21 |
| **Total** | **162** |

Please contact Mr Daniel Fonken or the undersigned on 8355 2440 should you require further information or assistance.

Yours faithfully
**McLaren Traffic Engineering**

**Craig McLaren**
**Director**
**BE Civil, Grad Dip (Transport Engineering), MAITPM, MITE**
**RPEQ 19457**
**RMS Accredited Level 3 Road Safety Auditor [1998]**
**RMS Accredited Traffic Management Plan Designer [2018]**


**ANNEXURE A: PROPOSED PLANS**




| AMENDMENTS | | |
|---|---|---|
| C | 30.07.19 | MODIFIED DA |
| B | 17.05.19 | MODIFIED ONE-WAY DRIVEWAY AND PERIMETER WALL |
| A | 12.12.18 | DEVELOPMENT APPLICATION SUBMISSION |
| IS | DATE | DESCRIPTION |

VB
VB
VB
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Notes:



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| STORMWATER DESIGN<br>TAYLOR CONSULTING | LANDSCAPE ARCHITECT<br>STONE ROSE LANDSCAPES | ACOUSTIC ENGINEER<br>ACOUSTIC LOGIC |
| BCA CONSULTANT<br>GRS BUILDING REPORTS PTY LTD | GEOTECHNICAL ENGINEER<br>ACT GEOTECHNICAL ENGINEERS | TRAFFIC ENGINEER<br>MCLAREN TRAFFIC ENGINEERS |

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ARCHITECT

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PO Box 87 Mona Vale NSW 1660
PH: (02) 9970 2617 MOB: 0401 000 075
nominated architect Vanessa Benitez 7446

AUTHORISED

PROJECT
PORT MACQUARIE LEISURE & ENTERTAINMENT PRECINCT

DRAWING
DEVELOPMENT APPLICATION
BASEMENT CARPARK PLAN

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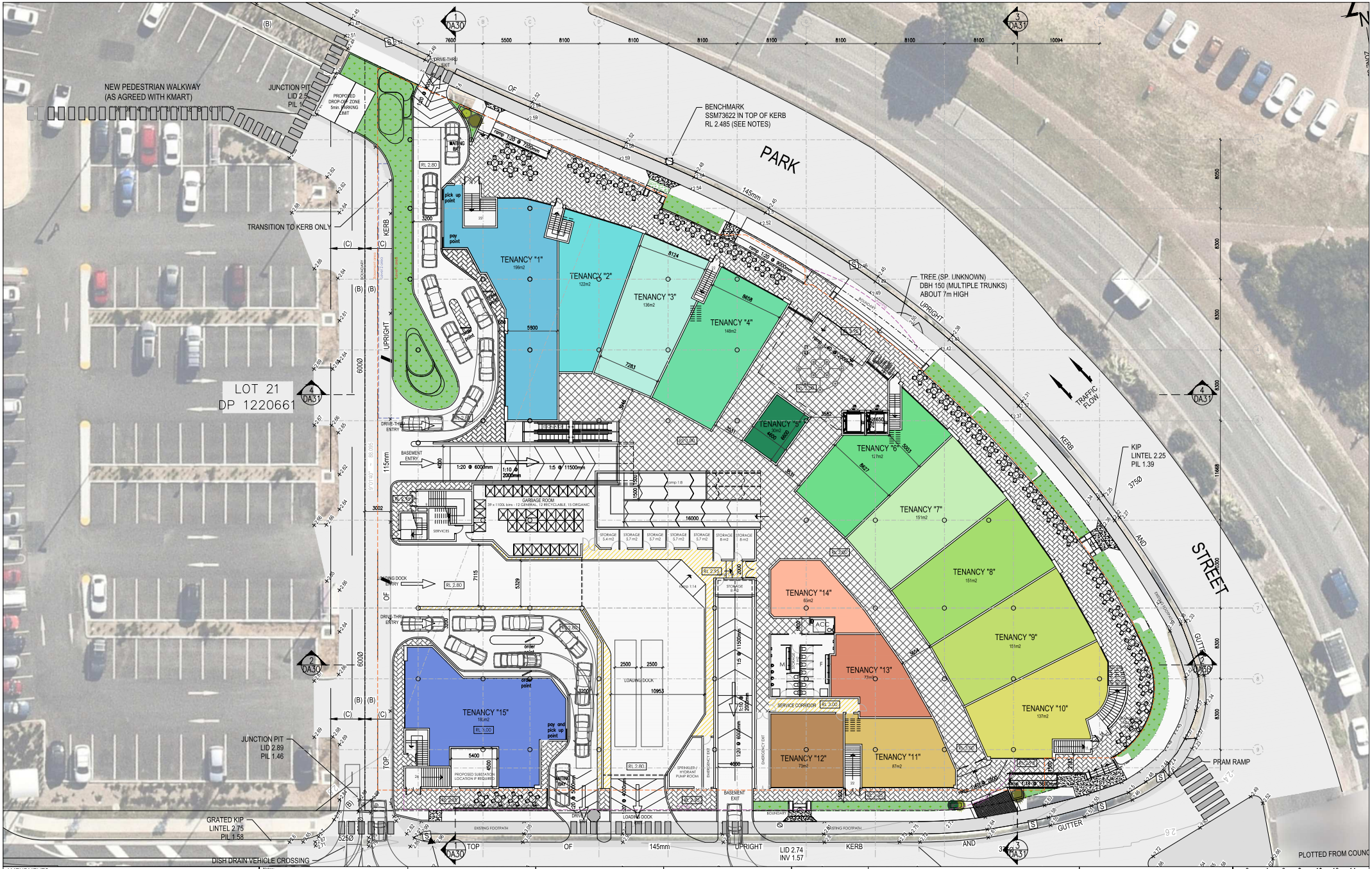


| AMENDMENTS | | |
|---|---|---|
| C | 30.07.19 | MODIFIED DA |
| B | 17.05.19 | MODIFICATIONS TO LANDSCAPING, GARBAGE AND DRIVE-THRU'S |
| A | 12.12.18 | DEVELOPMENT APPLICATION SUBMISSION |
| IS | DATE | DESCRIPTION |

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| | |
|---|---|
| QUANTITY SURVEYOR<br>HUGH B GAGE | |
| ACOUSTIC ENGINEER<br>ACOUSTIC LOGIC | |
| TRAFFIC ENGINEER<br>MCLAREN TRAFFIC ENGINEERS | |

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nominated architect Vanessa Benitez 7446

AUTHORISED

PROJECT
PORT MACQUARIE LEISURE & ENTERTAINMENT PRECINCT

DRAWING
DEVELOPMENT APPLICATION
GROUND FLOOR PLAN

| SCALES | DRAWN | DATE |
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ISSUE C


**ANNEXURE B: SIDRA RESULTS – PRE THOUROUGHFARE**

# MOVEMENT SUMMARY

## Site: 101 [Basement Exit / Warlters Friday PM Peak]

Basement Exit / Warlters Friday PM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| North: Basement Exit | | | | | | | | | | | | |
| 7 | L2 | 249 | 0.0 | 0.166 | 5.9 | LOS A | 0.7 | 5.2 | 0.21 | 0.55 | 0.21 | 53.0 |
| Approach | | 249 | 0.0 | 0.166 | 5.9 | LOS A | 0.7 | 5.2 | 0.21 | 0.55 | 0.21 | 53.0 |
| West: Warlters Street | | | | | | | | | | | | |
| 11 | T1 | 102 | 0.0 | 0.052 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| Approach | | 102 | 0.0 | 0.052 | 0.0 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| All Vehicles | | 352 | 0.0 | 0.166 | 4.2 | NA | 0.7 | 5.2 | 0.15 | 0.39 | 0.15 | 54.8 |

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

# MOVEMENT SUMMARY

## Site: 101 [Basement Exit / Warlters Saturday Midday Peak]

Basement Exit / Warlters Friday PM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| North: Basement Exit | | | | | | | | | | | | |
| 7 | L2 | 164 | 0.0 | 0.117 | 6.1 | LOS A | 0.5 | 3.5 | 0.28 | 0.57 | 0.28 | 52.7 |
| Approach | | 164 | 0.0 | 0.117 | 6.1 | LOS A | 0.5 | 3.5 | 0.28 | 0.57 | 0.28 | 52.7 |
| West: Warlters Street | | | | | | | | | | | | |
| 11 | T1 | 182 | 0.0 | 0.093 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| Approach | | 182 | 0.0 | 0.093 | 0.0 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| All Vehicles | | 346 | 0.0 | 0.117 | 2.9 | NA | 0.5 | 3.5 | 0.14 | 0.27 | 0.14 | 56.3 |

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

# MOVEMENT SUMMARY

## Site: 101 [Basement Exit / Warlters Saturday PM Peak]

Basement Exit / Warlters Friday PM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| North: Basement Exit | | | | | | | | | | | | |
| 7 | L2 | 167 | 0.0 | 0.110 | 5.8 | LOS A | 0.5 | 3.3 | 0.18 | 0.54 | 0.18 | 53.1 |
| Approach | | 167 | 0.0 | 0.110 | 5.8 | LOS A | 0.5 | 3.3 | 0.18 | 0.54 | 0.18 | 53.1 |
| West: Warlters Street | | | | | | | | | | | | |
| 11 | T1 | 84 | 0.0 | 0.043 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| Approach | | 84 | 0.0 | 0.043 | 0.0 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| All Vehicles | | 252 | 0.0 | 0.110 | 3.9 | NA | 0.5 | 3.3 | 0.12 | 0.36 | 0.12 | 55.2 |

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

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart Carpark - Friday PM Peak]

Warlters / Kmart Carpark
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 109 | 0.0 | 0.057 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| 6 | R2 | 316 | 0.0 | 0.202 | 6.0 | LOS A | 1.0 | 7.2 | 0.30 | 0.58 | 0.30 | 52.3 |
| Approach | | 425 | 0.0 | 0.202 | 4.5 | NA | 1.0 | 7.2 | 0.23 | 0.43 | 0.23 | 54.1 |
| North: Kmart Carpark Driveway | | | | | | | | | | | | |
| 7 | L2 | 19 | 0.0 | 0.013 | 6.0 | LOS A | 0.1 | 0.4 | 0.25 | 0.54 | 0.25 | 52.9 |
| Approach | | 19 | 0.0 | 0.013 | 6.0 | LOS A | 0.1 | 0.4 | 0.25 | 0.54 | 0.25 | 52.9 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 1 | 0.0 | 0.084 | 5.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 58.3 |
| 11 | T1 | 154 | 9.6 | 0.084 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| Approach | | 155 | 9.5 | 0.084 | 0.0 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| All Vehicles | | 599 | 2.5 | 0.202 | 3.4 | NA | 1.0 | 7.2 | 0.17 | 0.33 | 0.17 | 55.4 |

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

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart Carpark - Saturday Midday Peak ]

Warlters / Kmart Carpark
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 133 | 0.8 | 0.069 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| 6 | R2 | 256 | 0.0 | 0.160 | 5.9 | LOS A | 0.8 | 5.6 | 0.27 | 0.57 | 0.27 | 52.4 |
| Approach | | 388 | 0.3 | 0.160 | 3.9 | NA | 0.8 | 5.6 | 0.18 | 0.38 | 0.18 | 54.8 |
| North: Kmart Carpark Driveway | | | | | | | | | | | | |
| 7 | L2 | 62 | 0.0 | 0.043 | 5.9 | LOS A | 0.2 | 1.2 | 0.23 | 0.55 | 0.23 | 52.9 |
| Approach | | 62 | 0.0 | 0.043 | 5.9 | LOS A | 0.2 | 1.2 | 0.23 | 0.55 | 0.23 | 52.9 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 1 | 0.0 | 0.072 | 5.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 58.3 |
| 11 | T1 | 129 | 11.4 | 0.072 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| Approach | | 131 | 11.3 | 0.072 | 0.1 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| All Vehicles | | 581 | 2.7 | 0.160 | 3.3 | NA | 0.8 | 5.6 | 0.14 | 0.31 | 0.14 | 55.6 |

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

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart Carpark - Saturday PM]

Warlters / Kmart Carpark
Site Category: (None)
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 51 | 0.0 | 0.026 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| 6 | R2 | 217 | 0.0 | 0.129 | 5.7 | LOS A | 0.6 | 4.4 | 0.19 | 0.56 | 0.19 | 52.6 |
| Approach | | 267 | 0.0 | 0.129 | 4.6 | NA | 0.6 | 4.4 | 0.16 | 0.46 | 0.16 | 53.9 |
| North: Kmart Carpark Driveway | | | | | | | | | | | | |
| 7 | L2 | 16 | 0.0 | 0.010 | 5.8 | LOS A | 0.0 | 0.3 | 0.16 | 0.53 | 0.16 | 53.1 |
| Approach | | 16 | 0.0 | 0.010 | 5.8 | LOS A | 0.0 | 0.3 | 0.16 | 0.53 | 0.16 | 53.1 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 1 | 0.0 | 0.043 | 5.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 58.3 |
| 11 | T1 | 73 | 20.3 | 0.043 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 59.9 |
| Approach | | 74 | 20.0 | 0.043 | 0.1 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 59.9 |
| All Vehicles | | 357 | 4.1 | 0.129 | 3.7 | NA | 0.6 | 4.4 | 0.12 | 0.37 | 0.12 | 55.0 |

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

# MOVEMENT SUMMARY

## Site: 101 [Park / Warlters - Saturday Midday Peak - 10 year]

Park / Warlters
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 40 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Park Street | | | | | | | | | | | | |
| 1 | L2 | 285 | 0.0 | 0.600 | 10.6 | LOS A | 7.3 | 51.2 | 0.69 | 0.71 | 0.79 | 52.2 |
| 2 | T1 | 1024 | 0.5 | 0.600 | 6.1 | LOS A | 8.6 | 60.6 | 0.71 | 0.66 | 0.75 | 53.9 |
| Approach | | 1309 | 0.4 | 0.600 | 7.0 | LOS A | 8.6 | 60.6 | 0.70 | 0.67 | 0.76 | 53.5 |
| North: Park Street | | | | | | | | | | | | |
| 8 | T1 | 1021 | 0.7 | 0.667 | 8.1 | LOS A | 10.3 | 72.2 | 0.78 | 0.72 | 0.81 | 52.6 |
| 9 | R2 | 97 | 1.0 | 0.667 | 15.8 | LOS B | 6.8 | 48.0 | 0.82 | 0.78 | 0.90 | 49.4 |
| Approach | | 1118 | 0.7 | 0.667 | 8.8 | LOS A | 10.3 | 72.2 | 0.78 | 0.72 | 0.82 | 52.3 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 39 | 0.0 | 0.062 | 9.1 | LOS A | 0.3 | 2.1 | 0.54 | 0.66 | 0.54 | 51.5 |
| 12 | R2 | 308 | 0.0 | 0.553 | 24.2 | LOS B | 3.1 | 21.5 | 0.97 | 0.80 | 1.02 | 41.9 |
| Approach | | 347 | 0.0 | 0.553 | 22.5 | LOS B | 3.1 | 21.5 | 0.92 | 0.79 | 0.97 | 42.8 |
| All Vehicles | | 2774 | 0.5 | 0.667 | 9.7 | LOS A | 10.3 | 72.2 | 0.76 | 0.71 | 0.81 | 51.4 |

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

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate |
|---|---|---|---|---|---|---|---|---|
| P1 | South Full Crossing | 50 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 |
| P3 | North Full Crossing | 50 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 |
| P4 | West Full Crossing | 50 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 |
| All Pedestrians | | 150 | 14.5 | LOS B | | | 0.85 | 0.85 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart - Friday PM Peak ]

Warlters / Kmart
Site Category: (None)
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 44 | 0.0 | 0.023 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| 6 | R2 | 54 | 0.0 | 0.045 | 5.9 | LOS A | 0.2 | 1.4 | 0.25 | 0.57 | 0.25 | 52.3 |
| 6u | U | 12 | 0.0 | 0.045 | 7.2 | LOS A | 0.2 | 1.4 | 0.25 | 0.57 | 0.25 | 52.4 |
| Approach | | 109 | 0.0 | 0.045 | 3.7 | NA | 0.2 | 1.4 | 0.15 | 0.34 | 0.15 | 55.2 |
| North: Kmart Access Driveway | | | | | | | | | | | | |
| 7 | L2 | 63 | 0.0 | 0.042 | 5.8 | LOS A | 0.2 | 1.2 | 0.19 | 0.54 | 0.19 | 53.0 |
| Approach | | 63 | 0.0 | 0.042 | 5.8 | LOS A | 0.2 | 1.2 | 0.19 | 0.54 | 0.19 | 53.0 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 65 | 0.0 | 0.083 | 5.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.26 | 0.00 | 56.0 |
| 11 | T1 | 84 | 17.5 | 0.083 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.26 | 0.00 | 57.4 |
| Approach | | 149 | 9.9 | 0.083 | 2.4 | NA | 0.0 | 0.0 | 0.00 | 0.26 | 0.00 | 56.8 |
| All Vehicles | | 322 | 4.6 | 0.083 | 3.5 | NA | 0.2 | 1.4 | 0.09 | 0.34 | 0.09 | 55.5 |

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

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart - Saturday Midday Peak ]

Warlters / Kmart
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 25 | 4.2 | 0.013 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| 6 | R2 | 96 | 0.0 | 0.067 | 5.7 | LOS A | 0.3 | 2.2 | 0.16 | 0.57 | 0.16 | 52.6 |
| 6u | U | 12 | 0.0 | 0.067 | 6.9 | LOS A | 0.3 | 2.2 | 0.16 | 0.57 | 0.16 | 52.7 |
| Approach | | 133 | 0.8 | 0.067 | 4.7 | NA | 0.3 | 2.2 | 0.13 | 0.46 | 0.13 | 53.9 |
| North: Kmart Access Driveway | | | | | | | | | | | | |
| 7 | L2 | 97 | 0.0 | 0.061 | 5.7 | LOS A | 0.3 | 1.8 | 0.11 | 0.54 | 0.11 | 53.3 |
| Approach | | 97 | 0.0 | 0.061 | 5.7 | LOS A | 0.3 | 1.8 | 0.11 | 0.54 | 0.11 | 53.3 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 55 | 0.0 | 0.044 | 5.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.39 | 0.00 | 55.1 |
| 11 | T1 | 28 | 0.0 | 0.044 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.39 | 0.00 | 56.6 |
| Approach | | 83 | 0.0 | 0.044 | 3.7 | NA | 0.0 | 0.0 | 0.00 | 0.39 | 0.00 | 55.6 |
| All Vehicles | | 313 | 0.3 | 0.067 | 4.7 | NA | 0.3 | 2.2 | 0.09 | 0.47 | 0.09 | 54.1 |

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

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart - Saturday PM]

Warlters / Kmart
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 14 | 0.0 | 0.007 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| 6 | R2 | 31 | 0.0 | 0.023 | 5.5 | LOS A | 0.1 | 0.7 | 0.09 | 0.58 | 0.09 | 52.7 |
| 6u | U | 6 | 0.0 | 0.023 | 6.8 | LOS A | 0.1 | 0.7 | 0.09 | 0.58 | 0.09 | 52.8 |
| Approach | | 51 | 0.0 | 0.023 | 4.2 | NA | 0.1 | 0.7 | 0.07 | 0.42 | 0.07 | 54.5 |
| North: Kmart Access Driveway | | | | | | | | | | | | |
| 7 | L2 | 57 | 0.0 | 0.035 | 5.6 | LOS A | 0.1 | 1.0 | 0.07 | 0.55 | 0.07 | 53.4 |
| Approach | | 57 | 0.0 | 0.035 | 5.6 | LOS A | 0.1 | 1.0 | 0.07 | 0.55 | 0.07 | 53.4 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 22 | 0.0 | 0.018 | 5.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.37 | 0.00 | 55.2 |
| 11 | T1 | 13 | 0.0 | 0.018 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.37 | 0.00 | 56.7 |
| Approach | | 35 | 0.0 | 0.018 | 3.5 | NA | 0.0 | 0.0 | 0.00 | 0.37 | 0.00 | 55.8 |
| All Vehicles | | 142 | 0.0 | 0.035 | 4.6 | NA | 0.1 | 1.0 | 0.05 | 0.46 | 0.05 | 54.4 |

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

# MOVEMENT SUMMARY

## Site: 101 [Park / Warlters - Friday PM Peak - 10 year]

Park / Warlters
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 40 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Park Street | | | | | | | | | | | | |
| 1 | L2 | 314 | 0.0 | 0.516 | 9.2 | LOS A | 4.9 | 34.6 | 0.62 | 0.68 | 0.69 | 52.8 |
| 2 | T1 | 821 | 0.9 | 0.516 | 5.4 | LOS A | 6.9 | 48.7 | 0.65 | 0.62 | 0.68 | 54.3 |
| Approach | | 1135 | 0.6 | 0.516 | 6.4 | LOS A | 6.9 | 48.7 | 0.64 | 0.63 | 0.68 | 53.9 |
| North: Park Street | | | | | | | | | | | | |
| 8 | T1 | 819 | 1.2 | 0.569 | 7.2 | LOS A | 7.9 | 56.1 | 0.72 | 0.64 | 0.72 | 53.3 |
| 9 | R2 | 106 | 0.0 | 0.569 | 14.8 | LOS B | 4.9 | 34.4 | 0.79 | 0.72 | 0.79 | 49.8 |
| Approach | | 925 | 1.0 | 0.569 | 8.1 | LOS A | 7.9 | 56.1 | 0.73 | 0.65 | 0.73 | 52.8 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 36 | 26.5 | 0.060 | 8.9 | LOS A | 0.3 | 2.2 | 0.51 | 0.65 | 0.51 | 50.9 |
| 12 | R2 | 304 | 1.7 | 0.553 | 24.3 | LOS B | 3.0 | 21.6 | 0.97 | 0.81 | 1.02 | 41.9 |
| Approach | | 340 | 4.3 | 0.553 | 22.6 | LOS B | 3.0 | 21.6 | 0.92 | 0.79 | 0.97 | 42.7 |
| All Vehicles | | 2400 | 1.3 | 0.569 | 9.4 | LOS A | 7.9 | 56.1 | 0.72 | 0.66 | 0.74 | 51.6 |

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

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate |
|---|---|---|---|---|---|---|---|---|
| P1 | South Full Crossing | 53 | 14.5 | LOS B | 0.1 | 0.1 | 0.85 | 0.85 |
| P3 | North Full Crossing | 53 | 14.5 | LOS B | 0.1 | 0.1 | 0.85 | 0.85 |
| P4 | West Full Crossing | 53 | 14.5 | LOS B | 0.1 | 0.1 | 0.85 | 0.85 |
| All Pedestrians | | 158 | 14.5 | LOS B | | | 0.85 | 0.85 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: 101 [Park / Warlters - Saturday PM - 10 year]

Park / Warlters
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 30 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Park Street | | | | | | | | | | | | |
| 1 | L2 | 193 | 0.0 | 0.487 | 9.6 | LOS A | 2.6 | 18.4 | 0.78 | 0.72 | 0.78 | 52.5 |
| 2 | T1 | 494 | 0.0 | 0.487 | 7.3 | LOS A | 3.9 | 27.4 | 0.82 | 0.71 | 0.82 | 52.8 |
| Approach | | 686 | 0.0 | 0.487 | 7.9 | LOS A | 3.9 | 27.4 | 0.81 | 0.71 | 0.81 | 52.7 |
| North: Park Street | | | | | | | | | | | | |
| 8 | T1 | 524 | 0.0 | 0.527 | 9.6 | LOS A | 4.3 | 30.2 | 0.86 | 0.73 | 0.86 | 51.5 |
| 9 | R2 | 73 | 0.0 | 0.527 | 15.8 | LOS B | 3.4 | 23.5 | 0.88 | 0.75 | 0.88 | 49.3 |
| Approach | | 597 | 0.0 | 0.527 | 10.3 | LOS A | 4.3 | 30.2 | 0.87 | 0.73 | 0.87 | 51.2 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 64 | 0.0 | 0.072 | 7.9 | LOS A | 0.3 | 2.2 | 0.54 | 0.66 | 0.54 | 52.3 |
| 12 | R2 | 187 | 0.0 | 0.189 | 15.2 | LOS B | 1.1 | 7.9 | 0.81 | 0.74 | 0.81 | 46.7 |
| Approach | | 252 | 0.0 | 0.189 | 13.4 | LOS A | 1.1 | 7.9 | 0.74 | 0.72 | 0.74 | 48.1 |
| All Vehicles | | 1535 | 0.0 | 0.527 | 9.8 | LOS A | 4.3 | 30.2 | 0.82 | 0.72 | 0.82 | 51.3 |

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

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate |
|---|---|---|---|---|---|---|---|---|
| P1 | South Full Crossing | 53 | 9.6 | LOS A | 0.0 | 0.0 | 0.80 | 0.80 |
| P3 | North Full Crossing | 53 | 9.6 | LOS A | 0.0 | 0.0 | 0.80 | 0.80 |
| P4 | West Full Crossing | 53 | 9.6 | LOS A | 0.0 | 0.0 | 0.80 | 0.80 |
| All Pedestrians | | 158 | 9.6 | LOS A | | | 0.80 | 0.80 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.


**ANNEXURE C: SIDRA RESULTS – POST THOUROUGHFARE**

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart - Friday PM Peak (+600 Bidirectional Vehicles)]

Warlters / Kmart
Site Category: (None)
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 360 | 0.0 | 0.186 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| 6 | R2 | 54 | 0.0 | 0.064 | 7.3 | LOS A | 0.3 | 1.9 | 0.50 | 0.69 | 0.50 | 51.5 |
| 6u | U | 12 | 0.0 | 0.064 | 9.8 | LOS A | 0.3 | 1.9 | 0.50 | 0.69 | 0.50 | 51.5 |
| Approach | | 425 | 0.0 | 0.186 | 1.2 | NA | 0.3 | 1.9 | 0.08 | 0.11 | 0.08 | 58.5 |
| North: Kmart Access Driveway | | | | | | | | | | | | |
| 7 | L2 | 63 | 0.0 | 0.058 | 7.1 | LOS A | 0.2 | 1.5 | 0.43 | 0.64 | 0.43 | 52.3 |
| Approach | | 63 | 0.0 | 0.058 | 7.1 | LOS A | 0.2 | 1.5 | 0.43 | 0.64 | 0.43 | 52.3 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 65 | 0.0 | 0.245 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.08 | 0.00 | 57.6 |
| 11 | T1 | 400 | 3.7 | 0.245 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.08 | 0.00 | 59.2 |
| Approach | | 465 | 3.2 | 0.245 | 0.8 | NA | 0.0 | 0.0 | 0.00 | 0.08 | 0.00 | 58.9 |
| All Vehicles | | 954 | 1.5 | 0.245 | 1.4 | NA | 0.3 | 1.9 | 0.06 | 0.13 | 0.06 | 58.2 |

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

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart - Saturday Midday Peak (+600 Bidirectional Vehicles)]

Warlters / Kmart
Site Category: (None)
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 341 | 0.3 | 0.177 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| 6 | R2 | 96 | 0.0 | 0.093 | 6.9 | LOS A | 0.4 | 2.8 | 0.46 | 0.67 | 0.46 | 51.8 |
| 6u | U | 12 | 0.0 | 0.093 | 9.2 | LOS A | 0.4 | 2.8 | 0.46 | 0.67 | 0.46 | 51.9 |
| Approach | | 448 | 0.2 | 0.177 | 1.7 | NA | 0.4 | 2.8 | 0.11 | 0.16 | 0.11 | 57.8 |
| North: Kmart Access Driveway | | | | | | | | | | | | |
| 7 | L2 | 97 | 0.0 | 0.082 | 6.8 | LOS A | 0.3 | 2.3 | 0.40 | 0.63 | 0.40 | 52.4 |
| Approach | | 97 | 0.0 | 0.082 | 6.8 | LOS A | 0.3 | 2.3 | 0.40 | 0.63 | 0.40 | 52.4 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 55 | 0.0 | 0.206 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.08 | 0.00 | 57.6 |
| 11 | T1 | 344 | 0.0 | 0.206 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.08 | 0.00 | 59.2 |
| Approach | | 399 | 0.0 | 0.206 | 0.8 | NA | 0.0 | 0.0 | 0.00 | 0.08 | 0.00 | 59.0 |
| All Vehicles | | 944 | 0.1 | 0.206 | 1.9 | NA | 0.4 | 2.8 | 0.09 | 0.17 | 0.09 | 57.7 |

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

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart - Saturday PM (+600 Bidirectional Vehicles) ]

Warlters / Kmart
Site Category: (None)
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 329 | 0.0 | 0.170 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| 6 | R2 | 31 | 0.0 | 0.031 | 6.6 | LOS A | 0.1 | 0.9 | 0.42 | 0.62 | 0.42 | 51.9 |
| 6u | U | 6 | 0.0 | 0.031 | 8.9 | LOS A | 0.1 | 0.9 | 0.42 | 0.62 | 0.42 | 51.9 |
| Approach | | 366 | 0.0 | 0.170 | 0.7 | NA | 0.1 | 0.9 | 0.04 | 0.06 | 0.04 | 59.0 |
| North: Kmart Access Driveway | | | | | | | | | | | | |
| 7 | L2 | 57 | 0.0 | 0.047 | 6.7 | LOS A | 0.2 | 1.3 | 0.38 | 0.61 | 0.38 | 52.4 |
| Approach | | 57 | 0.0 | 0.047 | 6.7 | LOS A | 0.2 | 1.3 | 0.38 | 0.61 | 0.38 | 52.4 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 22 | 0.0 | 0.180 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.04 | 0.00 | 58.0 |
| 11 | T1 | 328 | 0.0 | 0.180 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.04 | 0.00 | 59.6 |
| Approach | | 351 | 0.0 | 0.180 | 0.4 | NA | 0.0 | 0.0 | 0.00 | 0.04 | 0.00 | 59.5 |
| All Vehicles | | 774 | 0.0 | 0.180 | 1.0 | NA | 0.2 | 1.3 | 0.05 | 0.09 | 0.05 | 58.7 |

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

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart Carpark - Friday PM Peak (+600 Bidirectional Vehicles)]

Warlters / Kmart Carpark
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 425 | 0.0 | 0.220 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| 6 | R2 | 316 | 0.0 | 0.284 | 7.7 | LOS A | 1.4 | 9.5 | 0.56 | 0.76 | 0.56 | 51.4 |
| Approach | | 741 | 0.0 | 0.284 | 3.3 | NA | 1.4 | 9.5 | 0.24 | 0.32 | 0.24 | 56.0 |
| North: Kmart Carpark Driveway | | | | | | | | | | | | |
| 7 | L2 | 19 | 0.0 | 0.018 | 7.3 | LOS A | 0.1 | 0.5 | 0.45 | 0.63 | 0.45 | 52.2 |
| Approach | | 19 | 0.0 | 0.018 | 7.3 | LOS A | 0.1 | 0.5 | 0.45 | 0.63 | 0.45 | 52.2 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 1 | 0.0 | 0.246 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 58.3 |
| 11 | T1 | 469 | 3.1 | 0.246 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| Approach | | 471 | 3.1 | 0.246 | 0.0 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| All Vehicles | | 1231 | 1.2 | 0.284 | 2.1 | NA | 1.4 | 9.5 | 0.15 | 0.20 | 0.15 | 57.4 |

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

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart Carpark - Saturday Midday Peak (+600 Bidirectional Vehicles)]

Warlters / Kmart Carpark
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 448 | 0.2 | 0.232 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| 6 | R2 | 256 | 0.0 | 0.223 | 7.4 | LOS A | 1.0 | 7.3 | 0.52 | 0.73 | 0.52 | 51.6 |
| Approach | | 704 | 0.1 | 0.232 | 2.7 | NA | 1.0 | 7.3 | 0.19 | 0.26 | 0.19 | 56.6 |
| North: Kmart Carpark Driveway | | | | | | | | | | | | |
| 7 | L2 | 62 | 0.0 | 0.059 | 7.2 | LOS A | 0.2 | 1.6 | 0.45 | 0.66 | 0.45 | 52.2 |
| Approach | | 62 | 0.0 | 0.059 | 7.2 | LOS A | 0.2 | 1.6 | 0.45 | 0.66 | 0.45 | 52.2 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 1 | 0.0 | 0.234 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 58.3 |
| 11 | T1 | 445 | 3.3 | 0.234 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| Approach | | 446 | 3.3 | 0.234 | 0.0 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| All Vehicles | | 1213 | 1.3 | 0.234 | 2.0 | NA | 1.0 | 7.3 | 0.13 | 0.19 | 0.13 | 57.6 |

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

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart Carpark - Saturday PM (+600 Bidirectional Vehicles)]

Warlters / Kmart Carpark
Site Category: (None)
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 366 | 0.0 | 0.189 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| 6 | R2 | 217 | 0.0 | 0.177 | 7.0 | LOS A | 0.8 | 5.7 | 0.48 | 0.68 | 0.48 | 51.8 |
| Approach | | 583 | 0.0 | 0.189 | 2.6 | NA | 0.8 | 5.7 | 0.18 | 0.25 | 0.18 | 56.7 |
| North: Kmart Carpark Driveway | | | | | | | | | | | | |
| 7 | L2 | 16 | 0.0 | 0.014 | 6.9 | LOS A | 0.1 | 0.4 | 0.41 | 0.59 | 0.41 | 52.3 |
| Approach | | 16 | 0.0 | 0.014 | 6.9 | LOS A | 0.1 | 0.4 | 0.41 | 0.59 | 0.41 | 52.3 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 1 | 0.0 | 0.205 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 58.3 |
| 11 | T1 | 388 | 3.8 | 0.205 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| Approach | | 389 | 3.8 | 0.205 | 0.0 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| All Vehicles | | 988 | 1.5 | 0.205 | 1.7 | NA | 0.8 | 5.7 | 0.11 | 0.16 | 0.11 | 57.8 |

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

# MOVEMENT SUMMARY

## Site: 101 [Park / Warlters - Saturday PM - 10 year - (+600 bidirectional vehicles)]

## Network: N101 [Saturday PM]

Park / Warlters
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 30 seconds (Site Practical Cycle Time)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | Aver. Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Park Street | | | | | | | | | | | | | | |
| 1 | L2 | 508 | 0.0 | 508 | 0.0 | 0.666 | 9.6 | LOS A | 2.9 | 20.1 | 0.80 | 0.81 | 0.86 | 46.8 |
| 2 | T1 | 494 | 0.0 | 494 | 0.0 | 0.666 | 9.8 | LOS A | 3.4 | 24.0 | 0.90 | 0.83 | 1.01 | 51.0 |
| Approach | | 1002 | 0.0 | 1002 | 0.0 | 0.666 | 9.7 | LOS A | 3.4 | 24.0 | 0.85 | 0.82 | 0.93 | 49.5 |
| North: Park Street | | | | | | | | | | | | | | |
| 8 | T1 | 524 | 0.0 | 524 | 0.0 | 0.606 | 11.3 | LOS B | 3.0 | 20.8 | 0.92 | 0.80 | 0.99 | 50.3 |
| 9 | R2 | 73 | 0.0 | 73 | 0.0 | 0.606 | 18.1 | LOS B | 2.2 | 15.3 | 0.94 | 0.82 | 1.04 | 41.1 |
| Approach | | 597 | 0.0 | 597 | 0.0 | 0.606 | 12.1 | LOS B | 3.0 | 20.8 | 0.92 | 0.80 | 0.99 | 49.6 |
| West: Warlters Street | | | | | | | | | | | | | | |
| 10 | L2 | 64 | 0.0 | 64 | 0.0 | 0.073 | 7.5 | LOS A | 0.2 | 1.6 | 0.61 | 0.66 | 0.61 | 48.3 |
| 12 | R2 | 503 | 0.0 | 503 | 0.0 | 0.452 | 14.0 | LOS B | 2.0 | 13.7 | 0.85 | 0.79 | 0.85 | 40.9 |
| Approach | | 567 | 0.0 | 567 | 0.0 | 0.452 | 13.3 | LOS B | 2.0 | 13.7 | 0.83 | 0.77 | 0.83 | 41.6 |
| All Vehicles | | 2166 | 0.0 | 2166 | 0.0 | 0.666 | 11.3 | LOS B | 3.4 | 24.0 | 0.86 | 0.80 | 0.92 | 47.7 |

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

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate |
|---|---|---|---|---|---|---|---|---|
| P1 | South Full Crossing | 53 | 9.6 | LOS A | 0.0 | 0.0 | 0.80 | 0.80 |
| P3 | North Full Crossing | 53 | 9.6 | LOS A | 0.0 | 0.0 | 0.80 | 0.80 |
| P4 | West Full Crossing | 53 | 9.6 | LOS A | 0.0 | 0.0 | 0.80 | 0.80 |
| All Pedestrians | | 158 | 9.6 | LOS A | | | 0.80 | 0.80 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: 101 [Basement Exit / Warlters Saturday PM Peak (+600 Bidirectional Vehicles)]

## Network: N101 [Saturday PM]

Basement Exit / Warlters Friday PM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | Aver. Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Warlters Street | | | | | | | | | | | | | | |
| 5 | T1 | 616 | 0.0 | 616 | 0.0 | 0.316 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| Approach | | 616 | 0.0 | 616 | 0.0 | 0.316 | 0.0 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| North: Basement Exit | | | | | | | | | | | | | | |
| 7 | L2 | 167 | 0.0 | 167 | 0.0 | 0.149 | 7.1 | LOS A | 0.2 | 1.7 | 0.45 | 0.67 | 0.45 | 48.5 |
| Approach | | 167 | 0.0 | 167 | 0.0 | 0.149 | 7.1 | LOS A | 0.2 | 1.7 | 0.45 | 0.67 | 0.45 | 48.5 |
| West: Warlters Street | | | | | | | | | | | | | | |
| 11 | T1 | 400 | 0.0 | 400 | 0.0 | 0.205 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| Approach | | 400 | 0.0 | 400 | 0.0 | 0.205 | 0.0 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| All Vehicles | | 1183 | 0.0 | 1183 | 0.0 | 0.316 | 1.0 | NA | 0.2 | 1.7 | 0.06 | 0.09 | 0.06 | 58.1 |

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

# MOVEMENT SUMMARY

## Site: 101 [Park / Warlters - Saturday Midday Peak - 10 year (+600 bidirectional vehicles)]

## Network: N101 [Saturday Midday]

Park / Warlters
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 40 seconds (Site Practical Cycle Time)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | Aver. Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Park Street | | | | | | | | | | | | | | |
| 1 | L2 | 585 | 0.0 | 585 | 0.0 | 0.673 | 9.0 | LOS A | 3.9 | 27.1 | 0.73 | 0.77 | 0.74 | 47.7 |
| 2 | T1 | 740 | 0.7 | 740 | 0.7 | 0.673 | 8.8 | LOS A | 5.9 | 41.6 | 0.82 | 0.76 | 0.85 | 51.8 |
| Approach | | 1325 | 0.4 | 1325 | 0.4 | 0.673 | 8.9 | LOS A | 5.9 | 41.6 | 0.78 | 0.77 | 0.80 | 50.5 |
| North: Park Street | | | | | | | | | | | | | | |
| 8 | T1 | 737 | 0.9 | 737 | 0.9 | 0.651 | 11.0 | LOS B | 5.5 | 39.1 | 0.85 | 0.76 | 0.89 | 50.5 |
| 9 | R2 | 97 | 1.0 | 97 | 1.0 | 0.651 | 20.6 | LOS C | 3.1 | 22.0 | 0.92 | 0.84 | 1.03 | 38.7 |
| Approach | | 834 | 1.0 | 834 | 1.0 | 0.651 | 12.1 | LOS B | 5.5 | 39.1 | 0.86 | 0.77 | 0.91 | 49.6 |
| West: Warlters Street | | | | | | | | | | | | | | |
| 10 | L2 | 39 | 0.0 | 39 | 0.0 | 0.050 | 8.2 | LOS A | 0.2 | 1.3 | 0.56 | 0.65 | 0.56 | 47.6 |
| 12 | R2 | 608 | 0.0 | 608 | 0.0 | 0.655 | 20.3 | LOS C | 3.6 | 25.1 | 0.95 | 0.86 | 1.04 | 36.3 |
| Approach | | 647 | 0.0 | 647 | 0.0 | 0.655 | 19.6 | LOS B | 3.6 | 25.1 | 0.92 | 0.84 | 1.01 | 36.9 |
| All Vehicles | | 2806 | 0.5 | 2806 | 0.5 | 0.673 | 12.3 | LOS B | 5.9 | 41.6 | 0.84 | 0.79 | 0.88 | 47.3 |

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

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate |
|---|---|---|---|---|---|---|---|---|
| P1 | South Full Crossing | 50 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 |
| P3 | North Full Crossing | 50 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 |
| P4 | West Full Crossing | 50 | 14.5 | LOS B | 0.0 | 0.0 | 0.85 | 0.85 |
| All Pedestrians | | 150 | 14.5 | LOS B | | | 0.85 | 0.85 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: 101 [Basement Exit / Warlters Saturday Midday Peak (+600 Bidirectional Vehicles)]

## Network: N101 [Saturday Midday]

Basement Exit / Warlters Friday PM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | Aver. Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Warlters Street | | | | | | | | | | | | | | |
| 5 | T1 | 616 | 0.0 | 616 | 0.0 | 0.316 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| Approach | | 616 | 0.0 | 616 | 0.0 | 0.316 | 0.0 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| North: Basement Exit | | | | | | | | | | | | | | |
| 7 | L2 | 164 | 0.0 | 164 | 0.0 | 0.164 | 7.7 | LOS A | 0.3 | 1.8 | 0.50 | 0.72 | 0.50 | 48.1 |
| Approach | | 164 | 0.0 | 164 | 0.0 | 0.164 | 7.7 | LOS A | 0.3 | 1.8 | 0.50 | 0.72 | 0.50 | 48.1 |
| West: Warlters Street | | | | | | | | | | | | | | |
| 11 | T1 | 498 | 0.0 | 498 | 0.0 | 0.255 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| Approach | | 498 | 0.0 | 498 | 0.0 | 0.255 | 0.0 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| All Vehicles | | 1278 | 0.0 | 1278 | 0.0 | 0.316 | 1.0 | NA | 0.3 | 1.8 | 0.06 | 0.09 | 0.06 | 58.2 |

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

# MOVEMENT SUMMARY

## Site: 101 [Park / Warlters - Friday PM Peak - 10 year (+600 bidirectional vehicles)] Network: N101 [Friday PM]

Park / Warlters
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 40 seconds (Site Practical Cycle Time)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | Aver. Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Park Street | | | | | | | | | | | | | | |
| 1 | L2 | 629 | 0.0 | 629 | 0.0 | 0.708 | 9.5 | LOS A | 4.3 | 30.2 | 0.74 | 0.80 | 0.79 | 47.3 |
| 2 | T1 | 821 | 0.9 | 821 | 0.9 | 0.708 | 9.0 | LOS A | 6.7 | 47.6 | 0.83 | 0.79 | 0.89 | 51.7 |
| Approach | | 1451 | 0.5 | 1451 | 0.5 | 0.708 | 9.2 | LOS A | 6.7 | 47.6 | 0.79 | 0.79 | 0.84 | 50.3 |
| North: Park Street | | | | | | | | | | | | | | |
| 8 | T1 | 819 | 1.2 | 819 | 1.2 | 0.706 | 11.5 | LOS B | 6.7 | 47.2 | 0.87 | 0.81 | 0.96 | 50.2 |
| 9 | R2 | 106 | 0.0 | 106 | 0.0 | 0.706 | 21.9 | LOS C | 3.4 | 24.1 | 0.94 | 0.89 | 1.13 | 37.6 |
| Approach | | 925 | 1.0 | 925 | 1.0 | 0.706 | 12.7 | LOS B | 6.7 | 47.2 | 0.87 | 0.82 | 0.98 | 49.2 |
| West: Warlters Street | | | | | | | | | | | | | | |
| 10 | L2 | 36 | 26.5 | 36 | 26.5 | 0.057 | 8.7 | LOS A | 0.2 | 1.6 | 0.59 | 0.65 | 0.59 | 45.7 |
| 12 | R2 | 620 | 0.8 | 620 | 0.8 | 0.746 | 22.9 | LOS C | 4.0 | 28.2 | 0.98 | 0.92 | 1.22 | 34.7 |
| Approach | | 656 | 2.2 | 656 | 2.2 | 0.746 | 22.1 | LOS C | 4.0 | 28.2 | 0.96 | 0.91 | 1.19 | 35.2 |
| All Vehicles | | 3032 | 1.0 | 3032 | 1.0 | 0.746 | 13.0 | LOS B | 6.7 | 47.6 | 0.85 | 0.83 | 0.96 | 46.8 |

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

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate |
|---|---|---|---|---|---|---|---|---|
| P1 | South Full Crossing | 53 | 14.5 | LOS B | 0.1 | 0.1 | 0.85 | 0.85 |
| P3 | North Full Crossing | 53 | 14.5 | LOS B | 0.1 | 0.1 | 0.85 | 0.85 |
| P4 | West Full Crossing | 53 | 14.5 | LOS B | 0.1 | 0.1 | 0.85 | 0.85 |
| All Pedestrians | | 158 | 14.5 | LOS B | | | 0.85 | 0.85 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# MOVEMENT SUMMARY

## Site: 101 [Basement Exit / Warlters Friday PM Peak (+600 Bidirectional Vehicles)]

## Network: N101 [Friday PM]

Basement Exit / Warlters Friday PM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | Aver. Back of Queue Vehicles veh | Aver. Back of Queue Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Warlters Street | | | | | | | | | | | | | | |
| 5 | T1 | 616 | 0.0 | 616 | 0.0 | 0.316 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| Approach | | 616 | 0.0 | 616 | 0.0 | 0.316 | 0.0 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| North: Basement Exit | | | | | | | | | | | | | | |
| 7 | L2 | 249 | 0.0 | 249 | 0.0 | 0.227 | 7.3 | LOS A | 0.4 | 2.7 | 0.48 | 0.70 | 0.48 | 48.3 |
| Approach | | 249 | 0.0 | 249 | 0.0 | 0.227 | 7.3 | LOS A | 0.4 | 2.7 | 0.48 | 0.70 | 0.48 | 48.3 |
| West: Warlters Street | | | | | | | | | | | | | | |
| 11 | T1 | 418 | 0.0 | 418 | 0.0 | 0.214 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| Approach | | 418 | 0.0 | 418 | 0.0 | 0.214 | 0.0 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| All Vehicles | | 1283 | 0.0 | 1283 | 0.0 | 0.316 | 1.4 | NA | 0.4 | 2.7 | 0.09 | 0.14 | 0.09 | 57.4 |

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


## ANNEXURE D: SENSITIVITY ANALYSIS SIDRA RESULTS

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart - Friday PM Peak (+840 Bidirectional Vehicles) ]

Warlters / Kmart
Site Category: (None)
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 802 | 0.0 | 0.415 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| 6 | R2 | 54 | 0.0 | 0.135 | 11.3 | LOS A | 0.5 | 3.4 | 0.74 | 0.90 | 0.74 | 48.1 |
| 6u | U | 12 | 0.0 | 0.135 | 19.0 | LOS B | 0.5 | 3.4 | 0.74 | 0.90 | 0.74 | 48.2 |
| Approach | | 867 | 0.0 | 0.415 | 1.0 | NA | 0.5 | 3.4 | 0.06 | 0.07 | 0.06 | 58.8 |
| North: Kmart Access Driveway | | | | | | | | | | | | |
| 7 | L2 | 63 | 0.0 | 0.108 | 10.6 | LOS A | 0.4 | 2.6 | 0.67 | 0.86 | 0.67 | 49.9 |
| Approach | | 63 | 0.0 | 0.108 | 10.6 | LOS A | 0.4 | 2.6 | 0.67 | 0.86 | 0.67 | 49.9 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 65 | 0.0 | 0.472 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.04 | 0.00 | 57.9 |
| 11 | T1 | 842 | 1.8 | 0.472 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.04 | 0.00 | 59.5 |
| Approach | | 907 | 1.6 | 0.472 | 0.5 | NA | 0.0 | 0.0 | 0.00 | 0.04 | 0.00 | 59.3 |
| All Vehicles | | 1838 | 0.8 | 0.472 | 1.1 | NA | 0.5 | 3.4 | 0.05 | 0.08 | 0.05 | 58.7 |

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

# MOVEMENT SUMMARY

## Site: 101 [Warlters / Kmart Carpark - Friday PM Peak (+840 Bidirectional Vehicles)]

Warlters / Kmart Carpark
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Warlters Street | | | | | | | | | | | | |
| 5 | T1 | 867 | 0.0 | 0.447 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| 6 | R2 | 316 | 0.0 | 0.563 | 15.7 | LOS B | 3.3 | 22.8 | 0.83 | 1.09 | 1.38 | 46.2 |
| Approach | | 1183 | 0.0 | 0.563 | 4.2 | NA | 3.3 | 22.8 | 0.22 | 0.29 | 0.37 | 55.5 |
| North: Kmart Carpark Driveway | | | | | | | | | | | | |
| 7 | L2 | 19 | 0.0 | 0.036 | 11.1 | LOS A | 0.1 | 0.8 | 0.69 | 0.85 | 0.69 | 49.6 |
| Approach | | 19 | 0.0 | 0.036 | 11.1 | LOS A | 0.1 | 0.8 | 0.69 | 0.85 | 0.69 | 49.6 |
| West: Warlters Street | | | | | | | | | | | | |
| 10 | L2 | 1 | 0.0 | 0.473 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 58.2 |
| 11 | T1 | 912 | 1.6 | 0.473 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.8 |
| Approach | | 913 | 1.6 | 0.473 | 0.1 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.8 |
| All Vehicles | | 2115 | 0.7 | 0.563 | 2.5 | NA | 3.3 | 22.8 | 0.13 | 0.17 | 0.21 | 57.2 |

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

# MOVEMENT SUMMARY

## Site: 101 [Park / Warlters - Friday PM Peak - 10 year (+840 bidirectional vehicles)] Network: N101 [Network1]

Park / Warlters
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Site Practical Cycle Time)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | Aver. Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Park Street | | | | | | | | | | | | | | |
| 1 | L2 | 756 | 0.0 | 756 | 0.0 | 0.718 | 9.2 | LOS A | 5.8 | 40.4 | 0.70 | 0.78 | 0.71 | 47.1 |
| 2 | T1 | 821 | 0.9 | 821 | 0.9 | 0.718 | 10.4 | LOS B | 8.6 | 60.8 | 0.82 | 0.77 | 0.85 | 50.8 |
| Approach | | 1577 | 0.5 | 1577 | 0.5 | 0.718 | 9.8 | LOS A | 8.6 | 60.8 | 0.76 | 0.78 | 0.78 | 49.5 |
| North: Park Street | | | | | | | | | | | | | | |
| 8 | T1 | 819 | 1.2 | 819 | 1.2 | 0.746 | 13.8 | LOS B | 9.4 | 66.5 | 0.87 | 0.83 | 0.96 | 48.7 |
| 9 | R2 | 106 | 0.0 | 106 | 0.0 | 0.746 | 28.9 | LOS C | 3.3 | 23.6 | 0.97 | 0.94 | 1.26 | 32.5 |
| Approach | | 925 | 1.0 | 925 | 1.0 | 0.746 | 15.5 | LOS B | 9.4 | 66.5 | 0.88 | 0.84 | 1.00 | 47.3 |
| West: Warlters Street | | | | | | | | | | | | | | |
| 10 | L2 | 36 | 26.5 | 36 | 26.5 | 0.055 | 9.5 | LOS A | 0.2 | 2.0 | 0.56 | 0.65 | 0.56 | 44.9 |
| 12 | R2 | 746 | 0.7 | 746 | 0.7 | 0.777 | 26.5 | LOS C | 6.0 | 42.0 | 0.98 | 0.93 | 1.20 | 32.7 |
| Approach | | 782 | 1.9 | 782 | 1.9 | 0.777 | 25.8 | LOS C | 6.0 | 42.0 | 0.96 | 0.92 | 1.17 | 33.1 |
| All Vehicles | | 3284 | 1.0 | 3284 | 1.0 | 0.777 | 15.2 | LOS B | 9.4 | 66.5 | 0.84 | 0.83 | 0.94 | 44.9 |

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

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate |
|---|---|---|---|---|---|---|---|---|
| P1 | South Full Crossing | 53 | 19.4 | LOS B | 0.1 | 0.1 | 0.88 | 0.88 |
| P3 | North Full Crossing | 53 | 19.4 | LOS B | 0.1 | 0.1 | 0.88 | 0.88 |
| P4 | West Full Crossing | 53 | 19.4 | LOS B | 0.1 | 0.1 | 0.88 | 0.88 |
| All Pedestrians | | 158 | 19.4 | LOS B | | | 0.88 | 0.88 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

## ANNEXURE E: SITE PHOTOS – 25TH OCTOBER 2019

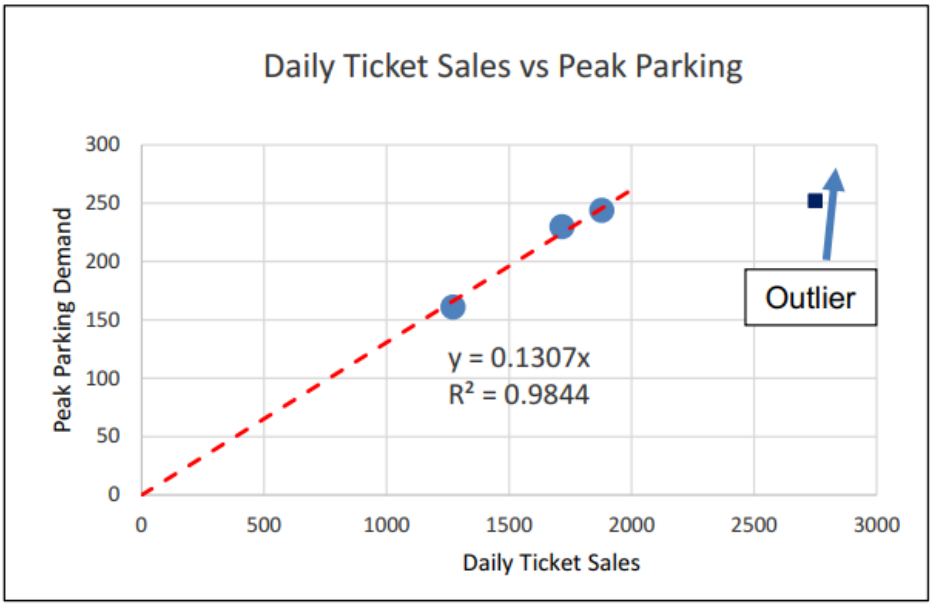
## ANNEXURE E: SITE PHOTOS – 25TH OCTOBER 2019

## ANNEXURE F: REGRESSION ANALYSIS DATA

| 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 F: REGRESSION ANALYSIS DATA

| 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 |



## ANNEXURE G: PARKING SHORTFALL GRAPHS

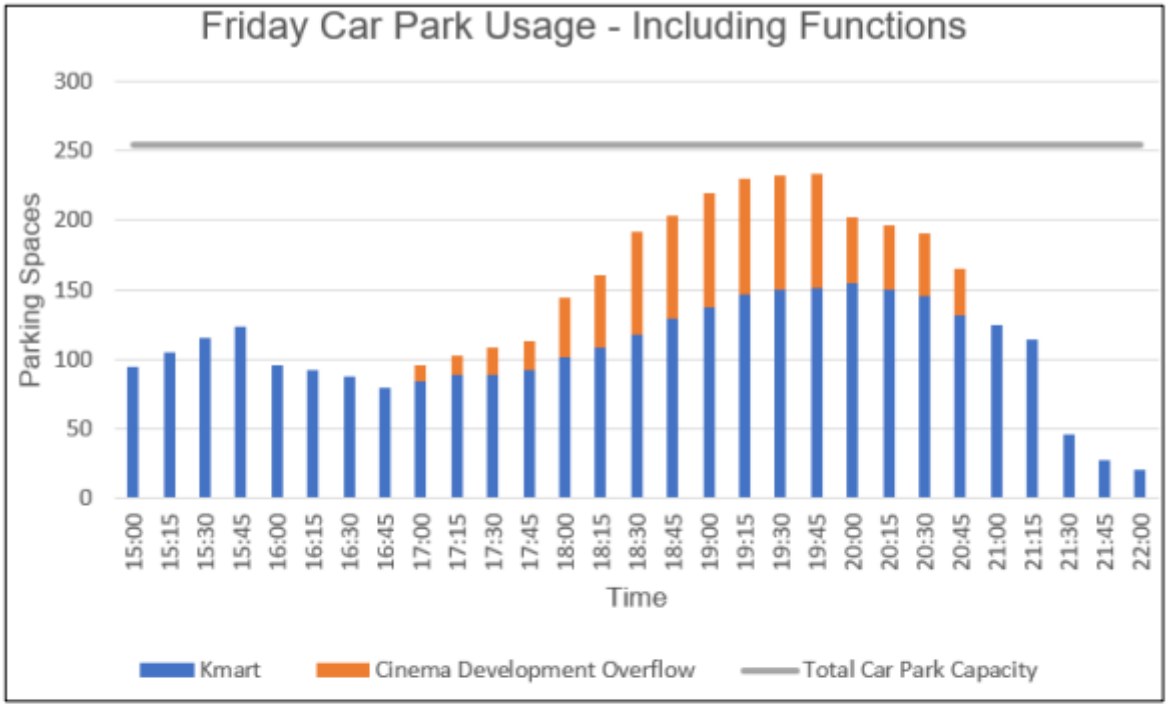



**FIGURE 1: KMART CAR PARK – FRIDAY USAGE WITH FUNCTIONS**

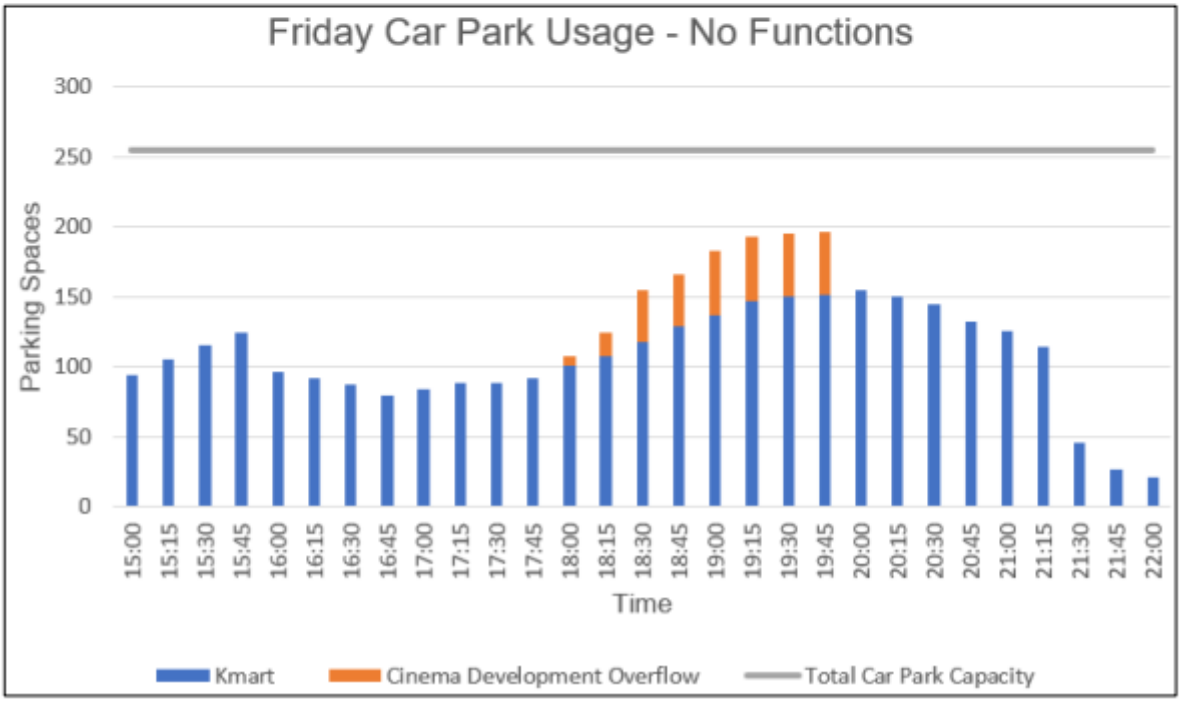



**FIGURE 2: KMART CAR PARK – FRIDAY USAGE WITHOUT FUNCTIONS**

## ANNEXURE G: PARKING SHORTFALL GRAPHS

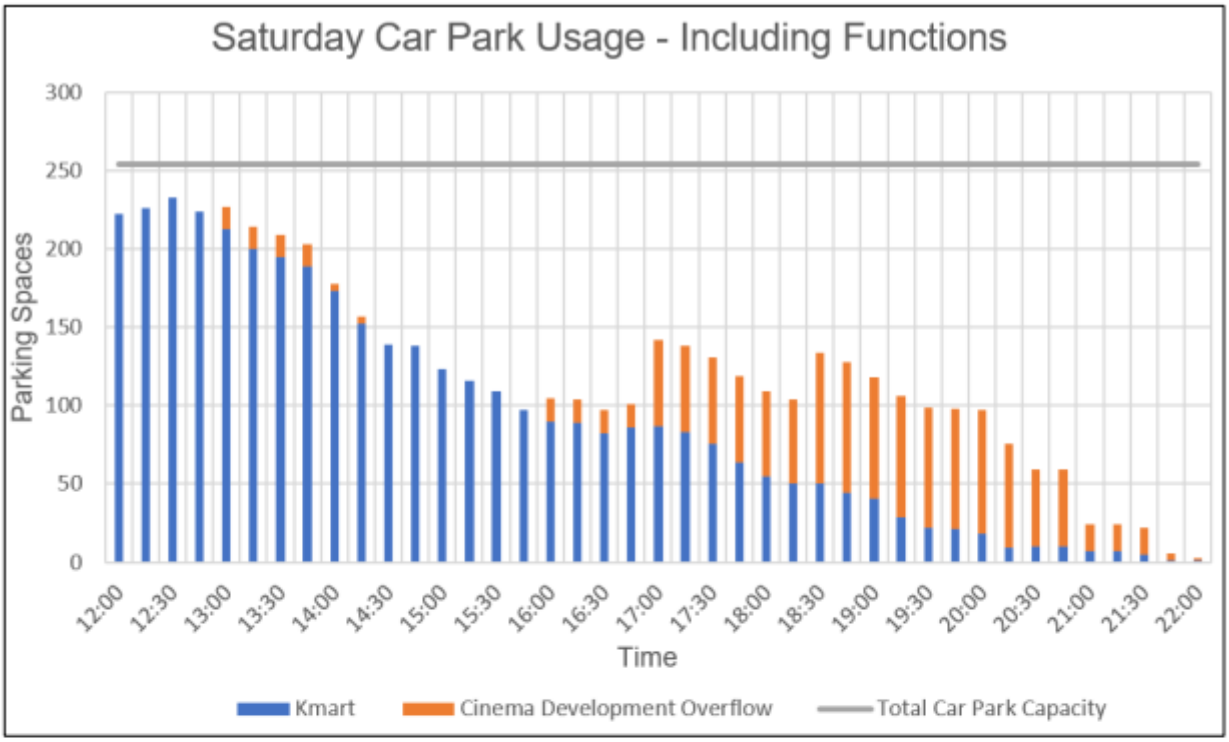



**FIGURE 3: KMART CARPARK – SATURDAY USAGE WITH FUNCTIONS**

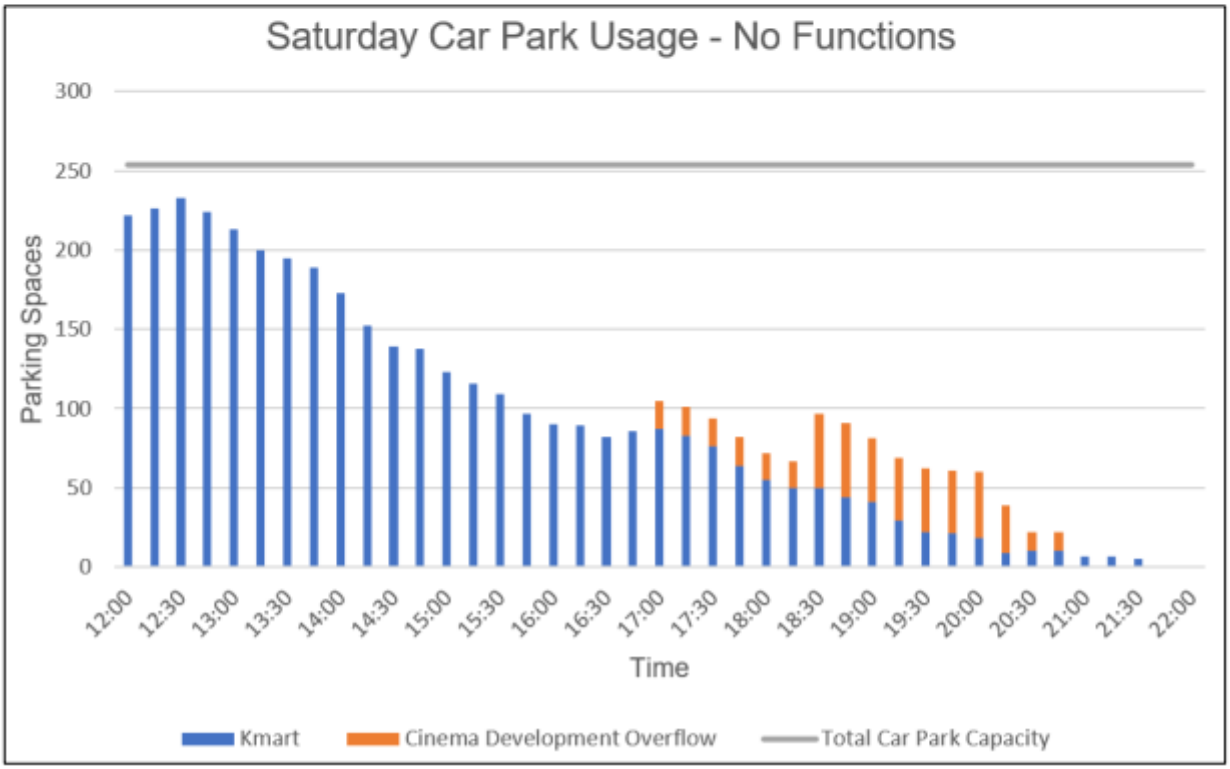



**FIGURE 4: KMART CARPARK – SATURDAY USAGE WITHOUT FUNCTIONS**