



**PLANNING PROPOSAL OF
PROPOSED MIXED USE RESIDENTIAL & RETAIL DEVELOPMENT
AT 22-32 QUEEN STREET, CAMPBELLTOWN**



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Development Type: Proposed Mixed Use Residential & Retail Development

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1 INTRODUCTION

McLaren Traffic Engineering (MTE) was commissioned by *Pacific Planning Pty Ltd* to provide a Planning Proposal of the proposed Mixed Use Residential & Retail Development at 22-32 Queen Street, Campbelltown.

1.1 Description and Scale of Development

The development is separated into six (6) buildings within the site, and consists of the following scale relevant to traffic and parking analysis:

- 1,045 Total Residential Units including:
 - 279 One Bedroom Units
 - 673 Two Bedroom Units
 - 93 Three Bedroom Units
- 7,376m² Commercial Office Space
- 11,844m² Retail Space

To accommodate the development, the existing retail tenancies will be significantly altered to allow additional parking, retail tenancies and structural improvements for the residential podiums above. Concept plans of the proposed development are presented in **Annexure A**.

1.2 State Environmental Planning Policy (Infrastructure) 2007

The proposed development qualifies as a development with relevant size and/or capacity under Clause 104 of the SEPP (Infrastructure) 2007. Accordingly, formal referral to the Roads and Maritime Services (RMS) is necessary and Campbelltown Council officers can assess this proposal accordingly, referring it to the RMS.

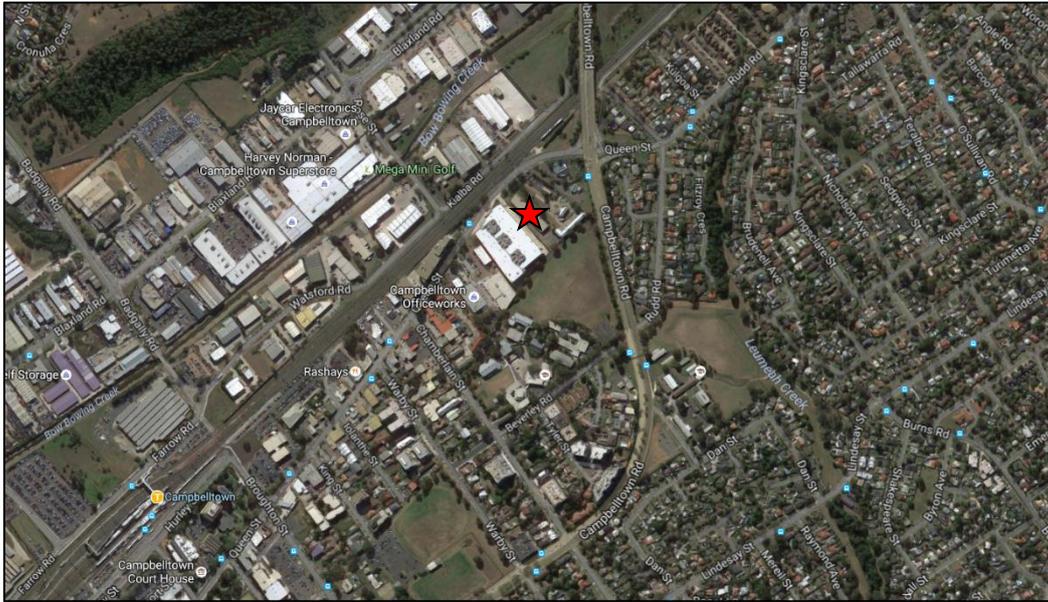
1.3 Site Description

The subject site is currently occupied by DFO with frontages to Queen Street to the north. All vehicular access to the car park is via the existing driveway at 32 Queen Street, along the southern boundary of the site.

The site is generally surrounded by low to medium density residential dwellings on the south and retail businesses on the north-west, with Western Sydney University & the Campbelltown Train station located to the west of the site.

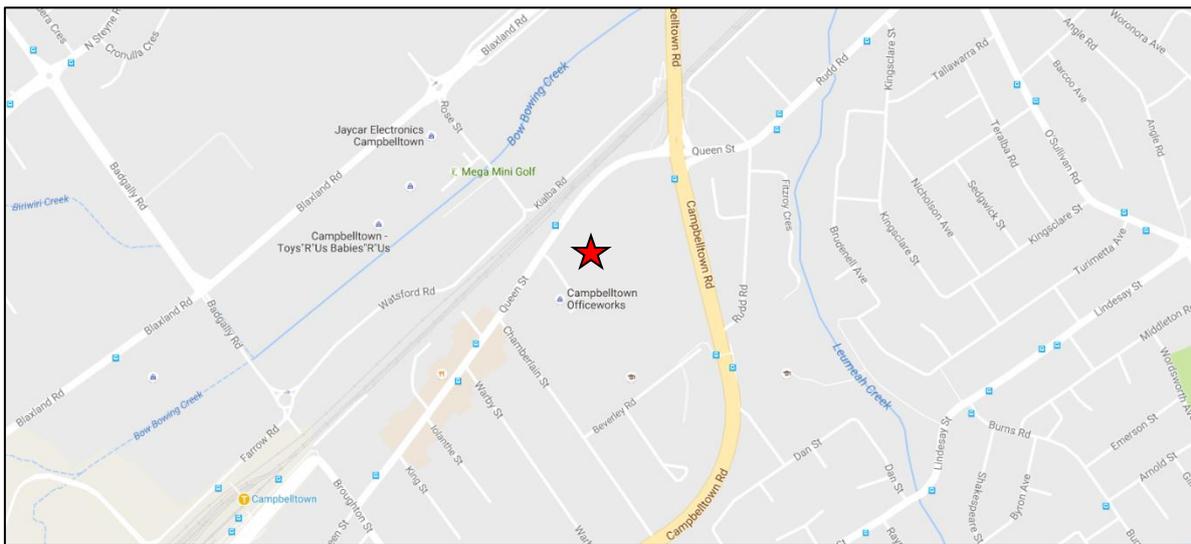
1.4 Site Context

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*

Campbelltown Road has the following characteristics within close proximity to the site:

- RMS Classified STATE Road (No. 680)
- Approximately 21m in width (including a 3m medium strip) facilitating two lanes & shoulder in both direction
- Signposted 60km/h carriageway

Queen Street has the following characteristics within close proximity to the site:

- Unclassified Regional Road (No. 7193)
- Approximately 12m in width facilitating two lanes passing in both directions
- Signposted 60km/h carriageway

Chamberlain Street has the following characteristics within close proximity to the site:

- Unclassified LOCAL road
- Approximately 12m in width facilitating two-way passing and kerbside parking
- No speed limit signposted - 50km/h applies
- Unrestricted kerbside parking permitted along south side of the street.

Beverley Road has the following characteristics within close proximity to the site:

- Unclassified LOCAL road
- Approximately 12m in width facilitating two-way passing and kerbside parking
- No speed limit signposted - 50km/h applies
- Unrestricted kerbside parking permitted along south side of the street.

2.2 Existing Traffic Management

- Give-way sign controlled intersection of Beverly Road / Chamberlain Street
- Signal Controlled intersection of Queen Street / Chamberlain Street
- Signal Controlled intersection of Queen Street / Campbelltown Road with left turn left slip from west (Queen St) to north (Campbelltown Rd)
- Signal Controlled intersection of Chamberlain Street/ Campbelltown Road

2.3 Existing Traffic Environment

Traffic counts were completed at the intersections of Queen St / Chamberlain St, Chamberlain St / Campbelltown Rd, Campbelltown Rd / Blaxland Rd, Campbelltown Rd / Queen St, Queen St / Southern Site Driveway and Queen St / Northern Site Driveway on Thursday 3 November 2016, representing a typical weekday. Survey data is reproduced in **Annexure B**.

2.3.1 Campbelltown Road Two-Way Traffic Flows

There is an existing RMS count station located on Campbelltown Road. Approximately, 190m north of Blaxland Road (Station I.D. 83011) which provides historical traffic volume data for Campbelltown Road.

The recorded Annual Average Daily Traffic (AADT) volumes are summarised in **Table 1**.

TABLE 1: CAMPBELLTOWN ROAD (AADT)

Direction	2008	2009	2010	2011	2012	2013
Northbound	22,428	21,970	22,650	22,276	22,223	22,191
Southbound	n.a	20,579	21,198	21,435	21,661	21,524
Total	n.a	42,549	43,848	43,711	43,884	43,715
Direction	2014	2015	2016	2017	2018	
Northbound	22,043	22,221	22,876	23,199	22,176	
Southbound	21,793	22,363	22,010	22,311	21,344	
Total	43,836	44,584	44,886	45,510	43,520	

The traffic volume along Campbelltown Road has historically experienced an annual growth rate of less than 1% since 2009.

2.3.2 Existing Intersection Performances

Existing intersection performances have been assessed using SIDRA INTERSECTION 7.0. The analysis is summarised in **Table 2**. The SIDRA output summaries are provided in **Annexure C** for reference.

TABLE 2: INTERSECTION PERFORMANCES (SIDRA INTERSECTION 7.0)

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay ⁽²⁾ (sec/veh)	Level of Service ⁽³⁾	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE							
Chamberlain St / Queen St	AM	0.64	13.5 (Worst 29.3)	A (Worst C)	Signals	RT from Chamberlain Street	9.7 veh (69.4m) Queen Street
	PM	0.83	15.7 (Worst 23.6)	B (Worst B)		RT from Chamberlain Street	18.5 veh (132.1m) Queen Street
Chamberlain Street / Moore Street	AM	0.60	17 (Worst 34)	B (Worst C)	Signals	RT from Chamberlain Street S	12.1 veh (88.1m) Moore Street
	PM	0.52	16.1 (Worst 55.5)	B (Worst D)		RT from Chamberlain Street N	19 veh (139m) Moore Street
Campbelltown Road / Blaxland	AM	0.77	20.2 (Worst: 47.2)	B (Worst: D)	Give Way	RT from Blaxland Road	24.9 veh (181.6m) Campbelltown Road S
	PM	0.84	24.5 (Worst: 52.7)	B (Worst: D)		RT from Blaxland Road	33.5 veh (244.9m) Campbelltown Road S
Campbelltown Road / Queen St	AM	0.91	27.9 (Worst: 63.5)	B (Worst: E)	Give Way	T from Queen St W	21 veh (153m) Campbelltown Road S
	PM	0.92	37 (Worst: 90.3)	C (Worst: F)		T from Queen St W	51.1 veh (373.1m) Campbelltown Road N
Queen Street / Queen Street Driveway	AM	0.67	11 (Worst: 25.9)	A (Worst: B)	Give Way	RT from 32 Queen Street Driveway (Signalised)	10.4 veh (74.2m) Queen Street
	PM	0.60	10.2 (Worst: 26.4)	A (Worst: B)		RT from 32 Queen Street Driveway (Signalised)	7.4 veh (52.8m) Queen Street

NOTES:

- (1) Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.
- (2) Average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.
- (3) 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) 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 above, the surrounding intersections are generally operating satisfactorily during the morning and afternoon peak periods, with the exception of the Campbelltown Road /

Queen Street intersection. This represents minimal delays and additional capacity. Queen Street, which is the minor road has through movements currently operating at LoS E and LoS F.

2.4 Public Transport

The subject site has access to existing bus routes 870, 871, 872, 877 and 878 provided by Sydney Buses which operates along Queen Street, with the nearest bus stop located in front of the site. Route numbers 870,871,872, provide access from Campbelltown to Liverpool via Glenfield/Macquarie fields respectively whilst the 877 & 878 services operates between Campbelltown and Kearns via Eschol Park. The routes start/end at Campbelltown Train Station which provides a convenient bus / rail interchange. The bus routes are presented in **Figure 3**.

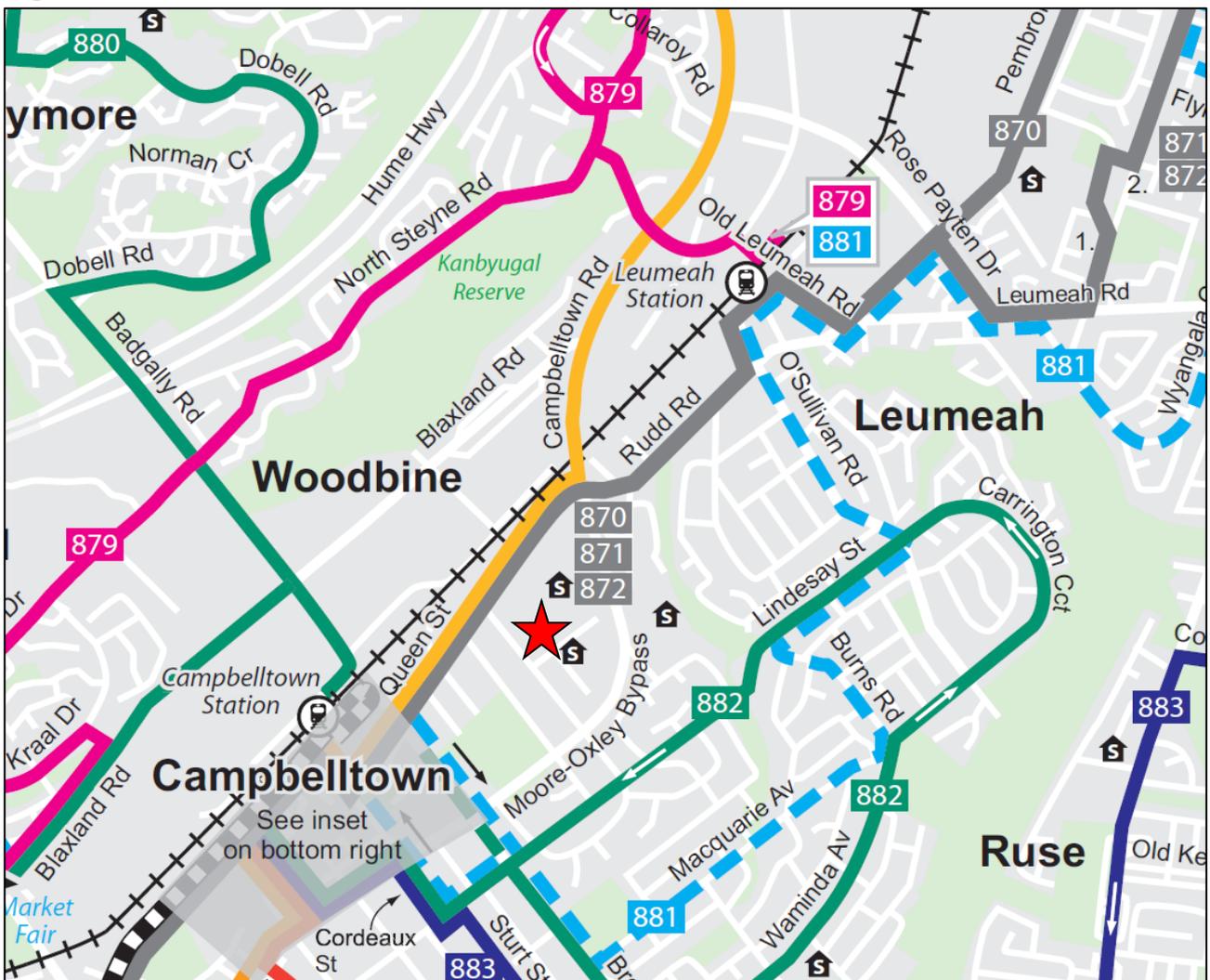


FIGURE 3: PUBLIC TRANSPORT

Furthermore, Campbelltown Railway Station is located approximately 1.0km to the south-west of the site. The Campbelltown Train Station services the T8 Airport Line and the Southern Highlands Line providing high frequency services during the morning and evening peak hour periods.

2.5 Campbelltown Journey to Work Data

The travel characteristics for Campbelltown residents travelling to / from work is gathered from the Journey to Work (JTW) data extracted from the Australian Bureau of Statistics (ABS) Census Data for the year 2011. Relevant data extract from the ABS is provided in **Annexure D**.

The development site (Stage 1 & 2) is located in Travel Zone 3215, within the Campbelltown Local Government Area (LGA). The relevant JTW data of Travel Zone 3215 is summarised in **Table 3 & Table 4**.

TABLE 3: JTW TRAVEL MODE

Travel Mode	Travel from TZ 3215	Travel to TZ 3215
Vehicle Driver	60%	80%
Vehicle Passenger	3%	8%
Train	24%	4%
Bus	1%	3%
Walked	8%	2%
Other	4%	3%

TABLE 4: JTW ORIGIN AND DESTINATION

Destination	All Modes	Car Only	Origins	All Modes	Car Only
Campbelltown (NSW)	36.11%	55.77%	Campbelltown	52.7%	72%
Sydney Inner City	12.85%	8.11%	Camden	15.7%	81%
Liverpool	9.03%	57.69%	Wollondilly	7.8%	80%
Bankstown	5.21%	80.00%	Liverpool	3.2%	80%
Camden	4.17%	100.00%	Bringelly - Green Valley	2.9%	84%
Fairfield	3.47%	60.00%	Wollongong	2.5%	85%
Merrylands - Guildford	3.13%	66.67%	Fairfield	1.8%	80%
Southern Highlands	2.78%	100.00%	Southern Highlands	1.4%	82%
Auburn	2.78%	100.00%	Bankstown	1.3%	74%
Baulkham Hills	2.08%	100.00%	Penrith	0.9%	77%
Other	18.4%	60%	Other	9.8%	75%

Note: 100% car only reflects all people drove to the origin / destination

Based upon the journey to work data for travel zone 3215, the destination trip generation is estimated as follows:

- Travel north on Campbelltown Road towards Hume Motorway = 60%
- Travel south towards Campbelltown Road onto Hume Motorway = 20%
- Travel west via Queen Street = 10%
- Travel East & West via Campbelltown Road = 10%

3 PARKING ASSESSMENT

3.1 Council Parking Requirement

Reference is made to Campbelltown (Sustainable City) Council 2015 DCP, *Volume 1- Part 5 – Residential Flat Buildings and Mixed-Use Developments* which designates the following parking rates:

5.5.4 Car Parking and Access

(h) Each dwelling shall be provided with a minimum of one car parking space, and

an additional car parking space for every 4 dwellings (or part thereof); and

an additional visitor car parking space for every 10 dwellings (or part thereof).

5.6.3 Car Parking and Access in Areas Zoned B3 & B4

(a) In addition to residential car parking rates (section 5.5.4), the development shall provided one (1) car parking space per 25sqm of leasable floor space at ground level and one (1) car parking space per 35sqm of floor space at upper levels for all commercial retail parts of the buildings.

Table 6.4.2.1 Car Parking Rates;

Commercial Premises;

Office and Business Premises: Ground floor – 1 space for every 25m² of the GFA, Upper levels-1 space per 35m² of GFA.

5.5.4 Car Parking and Access

b) The minimum dimensions of any parking space shall be 2.5 x 5.5 metres. The minimum width of any car parking space shall be increased by 300mm for each side that adjoins a vertical edge.

c) Driveways shall be located a minimum distance of 6 metres from the splay of any unsignalled intersection

f) Development containing 3 or more storeys shall provide all required car parking at basement level.

Based upon Council's DCP parking rates, the car parking requirement for the development is summarised in **Table 5**. It is relevant to note that Council's DCP is generally silent on fraction numbers, such that standard rounding has been adopted i.e. rounded up or down to the nearest whole number.

TABLE 5: COUNCIL DCP CAR PARKING REQUIREMENT

Land Use	Scale	Rate	Requirement
Residential	1,045 Units	1 space per dwelling	1,045
	1,045 Units	1 space per 4 dwellings	261
	1,045 Units	1 Visitor space per 10 dwellings	105
Subtotal			1,411
Ground Floor Retail	11,844 m ² GFA	1 space per 25m ²	474
First Floor Commercial Office Space	7,376 m ² GFA	1 space per 35m ²	211
TOTAL			2,096 spaces

Therefore, the development requires 1,306 residential, 105 visitor and 685 commercial parking spaces for a total of **2,096** car parking spaces according to the Council DCP rates. However, the site is located on land zoned B4 Mixed Use according to Campbelltown Councils LEP maps. The Apartment Design Guide states the following regarding developments on land zoned B4 Mixed Use in relation to parking requirements.

The minimum car parking requirement for residents and visitors is set out in the Guide to Traffic Generating Developments, or the car parking requirement prescribed by the relevant council, whichever is less.

According to the above, the residential portion of the proposed development can use RMS car parking rates provided that they are lower than Campbelltown Council's requirements. The retail parking requirement shall be consistent with the Council's DCP parking rates. The RMS Guide outlines the following parking requirements relevant to the subject proposal.

Metropolitan Sub-Regional Centres

0.6 spaces per 1 bedroom unit;

0.9 spaces per 2 bedroom unit;

1.4 spaces per 3 bedroom unit;

1 space per 5 units (visitor parking).

Based on the RMS and Council DCP parking rates, the car parking requirement for the development is summarised in **Table 6**.

TABLE 6: RMS AND COUNCIL DCP CAR PARKING REQUIREMENT

Land Use	Authority	Scale	Rate	Requirement
Residential	RMS	279 one-bedroom	0.4 spaces / unit	112
		673 two-bedroom	0.7 spaces / unit	471
		93 three-bedroom	1.4 spaces / unit	130
		1,045 Units	1 Visitor space per 5 dwellings	209
Subtotal				922
Ground Floor Retail	Council DCP	11,844 m ² GFA	1 space per 25m ²	474
First Floor Commercial Office Space		7,376 m ² GFA	1 space per 35m ²	211
Subtotal				685
TOTAL				1,607 spaces

As shown above, the Council DCP residential car parking requirement is significantly larger than the RMS residential car parking requirement, thus, the RMS car parking requirement is adopted, and the total car parking requirement for the proposal is **1,607** spaces (922 residential + 685 retail/commercial).

The proposal shall provide all required parking spaces according to the RMS and DCP requirements discussed in **Section 3.1** and shown in **Table 6**.

3.2 Bicycle & Motorcycle parking Requirements

Campbelltown (Sustainable City) Council 2015 DCP, *Volume 1- Part 5 – Residential Flat Buildings and Mixed-Use Developments* states the following:

5.5.4 Car Parking and Access

(j) Each development shall make provision for bicycle storage at a rate of 1 space per 5 dwellings within common property

Based upon Council's bicycle parking rate, the development requires 209 bicycles spaces for residents. The Campbelltown Council DCP does not provide bicycle parking rates for commercial development, thus, only residential bicycle parking is required.

3.3 Servicing & Loading

Campbelltown (Sustainable City) Council 2015 DCP, *Part 5 – Residential Flat Buildings and Mixed-Use Developments* states the following with respect to servicing:

5.4.8.4 Waste Collection

(a) Any development containing 20 or more dwellings and/or the number of bins proposed cannot be accommodated within 50% of the development's frontage on collection day (the calculation shall allow for 300mm separation distance on either side of each bin) shall be

designed to accommodate a-forward-in forward-out drive-on collection for on-site servicing. The designated area must meet the following requirement:

- i. There shall be a minimum height of 5.2 metres;
- ii. There shall be provision for a waste collection vehicle to empty bins on the vehicles left side, allowing for a width of 3.8 metres from the right side of the vehicle to the collection point;
- iii. Where the waste collection vehicle is required to turn around on site, there must be provision for a vehicle of 10.4 metres length to negotiate a maximum three-point turn allowing the waste collection truck to enter and leave the property in a forward direction;
- iv. The maximum grade of any path of travel for collection vehicle shall be 1V:20H for the first 6 metres from the street, and 1V:12H thereafter;
- v. The minimum path width for a collection vehicle shall be 3.6 metres wide; and
- vi. Constructed to withstand the loaded mass of the waste collection vehicle of 24 tonnes

Campbelltown (Sustainable City) Council 2015 DCP, Part 6 – Commercial Development states the following:

6.4.2.2 Loading and Unloading

(f) each new commercial building / unit having a gross floor area:

- i. Up to 200 square metres shall provide a loading area to allow for a small rigid vehicle to on site;
- ii. More than 200 square metres, but up to 1500 square metres shall provide an area to allow for a medium rigid vehicle to manoeuvre on site; and
- iii. More than 1,500 square metres shall provide a loading area to allow for a heavy rigid vehicle to manoeuvre on site.

The proposal provides a single separate loading and service area at the ground floor level. The loading area should provide a compliant number of loading bays based on the above DCP requirements. Loading and service bays may potentially be shared between retail and commercial tenancies under a plan of management.

3.4 Disabled Parking

Campbelltown (Sustainable City) Council 2015 DCP, Volume 1- Part 5 – Residential Flat Buildings and Mixed-Use Developments states the following with respect to disabled units and parking:

5.5.3 General Requirements for Residential Flat Buildings

(b) A minimum of 10% of the total number of dwellings within a residential flat building shall be adaptable dwelling(s).

5.7.7 Access for people with disabilities

(a) Mixed use development shall comply with the minimum access requirements contained within the BCA, the Disability (Access to Premises – Building) Standard 2010 and Australian Standard 1428 – Design for Access and Mobility

Therefore, the proposal requires a minimum of 105 adaptable units and **105** disabled car parking spaces allocated to these dwellings. A provision of 2% for commercial parking is appropriate to comply with the relevant standards. This results in the minimum requirement of **14** disabled spaces for the commercial use.

3.5 Car Park Design & Compliance

The proposed car parking layout consists of existing approved parking areas for the existing use and new car parking areas to accommodate the residential development. Generally, the car parking areas shall achieve the following:

- Minimum 2.5m wide x 5.4m long resident parking spaces;
- Minimum 2.5m wide x 5.4m long resident visitor parking spaces;
- Minimum 2.6m wide x 5.4m long retail customer parking spaces;
- Additional 300mm clearance added to car parking spaces located adjacent to side walls or obstructions;
- 1.0m blind aisle extension provided where necessary;
- Disabled car parking spaces provided with compliant shared zones of 2.4m in width and 5.4m in length;
- Minimum 2.2m headroom provided for passenger car circulation, increased to 2.5m above disabled car parking spaces and shared zones.

It is generally accepted that a condition of consent would be issued with requirements to comply with AS2890.1 prior to the issue of a construction certificate.

3.6 Site Access & Circulation

In terms of access and circulation to the site MTE recommends that the site be accessed from Queen Street by a single signalised intersection similar to the existing intersection at 32 Queen Street. Right turns to / from Queen Street should be allowed from this intersection at all times. The location and geometry of this access is subject to further design, however the traffic assessment in **Section 4** has been calculated using the geometry and phasing of the existing intersection at 32 Queen Street.

4 TRAFFIC ASSESSMENT

The following sub-sections of this report assess the likely traffic impacts associated with the proposed development scale, including details of the surrounding road network performance and recommendations of any measures to alleviate forecast impacts, if necessary.

4.1 *Traffic Generation*

The RMS “*Guide to Traffic Generating Developments*” 2002 provides fundamental traffic generation rates applicable to various land uses, particularly residential and retail developments. These trip generation rates are provided to determine the likely traffic generation of the proposed development scale. The RMS Guide provides the following:

Residential

Metropolitan Regional (CBD) Centres:

0.24 trips per unit

Metropolitan Sub-Regional Centres:

0.29 trips per unit

Office and Commercial

Evening peak hour vehicle trips: 2 per 100 m² gross floor area

Retail

<i>Size</i>	<i>Thursday</i>	<i>Friday</i>	<i>Saturday</i>
<i>0-10,000m² GLFA</i>	<i>12.3 trips / 100m²</i>	<i>12.5 trips / 100m²</i>	<i>16.3 trips / 100m²</i>
<i>10,000-20,000m² GLFA</i>	<i>7.6 trips / 100m²</i>	<i>6.2 trips / 100m²</i>	<i>7.5 trips / 100m²</i>

It is important to identify the updated trip generation rates issued by the RMS in their Technical Direction TDT 2013-04a, which provides the following:

Residential

High Density

0.19 trips per unit in the AM

0.15 trips per unit in the PM

Retail

<i>Size</i>	<i>Thursday</i>	<i>Friday</i>	<i>Saturday</i>
<i>0-10,000m² GLFA</i>	<i>12.3 trips / 100m²</i>	<i>12.5 trips / 100m²</i>	<i>16.3 trips / 100m²</i>
<i>10,000-20,000m² GLFA</i>	<i>6.2 trips / 100m²</i>	<i>6.7trips / 100m²</i>	<i>7.5 trips / 100m²</i>

Upon reviewing the two RMS documents, the residential trip generation rates have reduced largely due to proximity to public transport and reductions in private car dependency in areas of high accessibility to public transport. The retail shopping centre rates have generally remained consistent.

Campbelltown Council have expressed concern over the use of 0.24 trips per unit as the baseline traffic generation rate which *“is less than the value recommended for Parramatta Metropolitan Area, which is not reasonable.”* The RMS updated survey for high density residential included a site within Parramatta and found a morning peak hour generation rate of 0.265 trips per unit and an evening peak hour rate of 0.12 trips per unit. For a robust assessment, the trip generation rate adopted for the purpose of intersection modelling is based upon 0.265 trips per unit in the morning and evening.

Additionally, it is reasonable to assume that the morning peak hour trip generation for the first-floor office space will be similar to the evening trip generation. Thus, a rate of 2 trips per 100m² GFA is used for both AM and PM peak periods.

The resulting traffic generation is summarised in **Table 7**.

TABLE 7: FORECAST TRAFFIC GENERATION SUMMARY

Land Use	Scale	Trip Generation Rate		Traffic Generation	
		AM	PM	AM	PM
Residential	1,045 Units	0.265 per unit	0.265 per unit	277	277
Retail	11,844 m ²	3.1 / 100m ²	6.2 / 100m ²	367	734
Commercial Office Space	7,376 m ²	2 / 100m ² GFA	2 / 100m ² GFA	148	148
TOTAL				792	1,159

The proposed development scale is estimated to generate 792 to 1,159 peak hour movements during the weekday AM and PM commuter peak hour periods.

With respect to the existing DFO and associated retail tenancies, there is approximately 12,800m² of GLFA. Based upon the RMS Guide’s trip generation rates, 794 peak hour trips during the PM could have reasonably been expected. During the morning period, this would be some 397 peak hour vehicle trips. As a result of the proposed development, during the AM period there would be a net increase of some 395 vehicle trips whilst the PM peak will most likely result in a net increase of 365 peak hour vehicle trips.

Theoretically, the site has approval for up to some 790 vehicle trips based upon the existing GLFA, however the centre is currently underperforming. As such the site is being redeveloped to re-activate this area of the Campbelltown City Centre.

Additionally, the trip distribution patterns are different between the existing use of the site (retail) and the proposed use (retail and residential). In order to determine the impact of the altered trip generation and distribution, the potential traffic generation of the fully operational and approved DFO has been assessed as well as the proposed development scale.

4.2 Traffic Assignment

The retail traffic generation assignment has been estimated based upon the inbound and outbound traffic flows on the perimeter of the town centre, from Campbelltown Road and internally from the survey undertaken at the intersection Queen Street / Chamberlain Street.

The proposed residential traffic assignment has been based upon the JTW data detailed in **Section 2.5**. The trip distribution is as follows:

- Travel north on Campbelltown Road towards Hume Motorway = 60%
- Travel south towards Campbelltown Road onto Hume Motorway = 20%
- Travel west via Queen Street= 10%
- Travel East & West via Campbelltown Road = 10%

The trip distribution is diagrammatically provided in **Annexure E**.

4.3 Traffic Impact

The traffic generation outlined in **Section 4.1 & 4.2** above has been added to the existing traffic volumes recorded. SIDRA INTERSECTION 7.0 was used to assess the intersections performance. The purpose of this assessment is to compare the existing intersection operations to the future scenario under the increased traffic load.

Table 8, & Table 9 summarise the intersection performances under the future traffic load of a full-scale development. The SIDRA output summaries are provided in **Annexure F**.

TABLE 8: INTERSECTION PERFORMANCES BASED UPON EXISTING TRAFFIC VOLUMES AND FUTURE BACKGROUND GROWTH

Intersection	Peak Hour	Degree of Saturation⁽¹⁾	Average Delay⁽²⁾ (sec/vehicle)	Level of Service⁽³⁾	Control Type
EXISTING PERFORMANCE					
Queen St / Chamberlain St	AM	0.64	13.5	A (Worst C)	Signals
	PM	0.83	15.7	B (Worst B)	
Chamberlain St / Campbelltown Rd	AM	0.60	17	B (Worst C)	Signals
	PM	0.52	16.1	B (Worst D)	
Campbelltown Rd / Blaxland Rd	AM	0.77	20.2	B (Worst D)	Signals
	PM	0.84	24.5	B (Worst D)	
Campbelltown Rd / Queen St	AM	0.91	27.9	B (Worst E)	Signals
	PM	0.92	37	C (Worst F)	
Queen St / Site Driveway	AM	0.67	11	A (Worst B)	Signals
	PM	0.60	10.2	A (Worst B)	
EXISTING + 10 YEAR GROWTH ON QUEEN STREET & CAMPBELLTOWN ROAD					
Queen St / Chamberlain St	AM	0.69	13.3	A (Worst C)	Signals
	PM	0.85	14.7	B (Worst C)	
Chamberlain St / Campbelltown Rd	AM	0.64	17.2	B (Worst C)	Signals
	PM	0.57	16.0	B (Worst E)	
Campbelltown Rd / Blaxland Rd	AM	0.81	21.9	B (Worst D)	Signals
	PM	0.86	28.6	C (Worst E)	
Campbelltown Rd / Queen St	AM	0.80	32.8	C (Worst E)	Signals
	PM	0.89	38.0	C (Worst F)	
Queen St / Site Driveway	AM	0.74	12.2	A (Worst B)	Signals
	PM	0.79	11.7	A (Worst B)	

TABLE 9: INTERSECTION PERFORMANCES BASED EXPECTED DFO OPERATION AND PROPOSED DEVELOPMENT, INCLUSIVE OF BACKGROUND GROWTH

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay ⁽²⁾ (sec/vehicle)	Level of Service ⁽³⁾	Control Type
EXISTING + EXPECTED DFO PERFORMANCE + 10 YEAR GROWTH					
Queen St / Chamberlain St	AM	0.76	15.5	B (Worst C)	Signals
	PM	0.93	18.4	B (Worst D)	
Chamberlain St / Campbelltown Rd	AM	0.68	17.6	B (Worst C)	Signals
	PM	0.59	16.7	B (Worst D)	
Campbelltown Rd / Blaxland Rd	AM	0.79	22.8	B (Worst E)	Signals
	PM	0.89	31.8	C (Worst E)	
Campbelltown Rd / Queen St	AM	0.941	42.9	D (Worst F)	Signals
	PM	1.02	61.8	E (Worst F)	
Queen St / Site Driveway	AM	0.75	13.6	A (Worst B)	Signals
	PM	0.81	15.7	B (Worst B)	
EXISTING + RETAIL + RESIDENTIAL PERFORMANCE + 10 YEAR GROWTH					
Queen St / Chamberlain St	AM	0.83	18.0	B (Worst C)	Signals
	PM	1.01	50.3	D (Worst F)	
Chamberlain St / Campbelltown Rd	AM	0.68	32.7	C (Worst D)	Signals
	PM	0.62	17.8	B (Worst D)	
Campbelltown Rd / Blaxland Rd	AM	0.83	26.1	B (Worst E)	Signals
	PM	0.91	33.5	C (Worst E)	
Campbelltown Rd / Queen St	AM	1.02	56.3	D (Worst F)	Signals
	PM	1.08	65.2	E (Worst F)	
Queen St / Southern Driveway	AM	0.85	18.5	B (Worst C)	Signals
	PM	0.81	19.4	B (Worst C)	

As shown in **Table 8** and **Table 9** above, most of the surrounding intersections remain unaltered under the future scenario when compared to the likely performances under the full operation of the existing DFO site. However, the Queen Street / 32 Queen Street Driveway and Queen Street / Campbelltown Road intersections are shown to operate at LoS D and LoS F respectively during the future scenario's PM peak. A summary of the Level of Service (LoS) for each of the key intersections analysed for each development scenario is presented in **Table 10**.

TABLE 10: LEVEL OF SERVICE SUMMARY

Intersection	Time	Existing	Existing + Growth	Existing + Expected DFO + Growth	Existing + Proposal + Growth
Queen St / Chamberlain St	AM	A (Worst C)	A (Worst C)	B (Worst C)	B (Worst C)
	PM	B (Worst B)	B (Worst C)	B (Worst D)	D (Worst F)
Chamberlain St / Campbelltown Rd	AM	B (Worst C)	B (Worst C)	B (Worst C)	C (Worst D)
	PM	B (Worst D)	B (Worst E)	B (Worst D)	B (Worst D)
Campbelltown Rd / Blaxland Rd	AM	B (Worst D)	B (Worst D)	B (Worst E)	B (Worst E)
	PM	B (Worst D)	C (Worst E)	C (Worst E)	C (Worst E)
Campbelltown Rd / Queen St	AM	B (Worst E)	C (Worst E)	D (Worst F)	D (Worst F)
	PM	C (Worst F)	C (Worst F)	E (Worst F)	E (Worst F)
Queen St / Site Driveway	AM	A (Worst B)	A (Worst B)	A (Worst B)	B (Worst C)
	PM	A (Worst B)	A (Worst B)	B (Worst B)	B (Worst C)

As per **Table 10** above, it is evident that several intersections surrounding the site will be oversaturated under the future scenario. The traffic generated by the subject proposal causes the Queen Street / Chamberlain Street, Campbelltown Road / Blaxland Road and Campbelltown Road / Queen Street intersections (highlighted in orange) have a movement which operates at LoS "E" or LoS "F", which represents congested conditions and very limited capacity.

The Queen Street / Site Driveway and Chamberlain Street / Campbelltown Road intersections are expected to operate at LoS "B" and LoS "C" under the future scenario. This represents spare capacity and minimal congestion.

4.4 Construction Staging

As shown in **Table 10**, the full scale of the proposed development cannot be accommodated within the current geometry of the surrounding road network. As such, improvements to the

intersections surrounding the site will be required in order to accommodate the traffic generated by the proposed development. As such, the development has been split up into the following construction stages.

- **Stage 1:** 11,844m² GFA Retail at the Ground Floor;
- **Stage 2:** 7,376m² GFA Commercial on Level 1;
- **Stage 3:** 1,045 Residential Units within the towers rising from the Retail/Commercial development.

Each of these stages of development generate its own individual peak traffic volume and period. The volume and split of each of these construction stages are summarised in **Table 11** below.

TABLE 11: CONSTRUCTION STAGING TRAFFIC GENERATION

Construction Stage	Scale	Trip Generation Rate		Trips Generated		In/Out % Split	
		AM	PM	AM	PM	AM	PM
Stage 1 - Retail	11,844m ² GFA	3.1 / 100m ²	6.2 / 100m ²	367	734	50/50	50/50
Stage 2 - Commercial	7,376m ² GFA	2 / 100m ²		148	148	50/50	50/50
Stage 3 - Residential	1,045 units	0.265 / unit		277	277	20/80	80/20

Further SIDRA analysis has been completed in order to analyse the traffic generated by each construction stage listed above. This exercise is meant to determine at what stage of development construction each surrounding intersection would need to be upgraded. The results of this SIDRA analysis are summarised in **Table 12** below.

TABLE 12: INTERSECTION UPGRADE THRESHOLDS

Intersection	Intersection Upgrade Threshold			Development Completion Percentage ⁽¹⁾
	Stage	Scale (GFA)	Generated Trips	
Queen Street / Chamberlain Street	Stage 1	6,000m ²	372	32%
Chamberlain Street / Campbelltown Road	N/A (Does not Fail)			
Campbelltown Road / Blaxland Road	Stage 1	6,500m ²	403	34%
Campbelltown Road / Queen Street	Stage 1	0m ²	0	0%
Queen Street / Site Driveway	N/A (Does not Fail)			

(1) – At time of required upgrade

As shown in **Table 12** above, the Campbelltown Road / Queen Street intersection will require an upgrade before any traffic is added to the system, whilst the Queen Street / Chamberlain Street and Campbelltown Road / Blaxland Road intersections will require an upgrade at 6,000m² GFA and 6,500m² GFA of retail development respectively.

The Chamberlain Street / Campbelltown Road and Queen Street / Site Driveway intersections do not require intersection upgrades as a result of the traffic generated by the subject development.

Intersection upgrade recommendations are discussed in the following section.

5 RECOMMENDATIONS

MTE has evaluated the geometries of the three intersections which require upgrades and have developed a concept for each which would allow each intersection to accommodate more traffic under the future scenario. It is relevant to note that these concepts are concept designs which are meant to alleviate the initial failure thresholds, and further upgrades may be required during future construction stages. A detailed design and analysis of intersection upgrades will be required at a later stage.

5.1 Queen Street / Chamberlain Street

Through this intersection, Queen Street western approach only has one lane which services both through movements from the west and right turn movements from the south. This intersection fails because the development generates too many RT movements from the south approach on Chamberlain Street.

To improve the intersection, it is recommended that Queen Street be linemarked to provide two through lanes. The west approach should have a through lane and a through / right turn lane. The eastern side of the intersection should have two receiving lanes, such that the through movements from the west and the right turn movements from the south are better accommodated. This recommendation is shown diagrammatically in **Figure 4** below.



FIGURE 4: QUEEN STREET / CHAMBERLAIN STREET UPGRADE

5.2 Campbelltown Road / Blaxland Road

The proposed development will generate through traffic on Campbelltown Road at this intersection. In addition to the background growth on Campbelltown Road, the through volumes on Campbelltown Road will cause the opposing right turn from Blaxland Road to reach LoS “E” after 6,500m² of Retail is in operation.

At the time of failure, the RT movement from Blaxland Road experiences a queue of 111 metres. The Blaxland Road approach has a full-length RT lane and a 70m RT lane. The 70m length lane is limited by a 60m length RT lane from Blaxland Road westbound onto Mill Road.

In order to improve this intersection, it is recommended that the phasing be adjusted to give more green time to the right turn from Blaxland Road. The through movements on Campbelltown Road at full development scale operate at LoS “D” (southbound) and Los “A” (northbound). Small adjustments could be made to the phasing to improve both movements to LoS “D”.

Additionally, at the time the intersection requires an upgrade, the RT queue length is longer than the second RT lane. it is recommended to undertake a queue length survey on the RT lane from Blaxland Road onto Mill Road. If this lane is overdesigned, the surplus lane length

could be given to the 70m length RT lane, which would improve the RT movement from Blaxland Road.

The above concept is shown diagrammatically in **Figure 5** below.



FIGURE 5: POTENTIAL BLAXLAND ROAD INTERSECTION UPGRADE

5.3 Queen Street / Campbelltown Road

The Queen Street / Campbelltown Road intersection currently operates at an overall LoS "C", with a worst movement operating at LoS "F" and is theoretically approved to operate at an overall LoS "E", as this is the operation of the intersection with a fully operational DFO. It is important to note that the onus is not on the developer to improve intersections which are already operating at LoS "F". The onus is on the Roads and Maritime Services (RMS) to provide solutions to alleviate congestion on RMS roads. As such, the intersection will need to be upgraded if the operation of the intersection worsens.

The intersection will require an upgrade immediately, as any traffic generated by the development will increase the average delay of through movements from Queen Street W. In addition to this, the through movements from Campbelltown Road S reach LoS "F" after 5,500m² GFA of retail development.

In order to improve this intersection, MTE have developed two concepts to upgrade this intersection, both of which require geometric changes to the layout of the intersection. Option 1 will provide a better LoS for right turns from the north approach, while Option 2 will provide a better LoS for through movements from the north approach.

5.3.1 Option 1

It is recommended that the following changes be made to the intersection:

- Provide an additional RT lane from the north approach;
- Shift the through lanes to the east;
- Shorten the LT slip lane on the north approach;
- Provide a median where the westernmost receiving lane is currently located;
- Shift the two receiving lanes to the east;
- Realign the LT slip lane from the east approach;
- Combine all receiving lanes when the LT lane from the east merges with Campbelltown Road.

There is sufficient space within Campbelltown Road to provide this, although a small portion of the Council reserve on the south-eastern corner of the intersection must be used. This change widens the turning radius, such that the LT movement from the east approach is improved. This intersection layout is shown diagrammatically in **Figure 6** below.



FIGURE 6: QUEEN ST / CAMPBELLTOWN RD UPGRADE OPTION 1

5.3.2 Option 2

It is recommended that the following changes be made to the intersection:

- Provide an additional RT lane from the north approach. This will also allow through movements;
- Shift the through lanes on the north approach to the east;
- Shorten the LT slip lane on the north approach;
- Retain the receiving lanes on the southern side of the intersection.

The left turn lane from the Queen Street E approach will be required to merge at an earlier location such that there are three receiving lanes for through traffic from the northern approach. This intersection layout is shown diagrammatically in the **Figure 7** below.



FIGURE 7: QUEEN ST / CAMPBELLTOWN RD UPGRADE OPTION 2

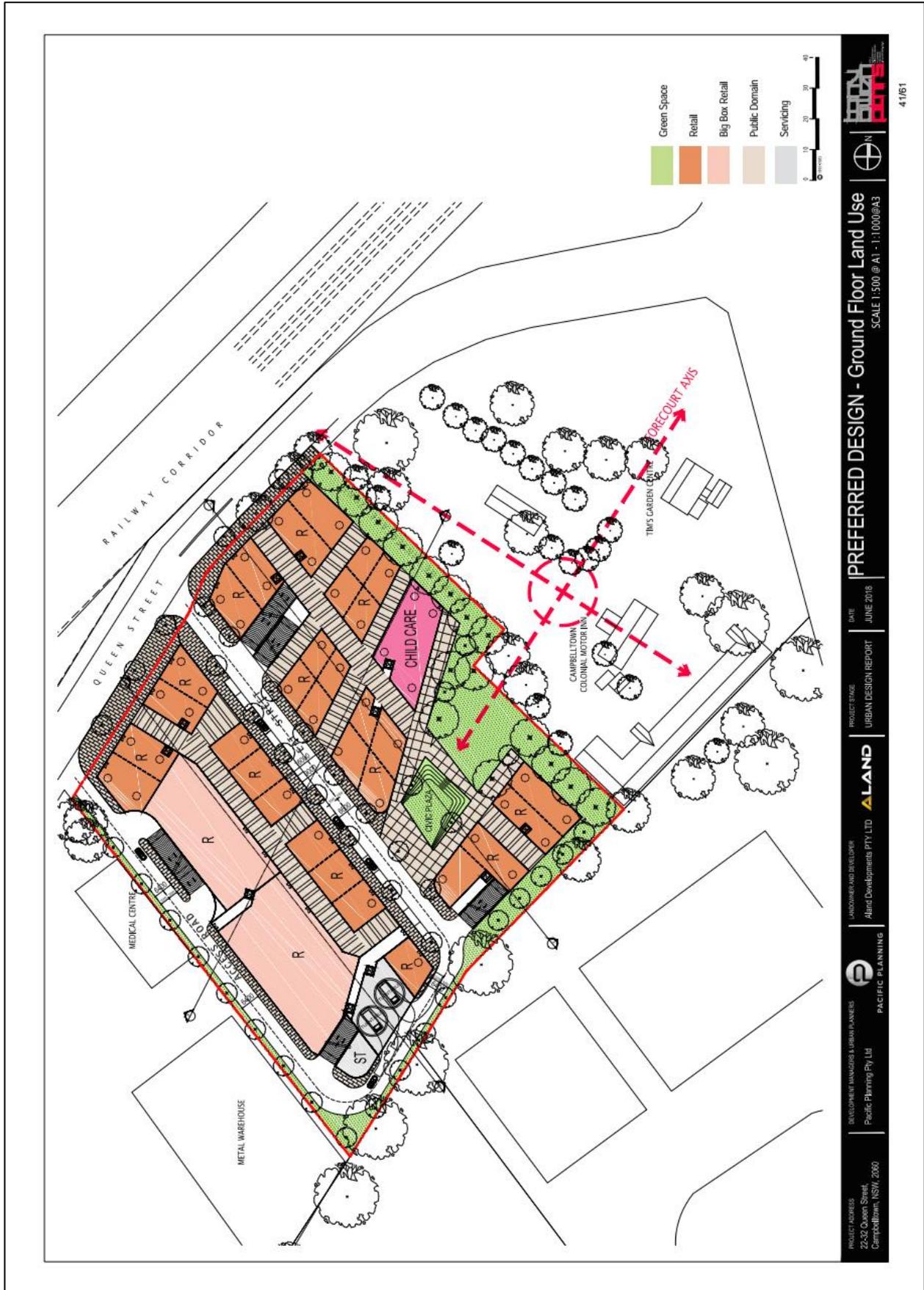
6 CONCLUSION

The proposal at 22-32 Queen Street, Campbelltown is supportable in terms of its traffic and parking impacts subject to intersection upgrades at the Queen Street / Campbelltown Road, Campbelltown Road / Blaxland Road, and the Queen Street / Chamberlain Road intersections. The findings of this traffic impact assessment are summarised below:

- The proposed development requires **713** residential, **209** visitor and **685** commercial parking spaces for a total of **1,607** car parking spaces as required by the *RMS Guide to Traffic Generating Developments*. The proposal is to supply these spaces as per the requirements of *AS2890.1:2004*, *AS 2890.2:2002* and *AS 2890.6:2009*.
- The proposal provides a single service and loading area which shall be able to accommodate the required service and loading bays for deliveries to the retail developments as well as waste collection. The loading area may be required to operate under a plan of management between all commercial and retail tenancies.
- With respect to the existing DFO and associated retail tenancies, there is approximately 12,800m² of GLFA. Based upon the RMS Guide's trip generation rates, 794 peak hour trips during the PM could have reasonably been expected. During the morning period, this would be some 397 peak hour vehicle trips. As a result of the proposed development, during the AM period there would be a net increase of some 395 vehicle trips whilst the PM peak will most likely result in an increase of 365 peak hour vehicle trips.
- Three surrounding intersections are not able to accommodate the increased traffic load under the future scenario when compared to the likely performances under the full operation of the existing DFO site. These intersections will require upgrades during the construction of the ground floor retail development.
- Recommendations for intersection upgrades are provided within the report which are meant to improve the intersections past the point of initial failure. A more detailed design and testing of intersection upgrades will be required at a later stage.

ANNEXURE A: PROPOSED CONCEPT PLANS AND SCALE

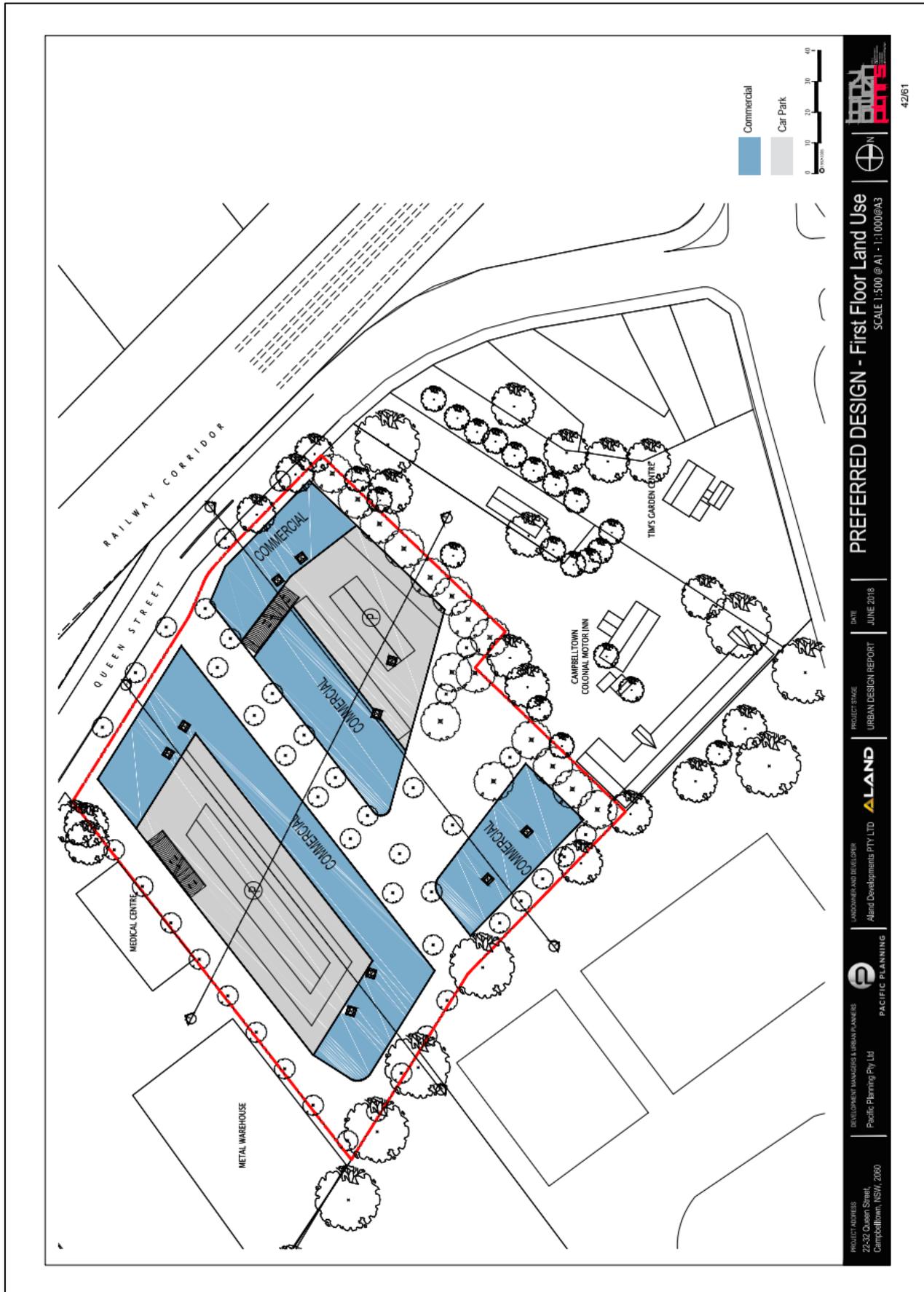
(Sheet 1 of 4)



PROJECT ADDRESS: 22-32 Queen Street, Campbelltown, NSW, 2060
 DEVELOPMENT MANAGERS / URBAN PLANNERS: Pacific Planning Pty Ltd
 ARCHITECTS AND DEVELOPERS: Aland Developments Pty Ltd
 LAND
 PROJECT STAGE: URBAN DESIGN REPORT
 DATE: JUNE 2018
 PREFERRED DESIGN - Ground Floor Land Use
 SCALE 1:500 @ A1 - 1:1000@A3
 4/161

ANNEXURE A: PROPOSED CONCEPT PLAN AND SCALE

(Sheet 2 of 4)



42/61


PREFERRED DESIGN - First Floor Land Use
 SCALE 1:500 @ A1 - 1:1000@A3

DATE: JUNE 2018
 PROJECT STAGE: URBAN DESIGN REPORT

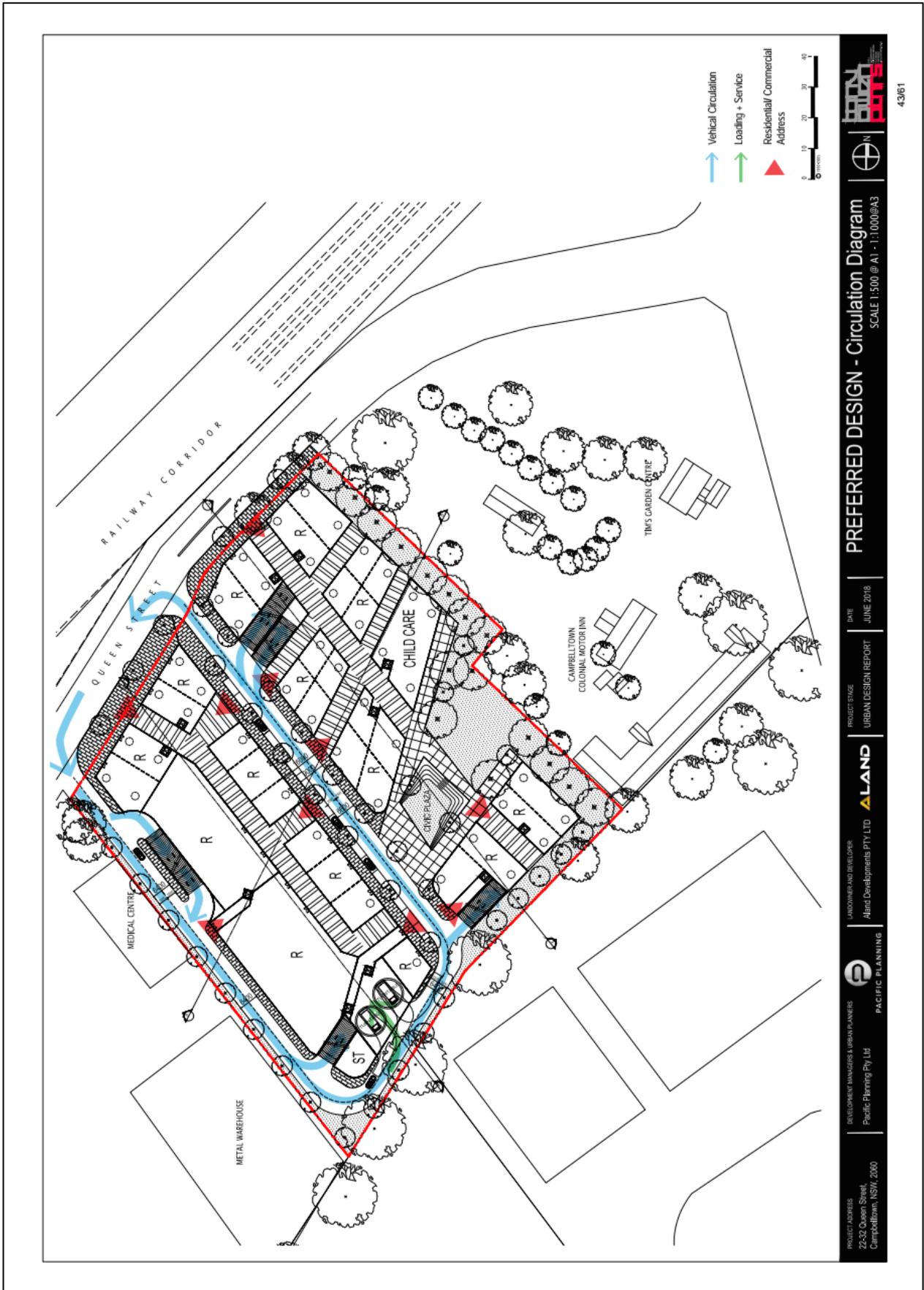
 **LAND**
 LANDOWNERS AND DEVELOPERS
 Aland Developments PTY LTD

 **PACIFIC PLANNING**
 DEVELOPMENT MANAGERS & URBAN PLANNERS
 Pacific Planning Pty Ltd

PROJECT ADDRESS:
 22-32 Queen Street,
 Campbelltown, NSW, 2060

ANNEXURE A: PROPOSED CONCEPT PLAN AND SCALE

(Sheet 3 of 4)



ANNEXURE A: PROPOSED CONCEPT PLAN AND SCALE

(Sheet 4 of 4)

INDICATIVE YIELD SCHEDULE:

Project:		Queen Street Campbelltown		Project No.:		951	
Project Address:		Queen Street Campbelltown		Overall Site Area:		20,452.20 sqm	
Overall Site Area:		20,452.20 sqm		DCR FSR:		-	
DCR FSR:		-		Consent Authority:		-	
Consent Authority:		-		Consent Date & Issue No.:		-	
Consent Date & Issue No.:		-		Overall Residential FSR:		19,220	
PROPOSED GROSS FLOOR AREA							
Overall Level	Building A 18 RT	Building B 33 RT	Building C 8 RT	Building D 23 RT	Building E 22 RT	Building F 38 RT	Overall Residential FSR
Level 1	1,183	1,317	1,079	1,180	1,201	1,184	7,124
Level 2	1,183	1,317	1,079	1,180	1,201	1,184	7,124
Level 3	1,183	1,317	1,079	1,180	1,201	1,184	6,804
Level 4	1,183	1,317	1,079	1,180	1,201	1,184	6,525
Level 5	1,183	1,317	1,079	1,180	1,201	1,184	6,245
Level 6	959	1,055	780	1,055	976	952	4,924
Level 7	959	1,055	780	1,055	976	952	4,644
Level 8	959	962	962	1,055	976	952	4,364
Level 9	959	962	962	1,055	976	952	4,084
Level 10	959	962	962	1,055	976	952	3,804
Level 11	828	962	962	1,055	976	952	3,524
Level 12	828	962	962	1,055	976	952	3,244
Level 13	828	962	962	1,055	976	952	2,964
Level 14	828	962	962	1,055	976	952	2,684
Level 15	828	962	962	1,055	976	952	2,404
Level 16	828	962	962	1,055	976	952	2,124
Level 17	828	962	962	1,055	976	952	1,844
Level 18	828	962	962	1,055	976	952	1,564
Level 19	828	962	962	1,055	976	952	1,284
Level 20	828	962	962	1,055	976	952	1,004
Level 21	828	962	962	1,055	976	952	724
Level 22	828	962	962	1,055	976	952	444
Level 23	828	962	962	1,055	976	952	164
Level 24	828	962	962	1,055	976	952	84
Residential SUBTOTAL	15,435.42	12,710.78	5,313.00	23,527.73	20,150.13	16,089.15	93,221.21
COMMERCIAL/RETAIL GFA							19,719.86 m²
PROPOSED COMMERCIAL/RETAIL FSR							0.94 :1
RESIDENTIAL GFA							93,221.21 m²
PROPOSED RESIDENTIAL FSR							4.56 :1
OVERALL DEVELOPMENT GFA							112,941.06 m²
OVERALL DEVELOPMENT FSR							5.50 :1

INDICATIVE UNIT MATRIX:

Building	1 Bed	2 Bed	3 Bed	TOTAL	1 Bed %	2 Bed %	3 Bed %
Building A	36	138	38	272	13%	51%	15%
Ground Level	4	16	4	24	17%	57%	15%
Level 1	4	16	4	24	17%	57%	15%
Level 2	4	16	4	24	17%	57%	15%
Level 3	4	16	4	24	17%	57%	15%
Level 4	4	16	4	24	17%	57%	15%
Level 5	4	16	4	24	17%	57%	15%
Level 6	4	16	4	24	17%	57%	15%
Level 7	4	16	4	24	17%	57%	15%
Level 8	4	16	4	24	17%	57%	15%
Level 9	4	16	4	24	17%	57%	15%
Level 10	4	16	4	24	17%	57%	15%
Level 11	4	16	4	24	17%	57%	15%
Level 12	4	16	4	24	17%	57%	15%
Level 13	4	16	4	24	17%	57%	15%
Level 14	4	16	4	24	17%	57%	15%
Level 15	4	16	4	24	17%	57%	15%
Level 16	4	16	4	24	17%	57%	15%
Level 17	4	16	4	24	17%	57%	15%
Level 18	4	16	4	24	17%	57%	15%
Level 19	4	16	4	24	17%	57%	15%
Level 20	4	16	4	24	17%	57%	15%
Level 21	4	16	4	24	17%	57%	15%
Level 22	4	16	4	24	17%	57%	15%
Level 23	4	16	4	24	17%	57%	15%
Level 24	4	16	4	24	17%	57%	15%
TOTAL	36	138	38	272	13%	51%	15%
Building B	46	166	14	226	20%	75%	6%
Ground Level	4	16	4	24	17%	57%	15%
Level 1	4	16	4	24	17%	57%	15%
Level 2	4	16	4	24	17%	57%	15%
Level 3	4	16	4	24	17%	57%	15%
Level 4	4	16	4	24	17%	57%	15%
Level 5	4	16	4	24	17%	57%	15%
Level 6	4	16	4	24	17%	57%	15%
Level 7	4	16	4	24	17%	57%	15%
Level 8	4	16	4	24	17%	57%	15%
Level 9	4	16	4	24	17%	57%	15%
Level 10	4	16	4	24	17%	57%	15%
Level 11	4	16	4	24	17%	57%	15%
Level 12	4	16	4	24	17%	57%	15%
Level 13	4	16	4	24	17%	57%	15%
Level 14	4	16	4	24	17%	57%	15%
Level 15	4	16	4	24	17%	57%	15%
Level 16	4	16	4	24	17%	57%	15%
Level 17	4	16	4	24	17%	57%	15%
Level 18	4	16	4	24	17%	57%	15%
Level 19	4	16	4	24	17%	57%	15%
Level 20	4	16	4	24	17%	57%	15%
Level 21	4	16	4	24	17%	57%	15%
Level 22	4	16	4	24	17%	57%	15%
Level 23	4	16	4	24	17%	57%	15%
Level 24	4	16	4	24	17%	57%	15%
TOTAL	46	166	14	226	20%	75%	6%
Building C	45	127	6	178	25%	71%	4%
Ground Level	4	16	4	24	17%	57%	15%
Level 1	4	16	4	24	17%	57%	15%
Level 2	4	16	4	24	17%	57%	15%
Level 3	4	16	4	24	17%	57%	15%
Level 4	4	16	4	24	17%	57%	15%
Level 5	4	16	4	24	17%	57%	15%
Level 6	4	16	4	24	17%	57%	15%
Level 7	4	16	4	24	17%	57%	15%
Level 8	4	16	4	24	17%	57%	15%
Level 9	4	16	4	24	17%	57%	15%
Level 10	4	16	4	24	17%	57%	15%
Level 11	4	16	4	24	17%	57%	15%
Level 12	4	16	4	24	17%	57%	15%
Level 13	4	16	4	24	17%	57%	15%
Level 14	4	16	4	24	17%	57%	15%
Level 15	4	16	4	24	17%	57%	15%
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Level 17	4	16	4	24	17%	57%	15%
Level 18	4	16	4	24	17%	57%	15%
Level 19	4	16	4	24	17%	57%	15%
Level 20	4	16	4	24	17%	57%	15%
Level 21	4	16	4	24	17%	57%	15%
Level 22	4	16	4	24	17%	57%	15%
Level 23	4	16	4	24	17%	57%	15%
Level 24	4	16	4	24	17%	57%	15%
TOTAL	45	127	6	178	25%	71%	4%
Building D	36	138	38	272	13%	51%	15%
Ground Level	4	16	4	24	17%	57%	15%
Level 1	4	16	4	24	17%	57%	15%
Level 2	4	16	4	24	17%	57%	15%
Level 3	4	16	4	24	17%	57%	15%
Level 4	4	16	4	24	17%	57%	15%
Level 5	4	16	4	24	17%	57%	15%
Level 6	4	16	4	24	17%	57%	15%
Level 7	4	16	4	24	17%	57%	15%
Level 8	4	16	4	24	17%	57%	15%
Level 9	4	16	4	24	17%	57%	15%
Level 10	4	16	4	24	17%	57%	15%
Level 11	4	16	4	24	17%	57%	15%
Level 12	4	16	4	24	17%	57%	15%
Level 13	4	16	4	24	17%	57%	15%
Level 14	4	16	4	24	17%	57%	15%
Level 15	4	16	4	24	17%	57%	15%
Level 16	4	16	4	24	17%	57%	15%
Level 17	4	16	4	24	17%	57%	15%
Level 18	4	16	4	24	17%	57%	15%
Level 19	4	16	4	24	17%	57%	15%
Level 20	4	16	4	24	17%	57%	15%
Level 21	4	16	4	24	17%	57%	15%
Level 22	4	16	4	24	17%	57%	15%
Level 23	4	16	4	24	17%	57%	15%
Level 24	4	16	4	24	17%	57%	15%
TOTAL	36	138	38	272	13%	51%	15%
Building E	46	166	14	226	20%	75%	6%
Ground Level	4	16	4	24	17%	57%	15%
Level 1	4	16	4	24	17%	57%	15%
Level 2	4	16	4	24	17%	57%	15%
Level 3	4	16	4	24	17%	57%	15%
Level 4	4	16	4	24	17%	57%	15%
Level 5	4	16	4	24	17%	57%	15%
Level 6	4	16	4	24	17%	57%	15%
Level 7	4	16	4	24	17%	57%	15%
Level 8	4	16	4	24	17%	57%	15%
Level 9	4	16	4	24	17%	57%	15%
Level 10	4	16	4	24	17%	57%	15%
Level 11	4	16	4	24	17%	57%	15%
Level 12	4	16	4	24	17%	57%	15%
Level 13	4	16	4	24	17%	57%	15%
Level 14	4	16	4	24	17%	57%	15%
Level 15	4	16	4	24	17%	57%	15%
Level 16	4	16	4	24	17%	57%	15%
Level							

ANNEXURE B: TRAFFIC SURVEYS (SHEET 1 OF 6)

TRAFFIC SURVEY <small>Quality Endorsed Company by AS/NZS ISO 9001:2008 OH&S SYSTEM CERTIFIED TO AS/NZS ISO 4801:2001</small>																					
TURNING MOVEMENT SURVEY Chamberlain St and Campbelltown Rd, Campbelltown Thursday, 3 November 2016																					
Location Overcart Campbelltown McLaren	Survey Start AM: 7:00 PM: 16:00	Peakhour AM: 8:15 AM-9:15 AM PM: 4:00 PM-5:00 PM																			
All Vehicles																					
Time	rdth Approach	Chamberlain	Approach	Campbelltown	rdth Approach	Chamberlain	Approach	Campbelltown	Hourly Total	Peak											
Wind	Star	rd	En	U	R	SB	L	U	R	WB	L	U	R	NE	L	U	R	EB	L	Hour	Peak
7:00	7:15	0	3	4	1	0	8	121	2	0	24	3	1	0	4	263	2	2012			
7:15	7:30	0	1	4	1	0	7	128	9	0	17	12	0	0	5	272	3	2168			
7:30	7:45	0	4	1	4	0	8	171	4	0	19	5	1	0	2	269	9	2334			
7:45	8:00	0	3	7	2	0	6	216	8	0	31	12	3	0	10	303	19	2682			
8:00	8:15	0	4	8	2	0	15	225	9	0	16	10	1	0	6	268	28	2830			
8:15	8:30	0	14	10	8	0	26	246	8	0	14	33	3	0	9	219	35	2851	Peak		
8:30	8:45	0	15	24	19	0	44	322	24	0	18	47	2	0	14	267	49	2761			
8:45	9:00	0	13	39	16	0	39	312	12	0	17	46	8	0	13	230	23	2352			
9:00	9:15	0	9	8	15	0	23	240	14	0	13	12	0	0	13	233	33	2051			
9:15	9:30	0	10	12	2	0	12	261	12	0	8	10	2	0	4	187	15				
9:30	9:45	0	7	13	7	0	10	178	5	0	11	8	3	0	6	175	13				
9:45	10:00	0	3	12	1	0	3	206	6	0	5	12	4	0	8	189	18				
16:00	16:15	0	17	13	8	0	14	382	18	0	20	10	3	0	17	324	12	3068	Peak		
16:15	16:30	0	22	11	4	0	12	370	23	0	18	8	5	0	13	258	16	2976			
16:30	16:45	0	19	9	2	0	5	341	18	0	23	13	5	0	18	248	3	2929			
16:45	17:00	0	21	12	1	0	13	416	28	0	11	6	2	0	16	234	6	2868			
17:00	17:15	0	12	16	7	0	8	423	11	0	12	11	0	0	13	228	5	2781			
17:15	17:30	0	11	10	2	0	10	402	14	0	10	8	1	0	7	228	10	2697			
17:30	17:45	0	10	11	2	0	7	363	13	0	9	3	6	0	9	202	8	2659			
17:45	18:00	0	12	11	1	0	5	384	25	0	10	10	4	0	9	200	8	2604			
18:00	18:15	0	12	16	7	0	6	344	21	0	10	6	3	0	13	219	5	2447			
18:15	18:30	0	11	11	2	0	8	373	27	0	5	6	1	0	7	214	10				
18:30	18:45	0	10	10	2	0	6	324	9	0	4	3	5	0	9	198	8				
18:45	19:00	0	12	11	1	0	6	256	15	0	8	3	2	0	9	191	8				
Peak Time																					
Wind	Star	rd	En	U	R	SB	L	U	R	WB	L	U	R	NE	L	U	R	EB	L	Hour	Peak
8:15	9:15	0	51	81	58	0	132	1120	58	0	62	138	13	0	49	949	140	2851			
16:00	17:00	0	79	45	15	0	44	1509	87	0	72	27	15	0	64	1064	37	3068			
Graphic																					

ANNEXURE B: TRAFFIC SURVEYS (SHEET 2 OF 6)

BVY TRAFFIC SURVEY <small>Quality data services proven since 2000 Phone 1300 803 803 Fax 1300 803 803</small>				<small>QUALITY ENDORSED COMPANY BY AS/NZS ISO 9001:2008 OH&S SYSTEM CERTIFIED TO AS/NZS ISO 4801:2001</small>								
TURNING MOVEMENT SURVEY												
Southern Entrance and Queen St, Campbelltown												
Thursday, 3 November 2016												
Weather: Overcast		Survey Start		Peak hour								
Suburban: Campbelltown		AM: 7:00		AM: 8:15 AM-9:15 AM								
Urban: McLaren		PM: 16:00		PM: 4:30 PM-5:30 PM								
All Vehicles												
Period Start	Period End	East Approach Queen St			Approach Southern Entr			West Approach Queen St			Hourly Total	
		U	WB	L	U	R	L	U	R	EB	Hour	Peak
7:00	7:15	0	65	0	0	0	0	0	0	96	310	
7:15	7:30	0	68	0	0	0	0	0	0	100	967	
7:30	7:45	0	92	1	0	0	0	0	0	104	1174	
7:45	8:00	0	167	0	0	0	1	0	2	114	1386	
8:00	8:15	0	163	1	0	1	0	0	1	152	1526	
8:15	8:30	0	244	2	0	0	1	0	2	126	1585	Peak
8:30	8:45	0	241	0	0	0	0	0	2	166	1577	
8:45	9:00	0	267	4	0	1	0	0	5	147	1459	
9:00	9:15	0	227	0	0	0	0	0	3	147	1368	
9:15	9:30	0	220	3	0	1	0	0	5	138		
9:30	9:45	0	177	2	0	1	3	0	0	108		
9:45	10:00	0	196	3	0	1	4	0	3	126		
<hr/>												
16:00	16:15	0	166	0	0	2	3	0	1	201	1592	
16:15	16:30	0	180	2	0	0	0	0	1	224	1657	
16:30	16:45	0	182	1	0	1	1	0	0	235	1664	Peak
16:45	17:00	0	162	3	0	3	1	0	1	222	1622	
17:00	17:15	0	151	3	0	4	4	0	1	275	1581	
17:15	17:30	0	192	0	0	1	1	0	2	218	1498	
17:30	17:45	0	182	2	0	1	2	0	0	191	1407	
17:45	18:00	0	187	1	0	1	0	0	0	162	1339	
18:00	18:15	0	180	1	0	1	0	0	0	173	1279	
18:15	18:30	0	167	3	0	3	1	0	0	149		
18:30	18:45	0	162	1	0	1	2	0	0	144		
18:45	19:00	0	150	0	0	2	2	0	2	135		
<hr/>												
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	Peak total	
8:15	9:15	0	979	6	0	1	1	0	12	586	1585	
16:20	17:20	0	687	7	0	9	7	0	4	950	1664	
<hr/>												
Graphic												
<p style="text-align: center;">North</p> <p style="text-align: center;">Queen St</p> <p style="text-align: center;">Queen St</p> <p style="text-align: center;">Southern Entrance</p>												

ANNEXURE B: TRAFFIC SURVEYS (SHEET 3 OF 6)

BVY TRAFFIC SURVEY <small>Quality data services proven since 2000 Phone 1300 80 80 80 Fax 1300 80 80 80</small>				<small>QUALITY ENDORSED COMPANY BY AS/NZS ISO 9001:2008 OH&S SYSTEM CERTIFIED TO AS/NZS ISO 4801:2001</small>									
TURNING MOVEMENT SURVEY													
Chamberlain St and Queen St, Campbelltown													
Thursday, 3 November 2016													
Weather:	Overcast	Survey Start		Peakhour									
Suburbs:	Campbelltown	AM:	7:00	AM:	8:15 AM-9:15 AM								
Curator:	McLaren	PM:	16:00	PM:	4:15 PM-5:15 PM								
All Vehicles													
Wind Dir	Start Period	End	East Approach Queen St			West Approach Chamberlain			West Approach Queen St			Hourly Total	
			U	WB	L	U	R	L	U	R	EB	Hour	Peak
	7:00	7:15	0	58	10	0	13	4	0	9	76	903	
	7:15	7:30	0	61	12	0	10	13	0	2	91	1073	
	7:30	7:45	0	86	10	0	16	8	0	8	94	1306	
	7:45	8:00	0	153	18	0	19	9	0	19	104	1570	
	8:00	8:15	0	135	15	0	24	12	0	15	139	1724	
	8:15	8:30	0	188	48	0	24	26	0	28	108	1787	Peak
	8:30	8:45	0	202	35	0	51	42	0	36	120	1732	
	8:45	9:00	0	241	24	0	50	36	0	22	103	1598	
	9:00	9:15	0	190	21	0	27	31	0	14	120	1498	
	9:15	9:30	0	199	15	0	24	10	0	8	111		
	9:30	9:45	0	179	13	0	17	20	0	17	106		
	9:45	10:00	0	181	15	0	16	15	0	15	134		
	16:00	16:15	0	165	17	0	36	27	0	14	165	1777	
	16:15	16:30	0	184	13	0	19	14	0	20	213	1838	Peak
	16:30	16:45	0	162	15	0	40	13	0	21	210	1820	
	16:45	17:00	0	150	19	0	18	18	0	19	205	1782	
	17:00	17:15	0	143	16	0	33	12	0	27	254	1753	
	17:15	17:30	0	178	10	0	18	11	0	23	205	1675	
	17:30	17:45	0	175	17	0	17	24	0	17	173	1584	
	17:45	18:00	0	178	13	0	13	13	0	19	164	1494	
	18:00	18:15	0	177	10	0	22	12	0	25	161	1400	
	18:15	18:30	0	151	14	0	15	20	0	17	137		
	18:30	18:45	0	139	14	0	10	9	0	12	149		
	18:45	19:00	0	136	14	0	7	7	0	16	126		
Wind Dir	Start Period	End	East Approach Queen St			West Approach Chamberlain			West Approach Queen St			Peak Total	
			U	WB	L	U	R	L	U	R	EB	Hour	Peak
	8:15	9:15	0	821	128	0	152	135	0	100	451	1787	
	16:15	17:15	0	639	63	0	110	57	0	87	382	1838	
Graphic													

ANNEXURE B: TRAFFIC SURVEYS (SHEET 4 OF 6)

Time		North Approach Campbelltown				East Approach Queen St				South Approach Campbelltown				West Approach Queen St				Hourly Total	
Start	End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:00	7:15	0	42	104	6	0	17	21	25	0	25	255	1	0	0	23	68	2751	
7:15	7:30	0	46	102	8	0	12	22	45	0	37	248	5	0	0	22	72	3029	
7:30	7:45	0	52	142	14	0	21	45	43	0	50	213	1	0	0	30	74	3349	
7:45	8:00	0	100	173	12	0	20	68	59	0	59	252	2	0	0	41	73	3700	
8:00	8:15	0	79	184	13	0	26	77	67	0	37	243	2	0	0	45	92	3900	
8:15	8:30	0	170	227	14	0	18	69	77	0	59	188	1	0	0	38	78	3911	Peak
8:30	8:45	0	142	249	11	0	21	99	96	0	42	204	8	0	0	61	103	3822	
8:45	9:00	0	142	251	16	0	25	115	89	0	54	212	7	0	0	51	98	3499	
9:00	9:15	0	120	166	19	0	20	100	80	0	47	173	6	0	0	60	85	3167	
9:15	9:30	0	118	186	13	0	20	85	80	0	65	151	3	0	0	46	83		
9:30	9:45	0	95	125	21	0	11	83	57	0	45	157	7	0	0	53	59		
9:45	10:00	0	108	126	12	0	16	84	71	0	55	128	5	0	0	54	69		
16:00	16:15	0	91	302	19	0	21	66	88	0	56	226	6	0	0	77	111	4430	
16:15	16:30	0	95	300	16	0	27	97	79	0	77	221	5	0	0	95	104	4529	
16:30	16:45	0	107	296	25	0	18	67	70	0	83	207	7	0	0	84	115	4563	Peak
16:45	17:00	0	75	383	17	0	17	65	92	0	83	240	8	0	0	74	118	4494	
17:00	17:15	0	94	320	39	0	15	69	95	0	63	217	3	0	0	92	155	4338	
17:15	17:30	0	90	326	31	0	9	78	103	0	68	236	6	0	0	82	121	4161	
17:30	17:45	0	113	272	22	0	18	72	86	0	68	167	4	0	0	68	120	4032	
17:45	18:00	0	95	319	27	0	17	80	87	0	62	179	4	0	0	74	72	3878	
18:00	18:15	0	103	257	21	0	8	78	111	0	67	165	0	0	0	79	96	3646	
18:15	18:30	0	65	327	29	0	17	87	98	0	57	185	3	0	0	61	92		
18:30	18:45	0	73	229	19	0	18	85	95	0	52	139	4	0	0	70	72		
18:45	19:00	0	73	191	23	0	24	75	70	0	65	126	2	0	0	73	62		

Time	North Approach Campbelltown	East Approach Queen St	South Approach Campbelltown	West Approach Queen St	Peak total
8:15	574	893	60	202	1729
16:30	366	1325	112	297	2099

Graphic

ANNEXURE B: TRAFFIC SURVEYS (SHEET 5 OF 6)

Weather: Overcast		Survey Start		Peak hour								
Suburb: Campbelltown		AM: 7:00		8:00 AM-9:00 AM								
Circuit: McLaren		PM: 16:00		4:15 PM-5:15 PM								
TURNING MOVEMENT SURVEY												
Campbelltown Rd and Blaxland Rd, Campbelltown												
Thursday, 3 November 2016												
<div style="display: flex; justify-content: space-between;"> <div> <p>Quality 2000 Services proven since 2000 Phone 1300 801300 Fax 1300 801302</p> </div> <div style="text-align: center;"> </div> <div style="text-align: right;"> <p>QUALITY ENDORSED COMPANY BY AS/NZS ISO 9001:2008</p> <p>OH&S SYSTEM CERTIFIED TO AS/NZS ISO 45001:2018</p> </div> </div>												
All Vehicles												
Time	th Approach	Campbelltown			West Approach			Blaxland R.			Hourly Total	
Period	End	U	R	SB	U	NB	L	U	R	L	Hour	Peak
7:00	7:15	0	68	135	0	304	35	0	13	140	3122	
7:15	7:30	0	100	145	0	294	37	0	15	160	3351	
7:30	7:45	0	118	190	0	277	31	0	16	135	3596	
7:45	8:00	0	126	257	0	292	47	0	32	155	3834	
8:00	8:15	0	130	231	0	304	61	0	47	151	3983	Peak
8:15	8:30	0	165	253	0	222	62	0	58	136	3943	
8:30	8:45	0	127	345	0	274	56	0	59	144	3810	
8:45	9:00	0	173	338	0	255	76	0	66	150	3557	
9:00	9:15	0	157	274	0	215	62	0	29	147	3231	
9:15	9:30	0	134	256	0	189	67	0	61	156		
9:30	9:45	0	136	203	0	189	40	0	39	145		
9:45	10:00	0	148	206	0	150	60	0	45	123		
16:00	16:15	0	155	361	0	285	73	0	54	174	4517	
16:15	16:30	0	191	353	0	282	71	0	57	184	4599	Peak
16:30	16:45	0	151	348	0	274	63	0	76	186	4592	
16:45	17:00	0	149	415	0	292	81	0	62	180	4491	
17:00	17:15	0	160	359	0	320	64	0	91	190	4283	
17:15	17:30	0	168	390	0	308	58	0	57	150	4044	
17:30	17:45	0	136	343	0	229	72	0	58	159	3880	
17:45	18:00	0	154	381	0	222	41	0	54	119	3700	
18:00	18:15	0	162	342	0	238	30	0	44	129	3452	
18:15	18:30	0	135	370	0	256	41	0	49	116		
18:30	18:45	0	172	274	0	178	51	0	47	95		
18:45	19:00	0	132	250	0	169	41	0	35	96		
Peak Time	th Approach	Campbelltown			West Approach			Blaxland R.			Peak total	
Period	End	U	R	SB	U	NB	L	U	R	L		
8:00	9:00	0	595	1267	0	1055	255	0	230	581	3983	
16:15	17:15	0	651	1475	0	1168	279	0	286	740	4599	
Graphic												
Campbelltown Rd												
Campbelltown Rd												

ANNEXURE B: TRAFFIC SURVEYS (SHEET 6 OF 6)

Time		East Approach Queen St			North Approach Northern Entr			West Approach Queen St			Hourly Total	
Start	End	U	WB	L	U	R	L	U	R	EB	Hour	Peak
7:00	7:15	0	65	0	0	0	0	0	0	96	307	
7:15	7:30	0	68	0	0	0	0	0	0	100	963	
7:30	7:45	0	93	0	0	0	0	0	0	104	1167	
7:45	8:00	0	167	0	0	0	0	0	0	114	1377	
8:00	8:15	0	164	0	0	0	0	0	0	153	1515	
8:15	8:30	0	246	0	0	0	0	0	0	126	1572	Peak
8:30	8:45	0	241	0	0	0	0	0	0	166	1562	
8:45	9:00	0	271	0	0	0	0	0	0	148	1442	
9:00	9:15	0	227	0	0	0	0	0	0	147	1350	
9:15	9:30	0	223	0	0	0	0	0	0	139		
9:30	9:45	0	179	0	0	0	0	0	0	109		
9:45	10:00	0	199	0	0	0	0	0	0	127		
<hr/>												
16:00	16:15	0	166	0	0	0	0	0	0	203	1584	
16:15	16:30	0	182	0	0	0	0	0	0	224	1648	
16:30	16:45	0	183	0	0	0	0	0	0	236	1653	Peak
16:45	17:00	0	165	0	0	0	0	0	0	225	1610	
17:00	17:15	0	154	0	0	0	0	0	0	279	1571	
17:15	17:30	0	192	0	0	0	0	0	0	219	1493	
17:30	17:45	0	184	0	0	0	0	0	0	192	1404	
17:45	18:00	0	188	0	0	0	0	0	0	163	1336	
18:00	18:15	0	181	0	0	0	0	0	0	174	1272	
18:15	18:30	0	170	0	0	0	0	0	0	152		
18:30	18:45	0	163	0	0	0	0	0	0	145		
18:45	19:00	0	150	0	0	0	0	0	0	137		
<hr/>												
Peak Time		East Approach Queen St			North Approach Northern Entr			West Approach Queen St			Peak total	
Start	End	U	WB	L	U	R	L	U	R	EB	Hour	Peak
8:15	9:15	0	985	0	0	0	0	0	0	587	1572	
16:30	17:30	0	694	0	0	0	0	0	0	959	1653	

Graphic

North ↑

Queen St

AM Peak: 8:15 AM - 9:15 AM
PM Peak: 4:30 PM - 5:30 PM

Northern Entrance

ANNEXURE C: EXISTING SIDRA SUMMARIES
(Sheet 1 of 5)
Queen Street / Chamberlain Existing Volumes

MOVEMENT SUMMARY											
Site: 101 [Queen / Chamberlain EX AM]											
Queen Street / Chamberlain Street											
Existing											
AM Peak Period											
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street											
1	L2	135	2.0	0.194	17.0	LOS B	2.3	16.0	0.70	0.74	45.9
3	R2	152	2.0	0.593	29.3	LOS C	3.8	27.1	0.98	0.82	39.6
Approach		287	2.0	0.593	23.5	LOS B	3.8	27.1	0.85	0.78	42.3
East: Queen Street											
4	L2	128	2.0	0.642	19.0	LOS B	9.7	69.4	0.86	0.77	47.1
5	T1	821	2.0	0.642	13.8	LOS A	9.7	69.4	0.87	0.77	48.5
Approach		949	2.0	0.642	14.5	LOS B	9.7	69.4	0.87	0.77	48.3
West: Queen Street											
11	T1	451	2.0	0.378	5.1	LOS A	5.5	39.2	0.53	0.46	55.3
12	R2	100	2.0	0.234	13.4	LOS A	1.1	7.6	0.79	0.74	48.0
Approach		551	2.0	0.378	6.6	LOS A	5.5	39.2	0.58	0.51	53.9
All Vehicles		1787	2.0	0.642	13.5	LOS A	9.7	69.4	0.78	0.69	48.7

MOVEMENT SUMMARY											
Site: 101 [Queen / Chamberlain EX PM]											
Queen Street / Chamberlain Street											
Existing											
PM Peak Period											
Signals - Fixed Time Isolated Cycle Time = 40 seconds (Practical Cycle Time)											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street											
1	L2	57	2.0	0.069	12.4	LOS A	0.6	4.6	0.59	0.69	48.7
3	R2	110	2.0	0.401	23.6	LOS B	2.1	15.1	0.94	0.77	42.2
Approach		167	2.0	0.401	19.7	LOS B	2.1	15.1	0.82	0.74	44.2
East: Queen Street											
4	L2	63	2.0	0.718	22.1	LOS B	7.1	50.8	0.96	0.89	45.5
5	T1	639	2.0	0.718	16.9	LOS B	7.1	50.8	0.96	0.89	46.7
Approach		702	2.0	0.718	17.4	LOS B	7.1	50.8	0.96	0.89	46.6
West: Queen Street											
11	T1	882	2.0	0.833	13.9	LOS A	18.5	132.1	0.89	0.96	48.8
12	R2	87	2.0	0.185	13.1	LOS A	0.9	6.2	0.84	0.73	48.2
Approach		969	2.0	0.833	13.8	LOS A	18.5	132.1	0.89	0.94	48.8
All Vehicles		1838	2.0	0.833	15.7	LOS B	18.5	132.1	0.91	0.90	47.5

ANNEXURE C: EXISTING SIDRA SUMMARIES

(Sheet 2 of 5)

Chamberlain Street / Campbelltown Road Existing Volumes

MOVEMENT SUMMARY											
Site: 102 [Chamberlain / Campbelltown EX AM]											
Chamberlain Street / Campbelltown Road											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 65 seconds (Optimum Cycle Time - Minimum Delay)											
Variable Sequence Analysis applied. The results are given for the selected output sequence.											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street S											
1	L2	13	2.0	0.124	28.3	LOS B	1.3	9.2	0.84	0.66	42.2
2	T1	138	2.0	0.573	26.9	LOS B	5.1	36.1	0.93	0.76	40.8
3	R2	62	2.0	0.573	34.0	LOS C	5.1	36.1	0.97	0.80	39.6
Approach		213	2.0	0.573	29.1	LOS C	5.1	36.1	0.94	0.76	40.5
East: Campbelltown Road											
4	L2	58	2.0	0.483	20.1	LOS B	9.0	65.7	0.77	0.68	46.8
5	T1	1120	5.0	0.483	14.5	LOS A	9.1	66.2	0.77	0.67	48.3
6	R2	132	2.0	0.366	15.2	LOS B	1.9	13.5	0.79	0.76	46.9
Approach		1310	4.6	0.483	14.8	LOS B	9.1	66.2	0.77	0.68	48.1
North: Chamberlain Street N											
7	L2	58	2.0	0.102	21.6	LOS B	1.4	9.9	0.72	0.70	43.6
8	T1	81	2.0	0.475	27.1	LOS B	3.9	27.4	0.93	0.76	40.5
9	R2	51	2.0	0.475	33.5	LOS C	3.9	27.4	0.95	0.77	39.8
Approach		190	2.0	0.475	27.1	LOS B	3.9	27.4	0.87	0.75	41.2
West: Moore Street											
10	L2	140	2.0	0.177	17.9	LOS B	2.8	19.6	0.65	0.73	45.3
11	T1	949	5.0	0.601	15.3	LOS B	12.1	88.1	0.81	0.71	47.9
12	R2	49	2.0	0.131	13.5	LOS A	0.7	4.7	0.67	0.70	48.2
Approach		1138	4.5	0.601	15.6	LOS B	12.1	88.1	0.79	0.71	47.6
All Vehicles		2851	4.2	0.601	17.0	LOS B	12.1	88.1	0.80	0.70	46.7

MOVEMENT SUMMARY											
Site: 102 [Chamberlain / Campbelltown EX PM]											
Chamberlain Street / Campbelltown Road											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 115 seconds (Optimum Cycle Time - Minimum Delay)											
Variable Sequence Analysis applied. The results are given for the selected output sequence.											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street S											
1	L2	15	2.0	0.089	46.9	LOS D	1.5	10.4	0.86	0.67	34.4
2	T1	37	2.0	0.415	45.8	LOS D	4.9	34.6	0.91	0.73	33.2
3	R2	72	2.0	0.415	55.1	LOS D	4.9	34.6	0.95	0.77	31.6
Approach		124	2.0	0.415	51.4	LOS D	4.9	34.6	0.93	0.75	32.4
East: Campbelltown Road											
4	L2	87	2.0	0.463	18.0	LOS B	15.9	115.4	0.58	0.56	48.0
5	T1	1509	5.0	0.463	12.4	LOS A	16.0	116.4	0.57	0.53	49.7
6	R2	44	2.0	0.143	14.7	LOS B	0.8	5.4	0.57	0.69	47.2
Approach		1640	4.8	0.463	12.8	LOS A	16.0	116.4	0.57	0.53	49.5
North: Chamberlain Street N											
7	L2	15	2.0	0.101	47.0	LOS D	1.6	11.7	0.86	0.68	34.4
8	T1	45	2.0	0.467	46.1	LOS D	5.5	39.2	0.91	0.73	33.2
9	R2	79	2.0	0.467	55.5	LOS D	5.5	39.2	0.96	0.78	31.6
Approach		139	2.0	0.467	51.5	LOS D	5.5	39.2	0.93	0.75	32.4
West: Moore Street											
10	L2	37	2.0	0.033	14.5	LOS B	0.8	5.6	0.41	0.65	47.3
11	T1	1064	5.0	0.524	12.5	LOS A	19.0	139.0	0.58	0.52	49.8
12	R2	64	2.0	0.260	14.3	LOS A	1.1	8.0	0.56	0.70	47.7
Approach		1165	4.7	0.524	12.7	LOS A	19.0	139.0	0.57	0.53	49.6
All Vehicles		3068	4.5	0.524	16.1	LOS B	19.0	139.0	0.61	0.55	47.4

ANNEXURE C: EXISTING SIDRA SUMMARIES

(Sheet 3 of 5)

Campbelltown Road / Blaxland Road Existing Volumes

MOVEMENT SUMMARY

Site: 103 [Campbelltown / Blaxland EX AM]

Campbelltown Road / Blaxland Road

Existing

AM peak period

Signals - Fixed Time Isolated Cycle Time = 100 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Campbelltown Road S											
1	L2	255	2.0	0.194	8.6	LOS A	3.1	21.8	0.33	0.65	51.8
2	T1	1055	5.0	0.770	29.6	LOS C	24.9	181.6	0.91	0.84	40.4
Approach		1310	4.4	0.770	25.5	LOS B	24.9	181.6	0.80	0.80	42.3
North: Campbelltown Road N											
8	T1	1267	5.0	0.466	6.2	LOS A	12.8	93.5	0.46	0.41	54.4
9	R2	595	2.0	0.774	31.4	LOS C	9.9	70.8	1.00	0.88	39.0
Approach		1862	4.0	0.774	14.3	LOS A	12.8	93.5	0.63	0.56	48.3
West: Blaxland Road											
10	L2	581	2.0	0.615	16.5	LOS B	17.4	124.1	0.74	0.80	46.7
12	R2	230	2.0	0.393	47.2	LOS D	5.2	36.8	0.94	0.78	33.4
Approach		811	2.0	0.615	25.2	LOS B	17.4	124.1	0.79	0.80	41.9
All Vehicles		3983	3.7	0.774	20.2	LOS B	24.9	181.6	0.72	0.69	44.8

MOVEMENT SUMMARY

Site: 103 [Campbelltown / Blaxland EX PM]

Campbelltown Road / Blaxland Road

Existing

AM peak period

Signals - Fixed Time Isolated Cycle Time = 110 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Campbelltown Road S											
1	L2	279	2.0	0.213	9.2	LOS A	3.9	27.8	0.34	0.65	51.4
2	T1	1168	5.0	0.835	35.5	LOS C	33.5	244.9	0.93	0.90	38.0
Approach		1447	4.4	0.835	30.4	LOS C	33.5	244.9	0.81	0.85	40.0
North: Campbelltown Road N											
8	T1	1475	5.0	0.530	6.6	LOS A	16.8	122.6	0.47	0.43	54.1
9	R2	651	2.0	0.815	35.9	LOS C	12.8	91.0	1.00	0.91	37.2
Approach		2126	4.1	0.815	15.6	LOS B	16.8	122.6	0.63	0.58	47.5
West: Blaxland Road											
10	L2	740	2.0	0.809	27.6	LOS B	27.6	196.4	0.91	0.97	41.0
12	R2	286	2.0	0.505	52.7	LOS D	7.2	51.5	0.96	0.80	31.8
Approach		1026	2.0	0.809	34.6	LOS C	27.6	196.4	0.92	0.92	37.9
All Vehicles		4599	3.7	0.835	24.5	LOS B	33.5	244.9	0.75	0.74	42.6

ANNEXURE C: EXISTING SIDRA SUMMARIES (SHEET 4 OF 5)

Campbelltown Road / Queen Street Existing Volumes

MOVEMENT SUMMARY											
Site: 104 [Campbelltown / Queen EX AM]											
Campbelltown Road / Queen Street											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Practical Cycle Time)											
Variable Sequence Analysis applied. The results are given for the selected output sequence.											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Campbelltown Road S											
1	L2	22	2.0	0.847	51.4	LOS D	20.9	152.6	1.00	1.00	33.7
2	T1	777	5.0	0.847	45.8	LOS D	21.0	153.0	1.00	1.00	34.3
3	R2	202	2.0	0.529	26.9	LOS B	6.5	46.2	0.86	0.79	41.1
Approach		1001	4.3	0.847	42.1	LOS C	21.0	153.0	0.97	0.95	35.5
East: Queen St E											
4	L2	342	2.0	0.187	5.6	LOS A	0.0	0.0	0.00	0.53	54.8
5	T1	383	2.0	0.672	42.0	LOS C	12.5	89.1	0.98	0.87	35.4
6	R2	84	2.0	0.672	52.1	LOS D	9.2	65.7	0.99	0.96	33.0
Approach		809	2.0	0.672	27.7	LOS B	12.5	89.1	0.57	0.73	41.3
North: Campbelltown Road N											
7	L2	60	2.0	0.609	17.8	LOS B	10.4	76.0	0.82	0.73	49.0
8	T1	893	5.0	0.609	12.5	LOS A	10.9	79.2	0.83	0.72	49.6
9	R2	574	2.0	0.767	29.5	LOS C	20.5	146.3	0.92	0.92	40.0
Approach		1527	3.8	0.767	19.1	LOS B	20.5	146.3	0.86	0.80	45.5
West: Queen St W											
10	L2	364	2.0	0.199	5.7	LOS A	0.0	0.0	0.00	0.53	54.8
11	T1	210	2.0	0.909	63.5	LOS E	6.1	43.2	1.00	1.01	29.5
Approach		574	2.0	0.909	26.8	LOS B	6.1	43.2	0.37	0.70	41.8
All Vehicles		3911	3.3	0.909	27.9	LOS B	21.0	153.0	0.76	0.81	41.1

MOVEMENT SUMMARY											
Site: 104 [Campbelltown / Queen EX PM]											
Campbelltown Road / Queen Street											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)											
Variable Sequence Analysis applied. The results are given for the selected output sequence.											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Campbelltown Road S											
1	L2	24	2.0	0.496	32.5	LOS C	22.2	162.1	0.72	0.65	40.7
2	T1	900	5.0	0.496	26.9	LOS B	22.3	162.6	0.72	0.65	41.6
3	R2	297	2.0	0.637	49.4	LOS D	13.9	98.6	0.95	0.95	32.8
Approach		1221	4.2	0.637	32.5	LOS C	22.3	162.6	0.78	0.72	39.1
East: Queen St E											
4	L2	360	2.0	0.197	5.7	LOS A	0.0	0.0	0.00	0.53	54.8
5	T1	279	2.0	0.788	69.9	LOS E	16.4	117.0	0.99	0.92	27.9
6	R2	59	2.0	0.788	89.1	LOS F	8.7	62.0	1.00	1.00	24.7
Approach		698	2.0	0.788	38.4	LOS C	16.4	117.0	0.48	0.72	36.9
North: Campbelltown Road N											
7	L2	112	2.0	0.851	55.2	LOS D	44.3	321.8	0.98	0.95	32.6
8	T1	1325	5.0	0.851	42.0	LOS C	51.1	373.1	0.96	0.91	35.5
9	R2	366	2.0	0.626	21.5	LOS B	15.1	107.2	0.91	0.87	43.8
Approach		1803	4.2	0.851	38.6	LOS C	51.1	373.1	0.95	0.90	36.7
West: Queen St W											
10	L2	509	2.0	0.278	5.7	LOS A	0.0	0.0	0.00	0.53	54.8
11	T1	332	2.0	0.924	90.3	LOS F	14.1	100.1	1.00	1.03	24.3
Approach		841	2.0	0.924	39.1	LOS C	14.1	100.1	0.39	0.73	36.7
All Vehicles		4563	3.5	0.924	37.0	LOS C	51.1	373.1	0.73	0.79	37.3

ANNEXURE C: EXISTING SIDRA SUMMARIES

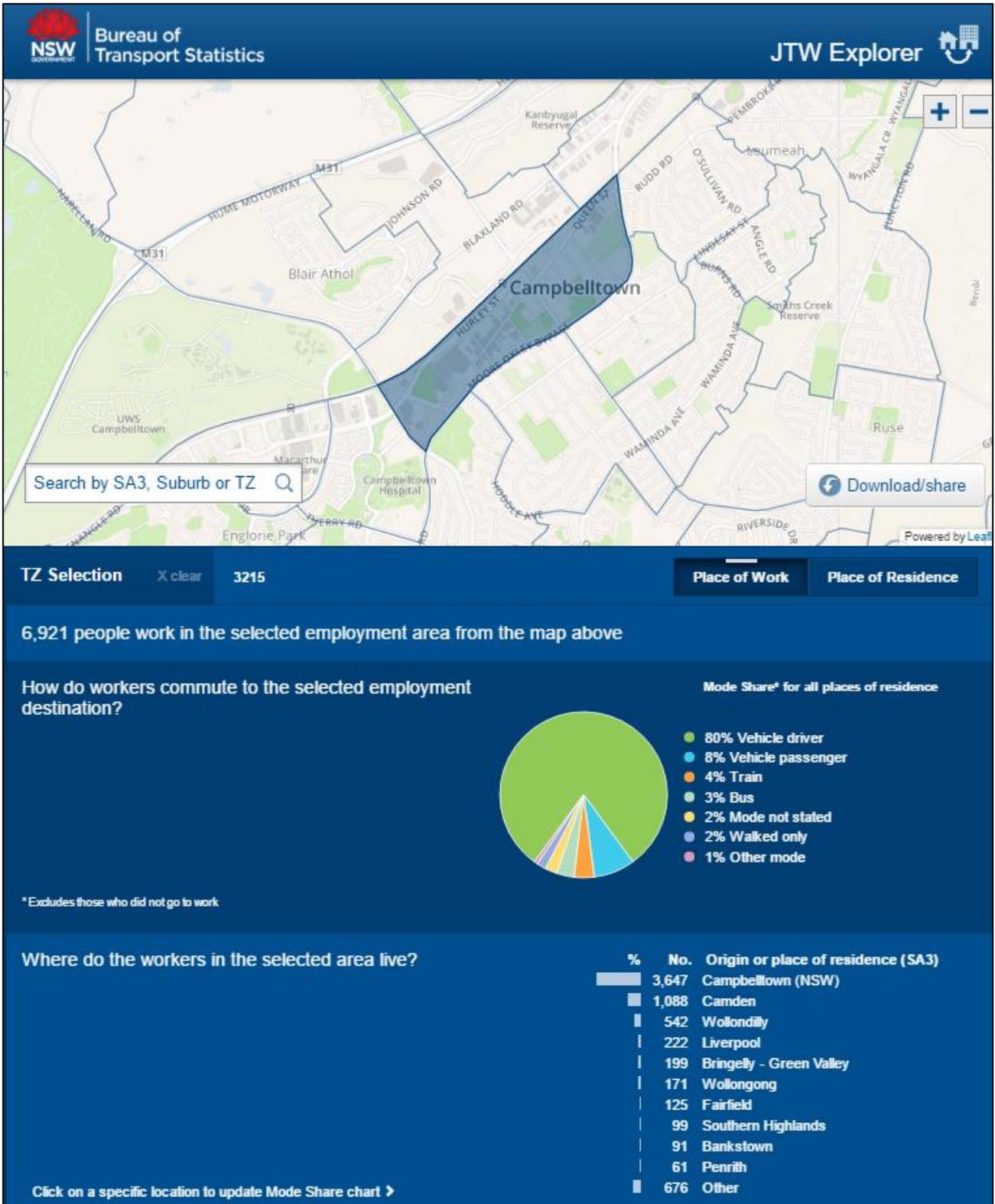
(Sheet 5 of 5)

Queen Street / Queen Street Southern Driveway Intersection

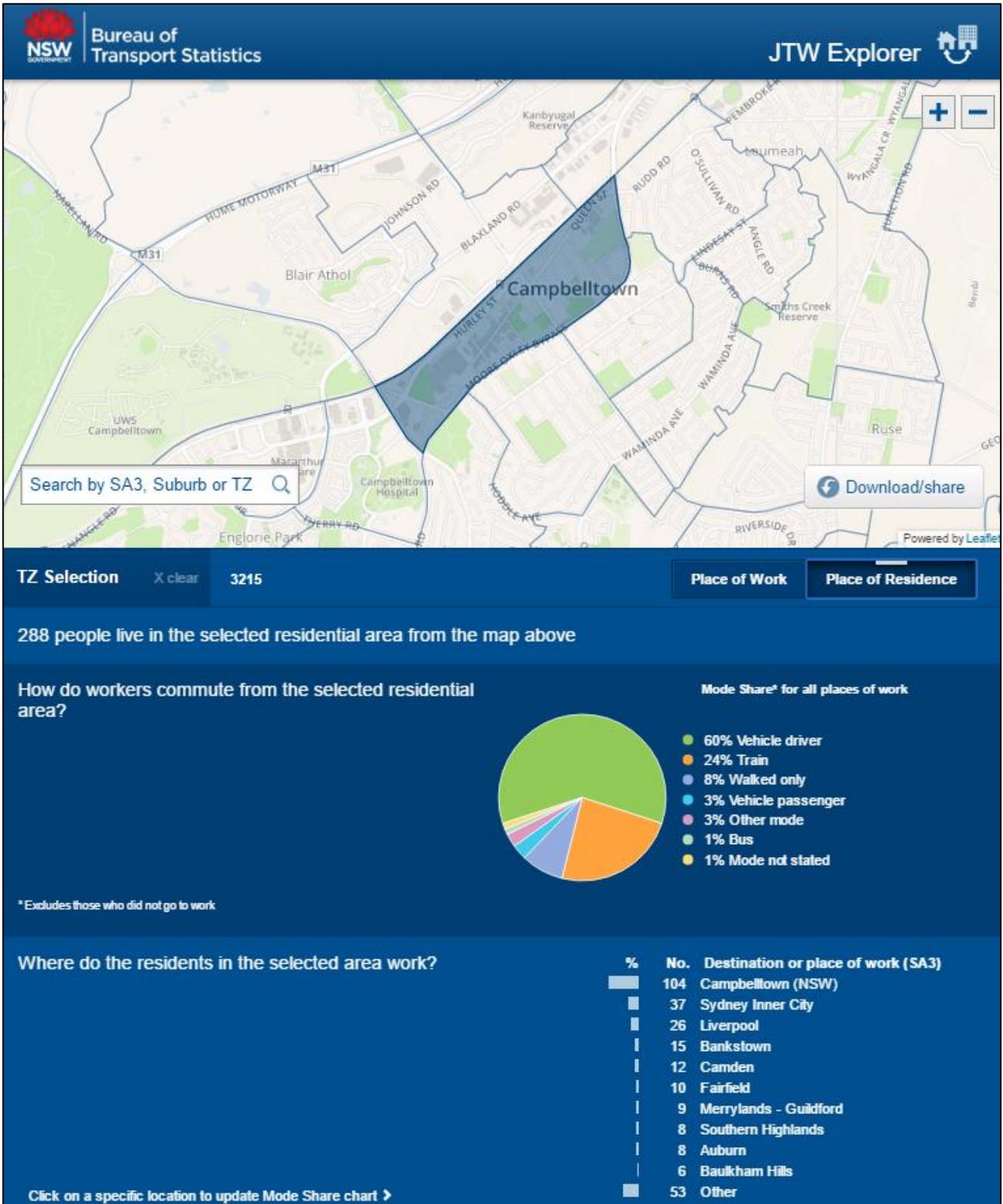
MOVEMENT SUMMARY											
Site: 101 [Queen / Queen Driveway Signalised EX AM]											
Queen Street / 32 Queen Street Driveway(Signalised Intersection)											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: 32 Queen Street Driveway (Signalised)											
1	L2	1	0.0	0.001	15.7	LOS B	0.0	0.1	0.63	0.59	46.7
3	R2	1	0.0	0.004	25.9	LOS B	0.0	0.2	0.88	0.59	41.4
Approach		2	0.0	0.004	20.8	LOS B	0.0	0.2	0.75	0.59	43.8
East: Queen Street											
4	L2	6	0.0	0.006	9.4	LOS A	0.1	0.4	0.49	0.62	50.7
5	T1	979	2.0	0.669	14.7	LOS B	10.4	74.2	0.89	0.79	48.3
Approach		985	2.0	0.669	14.7	LOS B	10.4	74.2	0.88	0.79	48.3
West: Queen Street											
11	T1	586	2.0	0.273	4.8	LOS A	3.7	26.0	0.52	0.43	55.4
12	R2	12	0.0	0.273	10.4	LOS A	3.0	21.6	0.57	0.45	53.7
Approach		598	2.0	0.273	4.9	LOS A	3.7	26.0	0.53	0.43	55.4
All Vehicles		1585	2.0	0.669	11.0	LOS A	10.4	74.2	0.75	0.65	50.8

MOVEMENT SUMMARY											
Site: 101 [Queen / Queen Driveway Signalised EX PM]											
Queen Street / 32 Queen Street Driveway(Signalised Intersection)											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: 32 Queen Street Driveway (Signalised)											
1	L2	7	0.0	0.008	13.3	LOS A	0.1	0.6	0.56	0.63	48.1
3	R2	9	0.0	0.035	26.4	LOS B	0.2	1.4	0.89	0.66	41.1
Approach		16	0.0	0.035	20.7	LOS B	0.2	1.4	0.74	0.65	43.9
East: Queen Street											
4	L2	7	0.0	0.009	11.2	LOS A	0.1	0.5	0.58	0.63	49.4
5	T1	687	2.0	0.595	16.7	LOS B	7.4	52.8	0.90	0.76	47.1
Approach		694	2.0	0.595	16.6	LOS B	7.4	52.8	0.90	0.76	47.1
West: Queen Street											
11	T1	950	2.0	0.416	5.3	LOS A	6.3	44.6	0.57	0.48	55.1
12	R2	4	20.0	0.416	11.1	LOS A	5.7	40.9	0.59	0.48	52.7
Approach		954	2.1	0.416	5.3	LOS A	6.3	44.6	0.57	0.48	55.1
All Vehicles		1664	2.0	0.595	10.2	LOS A	7.4	52.8	0.71	0.60	51.3

ANNEXURE D: JOURNEY TO WORK DATA (SHEET 1 OF 3)



ANNEXURE D: JOURNEY TO WORK DATA (SHEET 2 OF 3)

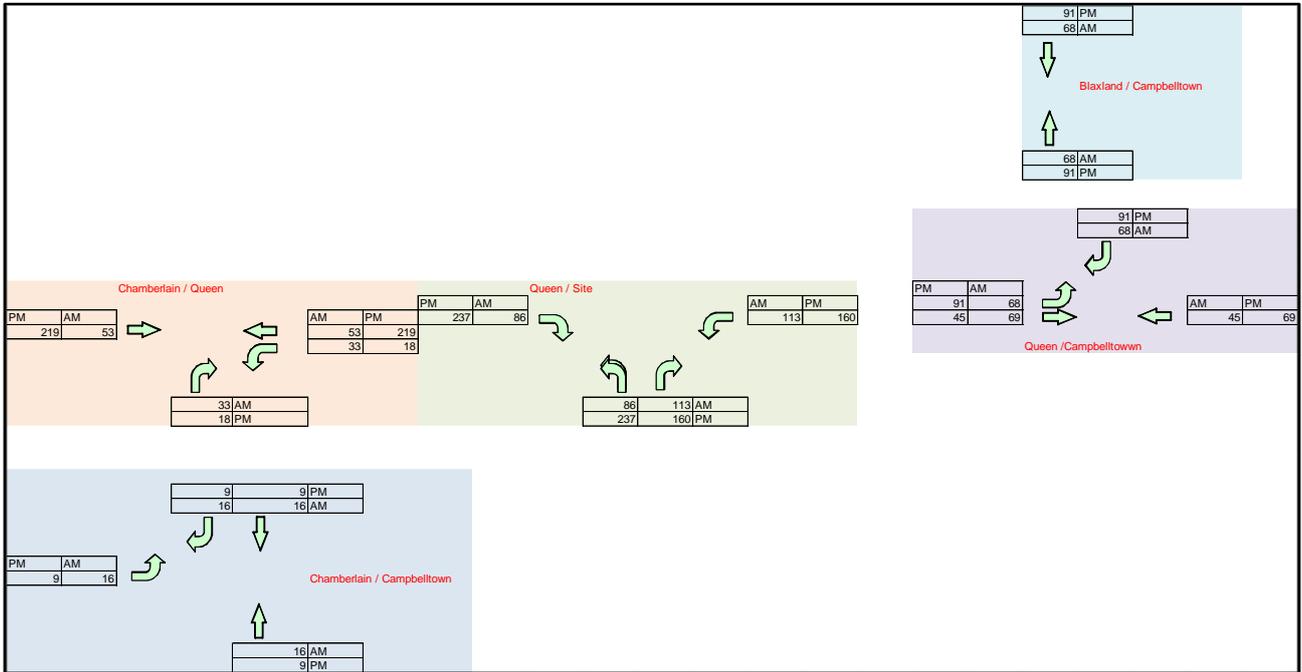


ANNEXURE D: JOURNEY TO WORK DATA (SHEET 3 OF 3)

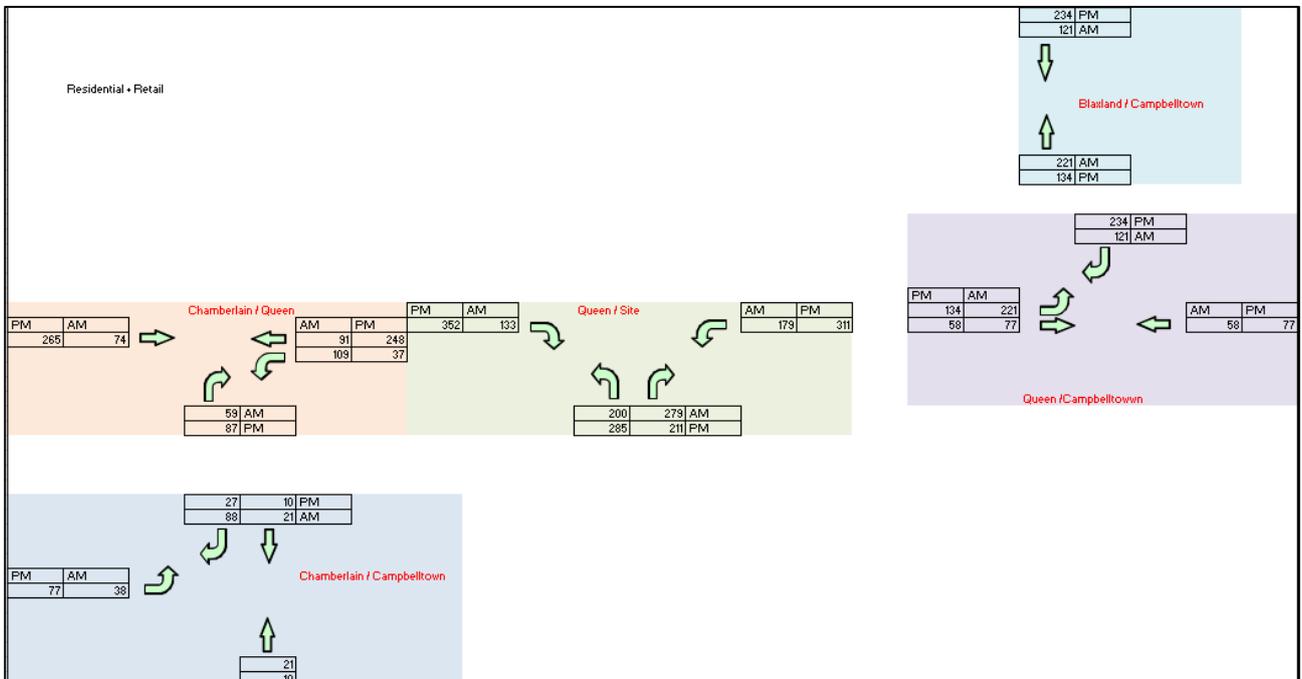
2011 Journey to Work											
Source:	Tables 12 and 13										
Selected TZs:	3215										
Total people employed in selection:	6921										
Total employed people who reside in selection:	288										
Origin Standard Area 3s (SA3s) - where employed people are coming from											
Origin SA3	Origin SA3 ID	Train	Bus	Ferry/Tram	Vehicle driver	Vehicle passenger	Other mode	Walked only	Mode not stated	Worked at Home or Did not go to Work	Total
Goulburn - Yass	10101	0	0	0	6	0	0	0	0	0	6
Gosford	10201	0	0	0	7	0	0	0	0	0	7
Lithgow - Mudgee	10303	0	0	0	3	0	0	0	0	0	3
Port Stephens	10603	0	0	0	0	0	0	0	3	0	3
Dapto - Port Kembla	10701	0	0	0	31	3	0	0	0	0	34
Kiama - Shellharbour	10703	0	0	0	27	3	0	0	0	0	30
Wollongong	10704	4	0	0	138	7	0	0	0	0	149
Newcastle	11103	0	0	0	0	0	0	0	0	3	3
Shoalhaven	11401	0	0	0	3	4	4	0	0	0	11
Southern Highlands	11402	3	0	0	81	0	0	0	0	0	84
Baulkham Hills	11501	3	0	0	9	0	0	0	0	0	12
Dural - Wisemans Ferry	11502	0	0	0	3	0	0	0	0	0	3
Hawkesbury	11503	0	0	0	3	0	0	0	0	0	3
Rouse Hill - McGraths Hill	11504	0	0	0	4	0	0	0	0	0	4
Blacktown	11601	3	0	0	14	4	0	0	0	0	21
Blacktown - North	11602	0	0	0	9	0	0	0	0	0	9
Mount Druitt	11603	0	0	0	12	0	0	0	0	0	12
Botany	11701	0	0	0	3	0	0	0	0	0	3
Marrickville - Sydenham - Petersham	11702	0	0	0	7	0	0	0	0	0	7
Sydney Inner City	11703	3	0	0	12	0	0	4	0	0	19
Eastern Suburbs - North	11801	3	0	0	13	0	0	0	0	0	16
Eastern Suburbs - South	11802	0	3	0	19	0	0	0	0	0	22
Bankstown	11901	15	0	0	56	11	0	0	3	0	85
Canterbury	11902	0	0	0	24	0	0	0	3	0	27
Hurstville	11903	6	0	0	13	0	0	0	5	0	24
Kogarah - Rockdale	11904	3	0	0	18	0	0	0	0	0	21
Canada Bay	12001	0	0	0	12	0	0	0	0	0	12
Leichhardt	12002	0	0	0	5	3	0	0	0	0	8
Strathfield - Burwood - Ashfield	12003	3	0	0	28	0	0	0	0	0	31
Chatswood - Lane Cove	12101	0	0	0	13	0	0	0	0	0	13
North Sydney - Mosman	12104	0	0	0	10	0	0	0	0	0	10
Camden	12301	7	28	0	841	44	7	4	14	0	907
Campbelltown (NSW)	12302	97	166	0	2300	329	30	94	76	0	3022
Wollondilly	12303	20	6	0	406	29	0	0	18	0	479
Blue Mountains	12401	0	0	0	7	0	0	0	3	0	10
Penrith	12403	0	0	0	44	3	0	0	0	0	47
Richmond - Windsor	12404	0	0	0	3	0	0	0	0	0	3
St Marys	12405	0	0	0	9	0	0	0	0	0	9
Auburn	12501	4	0	0	26	7	0	0	0	0	37
Carlingford	12502	0	0	0	10	0	0	0	0	0	10
Merrylands - Guildford	12503	13	0	0	32	0	0	0	0	0	45
Parramatta	12504	10	0	0	10	0	0	0	0	0	20
Pennant Hills - Epping	12601	3	0	0	0	0	0	0	0	0	3
Ryde - Hunters Hill	12602	0	0	0	6	3	0	0	0	0	9
Bringelly - Green Valley	12701	0	0	0	157	10	0	0	11	0	178
Fairfield	12702	16	0	0	97	3	0	0	0	0	116
Liverpool	12703	12	0	0	165	13	0	3	3	0	196
Cronulla - Miranda - Caringbah	12801	0	0	0	23	0	0	0	0	0	23
Sutherland - Menai - Heathcote	12802	3	0	0	45	0	0	0	0	0	48
Special Purpose Codes SA3 (NSW)	19999	0	0	0	3	0	0	0	0	0	3
Nerang	30906	0	0	0	0	0	0	0	0	0	0
Total		231	203	0	4767	476	41	105	139	959	6921
Destination Standard Area 3s (SA3s) - where employed residents are travelling to											
Destination SA3	Destination SA3 ID	Train	Bus	Ferry/Tram	Vehicle driver	Vehicle passenger	Other mode	Walked only	Mode not stated	Worked at Home or Did not go to Work	Total
Wollongong	10702	0	0	0	5	0	0	0	0	0	5
Southern Highlands	11402	0	0	0	3	0	0	0	0	0	3
Baulkham Hills	11501	0	0	0	6	0	0	0	0	0	6
Mount Druitt	11603	3	0	0	3	0	0	0	0	0	6
Botany	11701	6	0	0	0	0	0	0	0	0	6
Sydney Inner City	11703	31	0	0	3	0	0	3	0	0	37
Bankstown	11901	0	0	0	12	0	0	0	3	0	15
Hurstville	11903	0	0	0	3	0	0	0	0	0	3
North Sydney - Mosman	12104	3	0	0	0	0	0	0	0	0	3
Camden	12301	0	0	0	12	0	0	0	0	0	12
Campbelltown (NSW)	12302	9	3	0	58	0	3	16	0	0	86
Wollondilly	12303	0	0	0	3	0	0	0	0	0	3
Penrith	12403	0	0	0	3	0	0	0	0	0	3
Auburn	12501	0	0	0	8	0	0	0	0	0	8
Merrylands - Guildford	12503	3	0	0	6	0	0	0	0	0	9
Parramatta	12504	3	0	0	0	0	0	0	0	0	3
Ryde - Hunters Hill	12602	3	0	0	3	0	0	0	0	0	6
Fairfield	12702	0	0	0	3	3	4	0	0	0	10
Liverpool	12703	3	0	0	15	0	0	3	0	0	21
Cronulla - Miranda - Caringbah	12801	0	0	0	6	0	0	0	0	0	6
Special Purpose Codes SA3 (NSW)	19499	0	0	0	6	0	0	0	0	0	6
Total		64	3	0	161	8	7	22	3	20	288

ANNEXURE E: FORECAST TRAFFIC ASSIGNMENT

Estimated DFO assignment



Proposed Residential & Retail Development



ANNEXURE F: FUTURE SIDRA SUMMARIES (SHEET 1 OF 15)

Queen Street / Chamberlain Street Existing Volumes plus Background Growth

MOVEMENT SUMMARY

Site: 101 [Queen / Chamberlian EX AM + Growth]

Queen Street / Chamberlian Street
Existing
AM Peak Period
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street											
1	L2	135	2.0	0.205	17.7	LOS B	2.3	16.6	0.73	0.74	45.4
3	R2	152	2.0	0.692	31.5	LOS C	4.0	28.6	1.00	0.87	38.7
Approach		287	2.0	0.692	25.0	LOS B	4.0	28.6	0.87	0.81	41.6
East: Queen Street											
4	L2	128	2.0	0.666	18.8	LOS B	10.7	76.1	0.86	0.78	47.3
5	T1	907	2.0	0.666	13.6	LOS A	10.7	76.1	0.87	0.78	48.7
Approach		1035	2.0	0.666	14.2	LOS A	10.7	76.1	0.87	0.78	48.5
West: Queen Street											
11	T1	498	2.0	0.404	4.7	LOS A	5.9	42.3	0.52	0.46	55.7
12	R2	100	2.0	0.237	13.3	LOS A	1.0	7.2	0.79	0.74	48.1
Approach		598	2.0	0.404	6.2	LOS A	5.9	42.3	0.56	0.50	54.2
All Vehicles		1920	2.0	0.692	13.3	LOS A	10.7	76.1	0.77	0.70	48.9

MOVEMENT SUMMARY

Site: 101 [Queen / Chamberlian EX PM + Growth]

Queen Street / Chamberlian Street
Existing
PM Peak Period
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street											
1	L2	57	2.0	0.086	17.1	LOS B	0.9	6.6	0.69	0.71	45.8
3	R2	110	2.0	0.501	29.7	LOS C	2.7	19.5	0.98	0.77	39.4
Approach		167	2.0	0.501	25.4	LOS B	2.7	19.5	0.88	0.75	41.4
East: Queen Street											
4	L2	63	2.0	0.497	17.3	LOS B	7.1	50.5	0.78	0.69	48.5
5	T1	706	2.0	0.497	12.1	LOS A	7.2	51.0	0.79	0.69	49.8
Approach		769	2.0	0.497	12.5	LOS A	7.2	51.0	0.79	0.69	49.7
West: Queen Street											
11	T1	974	2.0	0.853	14.8	LOS B	23.4	166.3	0.79	0.87	48.3
12	R2	87	2.0	0.179	11.7	LOS A	0.9	6.2	0.69	0.72	49.1
Approach		1061	2.0	0.853	14.5	LOS B	23.4	166.3	0.78	0.86	48.3
All Vehicles		1997	2.0	0.853	14.7	LOS B	23.4	166.3	0.79	0.78	48.2

**ANNEXURE F: FUTURE SIDRA SUMMARIES
(SHEET 2 OF 15)**

Queen Street / Chamberlain Street Existing Volumes plus DFO plus Growth

MOVEMENT SUMMARY											
 Site: 101 [Queen / Chamberlian EX AM + DFO + Growth]											
Queen Street / Chamberlian Street											
Existing											
AM Peak Period											
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street											
1	L2	135	2.0	0.194	17.0	LOS B	2.3	16.0	0.70	0.74	45.9
3	R2	185	2.0	0.722	31.1	LOS C	4.9	34.9	1.00	0.89	38.8
Approach		320	2.0	0.722	25.1	LOS B	4.9	34.9	0.88	0.83	41.5
East: Queen Street											
4	L2	161	2.0	0.757	22.1	LOS B	13.4	95.1	0.92	0.89	45.2
5	T1	960	2.0	0.757	16.9	LOS B	13.4	95.1	0.93	0.89	46.5
Approach		1121	2.0	0.757	17.7	LOS B	13.4	95.1	0.93	0.89	46.3
West: Queen Street											
11	T1	551	2.0	0.462	5.5	LOS A	7.2	51.4	0.57	0.50	55.0
12	R2	100	2.0	0.252	14.7	LOS B	1.1	7.9	0.85	0.75	47.2
Approach		651	2.0	0.462	6.9	LOS A	7.2	51.4	0.61	0.54	53.7
All Vehicles		2092	2.0	0.757	15.5	LOS B	13.4	95.1	0.82	0.77	47.5

MOVEMENT SUMMARY											
 Site: 101 [Queen / Chamberlian EX PM + DFO + Growth]											
Queen Street / Chamberlian Street											
Existing											
PM Peak Period											
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street											
1	L2	57	2.0	0.123	51.5	LOS D	3.2	22.6	0.81	0.74	32.0
3	R2	128	2.0	0.299	53.6	LOS D	7.5	53.2	0.85	0.78	31.3
Approach		185	2.0	0.299	53.0	LOS D	7.5	53.2	0.83	0.77	31.5
East: Queen Street											
4	L2	81	2.0	0.393	17.0	LOS B	15.9	113.1	0.48	0.48	48.7
5	T1	925	2.0	0.393	11.6	LOS A	16.2	115.5	0.48	0.46	50.1
Approach		1006	2.0	0.393	12.1	LOS A	16.2	115.5	0.48	0.46	50.0
West: Queen Street											
11	T1	1193	2.0	0.931	18.9	LOS B	50.8	361.7	0.50	0.53	45.8
12	R2	87	2.0	0.178	10.5	LOS A	1.2	8.6	0.39	0.67	49.9
Approach		1280	2.0	0.931	18.3	LOS B	50.8	361.7	0.49	0.54	46.0
All Vehicles		2471	2.0	0.931	18.4	LOS B	50.8	361.7	0.51	0.52	45.9

ANNEXURE F: FUTURE SIDRA SUMMARIES

(SHEET 3 OF 15)

Queen Street / Chamberlain Street Existing Volumes plus Proposal plus Background Growth

MOVEMENT SUMMARY											
Site: 101 [Queen / Chamberlian EX AM + ResRet + Growth]											
Queen Street / Chamberlian Street											
Existing											
AM Peak Period											
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street											
1	L2	135	2.0	0.194	17.0	LOS B	2.3	16.0	0.70	0.74	45.9
3	R2	211	2.0	0.823	33.9	LOS C	6.0	42.7	1.00	0.98	37.7
Approach		346	2.0	0.823	27.3	LOS B	6.0	42.7	0.88	0.89	40.5
East: Queen Street											
4	L2	237	2.0	0.827	25.4	LOS B	16.8	119.4	0.95	1.00	43.2
5	T1	998	2.0	0.827	20.4	LOS B	16.8	119.4	0.96	1.00	44.5
Approach		1235	2.0	0.827	21.4	LOS B	16.8	119.4	0.96	1.00	44.2
West: Queen Street											
11	T1	572	2.0	0.479	5.6	LOS A	7.6	54.3	0.58	0.51	55.0
12	R2	100	2.0	0.263	15.6	LOS B	1.2	8.6	0.88	0.75	46.7
Approach		672	2.0	0.479	7.1	LOS A	7.6	54.3	0.62	0.55	53.5
All Vehicles		2253	2.0	0.827	18.0	LOS B	16.8	119.4	0.85	0.85	46.0

MOVEMENT SUMMARY											
Site: 101 [Queen / Chamberlian EX PM + ResRet + Growth]											
Queen Street / Chamberlian Street											
Existing											
PM Peak Period											
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street											
1	L2	57	2.0	0.111	48.1	LOS D	3.1	21.8	0.78	0.73	33.0
3	R2	197	2.0	0.991	118.1	LOS F	18.9	134.8	1.00	1.05	20.2
Approach		254	2.0	0.991	102.4	LOS F	18.9	134.8	0.95	0.98	22.1
East: Queen Street											
4	L2	100	2.0	0.429	19.2	LOS B	18.4	130.7	0.53	0.53	47.2
5	T1	955	2.0	0.429	13.9	LOS A	18.7	133.3	0.53	0.50	48.6
Approach		1055	2.0	0.429	14.4	LOS A	18.7	133.3	0.53	0.51	48.4
West: Queen Street											
11	T1	1239	2.0	1.007	72.8	LOS F	130.1	926.2	1.00	1.20	27.3
12	R2	87	2.0	0.196	12.3	LOS A	1.4	10.1	0.45	0.69	48.7
Approach		1326	2.0	1.007	68.8	LOS E	130.1	926.2	0.96	1.17	28.1
All Vehicles		2635	2.0	1.007	50.3	LOS D	130.1	926.2	0.79	0.89	32.7

ANNEXURE F: FUTURE SIDRA SUMMARIES

(SHEET 4 OF 15)

Campbelltown Road / Chamberlain Street Existing Volumes plus Background Growth

MOVEMENT SUMMARY												
Site: 102 [Chamberlain / Campbelltown EX AM + Growth]												
Chamberlain Street / Campbelltown Road												
Existing												
AM peak period												
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Optimum Cycle Time - Minimum Delay)												
Variable Sequence Analysis applied. The results are given for the selected output sequence.												
Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Sat'n v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
South: Chamberlain Street S												
1	L2	13	2.0	0.124	30.0	LOS C	1.4	9.9	0.84	0.66	41.4	
2	T1	138	2.0	0.573	28.7	LOS C	5.4	38.6	0.93	0.76	40.0	
3	R2	62	2.0	0.573	35.9	LOS C	5.4	38.6	0.97	0.79	38.8	
Approach		213	2.0	0.573	30.9	LOS C	5.4	38.6	0.94	0.76	39.7	
East: Campbelltown Road												
4	L2	58	2.0	0.501	20.1	LOS B	10.4	75.9	0.75	0.68	46.9	
5	T1	1237	5.0	0.501	14.5	LOS B	10.5	76.4	0.75	0.66	48.3	
6	R2	132	2.0	0.399	16.3	LOS B	2.0	14.0	0.81	0.76	46.3	
Approach		1427	4.6	0.501	14.9	LOS B	10.5	76.4	0.76	0.67	48.1	
North: Chamberlain Street N												
7	L2	58	2.0	0.103	22.5	LOS B	1.5	10.4	0.71	0.71	43.1	
8	T1	81	2.0	0.476	29.0	LOS C	4.2	29.6	0.93	0.77	39.7	
9	R2	51	2.0	0.476	35.3	LOS C	4.2	29.6	0.95	0.77	39.0	
Approach		190	2.0	0.476	28.7	LOS C	4.2	29.6	0.87	0.75	40.5	
West: Moore Street												
10	L2	140	2.0	0.167	17.6	LOS B	2.8	20.0	0.62	0.72	45.5	
11	T1	1048	5.0	0.640	15.5	LOS B	14.6	106.8	0.81	0.71	47.8	
12	R2	49	2.0	0.142	13.9	LOS A	0.7	4.9	0.67	0.70	47.9	
Approach		1237	4.5	0.640	15.7	LOS B	14.6	106.8	0.78	0.71	47.6	
All Vehicles		3067	4.2	0.640	17.2	LOS B	14.6	106.8	0.79	0.70	46.6	

MOVEMENT SUMMARY												
Site: 102 [Chamberlain / Campbelltown EX PM + Growth]												
Chamberlain Street / Campbelltown Road												
Existing												
AM peak period												
Signals - Fixed Time Isolated Cycle Time = 130 seconds (Optimum Cycle Time - Minimum Delay)												
Variable Sequence Analysis applied. The results are given for the selected output sequence.												
Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Sat'n v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
South: Chamberlain Street S												
1	L2	15	2.0	0.093	53.8	LOS D	1.6	11.6	0.87	0.68	32.2	
2	T1	37	2.0	0.434	52.8	LOS D	5.6	39.6	0.92	0.74	31.2	
3	R2	72	2.0	0.434	61.7	LOS E	5.6	39.6	0.96	0.78	29.9	
Approach		124	2.0	0.434	58.1	LOS E	5.6	39.6	0.94	0.75	30.6	
East: Campbelltown Road												
4	L2	87	2.0	0.490	17.6	LOS B	19.0	138.5	0.55	0.54	48.3	
5	T1	1667	5.0	0.490	11.9	LOS A	19.1	139.6	0.54	0.50	50.0	
6	R2	44	2.0	0.165	15.5	LOS B	0.8	5.7	0.56	0.69	46.7	
Approach		1798	4.8	0.490	12.3	LOS A	19.1	139.6	0.54	0.51	49.9	
North: Chamberlain Street N												
7	L2	15	2.0	0.115	54.1	LOS D	2.0	14.3	0.87	0.68	32.3	
8	T1	45	2.0	0.535	53.5	LOS D	6.2	44.1	0.93	0.74	31.1	
9	R2	79	2.0	0.535	64.2	LOS E	6.2	44.1	0.98	0.79	29.4	
Approach		139	2.0	0.535	59.6	LOS E	6.2	44.1	0.95	0.76	30.2	
West: Moore Street												
10	L2	37	2.0	0.031	13.8	LOS A	0.8	5.7	0.37	0.65	47.8	
11	T1	1175	5.0	0.572	12.2	LOS A	24.2	177.0	0.56	0.51	50.0	
12	R2	64	2.0	0.302	15.0	LOS B	1.2	8.6	0.57	0.70	47.3	
Approach		1276	4.8	0.572	12.4	LOS A	24.2	177.0	0.55	0.52	49.8	
All Vehicles		3337	4.6	0.572	16.0	LOS B	24.2	177.0	0.58	0.53	47.4	

ANNEXURE F: FUTURE SIDRA SUMMARIES (SHEET 5 OF 15)

Campbelltown Road / Chamberlain Street Existing Volumes plus DFO plus Background Growth

MOVEMENT SUMMARY											
Site: 102 [Chamberlain / Campbelltown EX AM + DFO + Growth]											
Chamberlain Street / Campbelltown Road											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 65 seconds (Optimum Cycle Time - Minimum Delay)											
Variable Sequence Analysis applied. The results are given for the selected output sequence.											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street S											
1	L2	13	2.0	0.138	28.4	LOS B	1.4	10.3	0.84	0.66	42.2
2	T1	154	2.0	0.642	27.7	LOS B	5.6	39.7	0.94	0.79	40.6
3	R2	62	2.0	0.642	35.1	LOS C	5.6	39.7	0.98	0.84	39.2
Approach		229	2.0	0.642	29.7	LOS C	5.6	39.7	0.95	0.80	40.3
East: Campbelltown Road											
4	L2	58	2.0	0.531	20.5	LOS B	10.2	74.3	0.79	0.70	46.6
5	T1	1237	5.0	0.531	14.9	LOS B	10.2	74.8	0.79	0.69	48.1
6	R2	132	2.0	0.391	16.4	LOS B	1.9	13.5	0.84	0.77	46.2
Approach		1427	4.6	0.531	15.3	LOS B	10.2	74.8	0.79	0.70	47.8
North: Chamberlain Street N											
7	L2	58	2.0	0.129	23.3	LOS B	1.6	11.7	0.75	0.70	43.0
8	T1	97	2.0	0.598	28.2	LOS B	4.8	34.3	0.95	0.80	39.9
9	R2	67	2.0	0.598	35.3	LOS C	4.8	34.3	0.98	0.81	38.9
Approach		222	2.0	0.598	29.0	LOS C	4.8	34.3	0.91	0.78	40.4
West: Moore Street											
10	L2	156	2.0	0.198	18.0	LOS B	3.1	22.1	0.66	0.74	45.3
11	T1	1048	5.0	0.676	16.0	LOS B	14.2	103.8	0.84	0.74	47.5
12	R2	49	2.0	0.138	13.8	LOS A	0.7	4.7	0.69	0.70	48.0
Approach		1253	4.5	0.676	16.1	LOS B	14.2	103.8	0.82	0.74	47.3
All Vehicles		3131	4.2	0.676	17.6	LOS B	14.2	103.8	0.82	0.73	46.4

MOVEMENT SUMMARY											
Site: 102 [Chamberlain / Campbelltown EX PM + DFO + Growth]											
Chamberlain Street / Campbelltown Road											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)											
Variable Sequence Analysis applied. The results are given for the selected output sequence.											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street S											
1	L2	15	2.0	0.087	48.5	LOS D	1.5	10.6	0.85	0.67	33.8
2	T1	46	2.0	0.402	47.1	LOS D	5.5	39.0	0.91	0.74	32.9
3	R2	72	2.0	0.402	55.0	LOS D	5.5	39.0	0.94	0.77	31.8
Approach		133	2.0	0.402	51.5	LOS D	5.5	39.0	0.92	0.75	32.4
East: Campbelltown Road											
4	L2	87	2.0	0.513	18.7	LOS B	19.1	139.2	0.60	0.57	47.7
5	T1	1667	5.0	0.513	12.9	LOS A	19.2	140.3	0.59	0.54	49.3
6	R2	44	2.0	0.166	16.3	LOS B	0.8	5.7	0.61	0.70	46.2
Approach		1798	4.8	0.513	13.3	LOS A	19.2	140.3	0.59	0.55	49.2
North: Chamberlain Street N											
7	L2	15	2.0	0.109	48.8	LOS D	1.8	13.1	0.86	0.68	33.9
8	T1	54	2.0	0.505	47.2	LOS D	6.4	45.8	0.91	0.74	32.9
9	R2	87	2.0	0.505	55.8	LOS D	6.4	45.8	0.95	0.79	31.5
Approach		156	2.0	0.505	52.1	LOS D	6.4	45.8	0.93	0.76	32.2
West: Moore Street											
10	L2	46	2.0	0.040	14.6	LOS B	1.0	7.2	0.40	0.66	47.3
11	T1	1175	5.0	0.594	13.3	LOS A	24.1	175.6	0.60	0.54	49.3
12	R2	64	2.0	0.294	15.7	LOS B	1.2	8.4	0.61	0.71	46.8
Approach		1285	4.7	0.594	13.4	LOS A	24.1	175.6	0.60	0.56	49.1
All Vehicles		3372	4.5	0.594	16.7	LOS B	24.1	175.6	0.62	0.57	47.0

ANNEXURE F: FUTURE SIDRA SUMMARIES

(SHEET 6 OF 15)

Campbelltown Road / Chamberlain Street Existing Volumes plus Proposal plus Background Growth

MOVEMENT SUMMARY											
Site: 102 [Retail. Chamberlain / Campbelltown EX AM + Growth]											
Chamberlain Street / Campbelltown Road											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Practical Cycle Time)											
Variable Sequence Analysis applied. The results are given for the selected output sequence.											
Design Life Analysis (Level of Service Target (Worst Vehicle Movement)): Results for 24 years											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street S											
1	L2	13	2.0	0.149	31.9	LOS C	2.1	14.6	0.83	0.66	40.7
2	T1	153	2.0	0.692	34.4	LOS C	6.6	46.7	0.94	0.79	37.8
3	R2	62	2.0	0.692	44.3	LOS D	6.6	46.7	1.00	0.86	35.7
Approach		228	2.0	0.692	37.0	LOS C	6.6	46.7	0.95	0.81	37.3
East: Campbelltown Road											
4	L2	58	2.0	0.821	39.8	LOS C	18.3	132.9	1.00	0.98	37.4
5	T1	1237	5.0	0.821	34.1	LOS C	18.3	133.8	0.99	0.97	38.4
6	R2	132	2.0	0.430	17.6	LOS B	2.3	16.2	0.81	0.77	45.5
Approach		1427	4.6	0.821	32.8	LOS C	18.3	133.8	0.97	0.96	38.9
North: Chamberlain Street N											
7	L2	58	2.0	0.154	28.6	LOS C	2.3	16.7	0.78	0.71	40.7
8	T1	96	2.0	0.712	35.8	LOS C	5.8	41.2	0.95	0.84	36.8
9	R2	66	2.0	0.712	45.1	LOS D	5.8	41.2	1.00	0.88	35.2
Approach		221	2.0	0.712	36.7	LOS C	5.8	41.2	0.92	0.82	37.2
West: Moore Street											
10	L2	155	2.0	0.178	18.5	LOS B	3.5	24.6	0.61	0.73	45.0
11	T1	1048	5.0	0.613	16.5	LOS B	15.9	116.3	0.78	0.69	47.2
12	R2	49	2.0	0.083	15.6	LOS B	0.7	5.3	0.70	0.70	46.9
Approach		1252	4.5	0.613	16.7	LOS B	15.9	116.3	0.76	0.69	46.9
All Vehicles		3128	4.2	0.821	26.9	LOS B	18.3	133.8	0.88	0.83	41.5

MOVEMENT SUMMARY											
Site: 102 [Retail. Chamberlain / Campbelltown EX PM + Growth]											
Chamberlain Street / Campbelltown Road											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)											
Variable Sequence Analysis applied. The results are given for the selected output sequence.											
Design Life Analysis (Level of Service Target (Worst Vehicle Movement)): Results for 24 years											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chamberlain Street S											
1	L2	15	2.0	0.054	24.4	LOS B	0.7	5.3	0.74	0.62	43.4
2	T1	46	2.0	0.252	21.0	LOS B	2.8	20.0	0.79	0.69	42.9
3	R2	72	2.0	0.252	27.7	LOS B	2.8	20.0	0.82	0.73	41.6
Approach		133	2.0	0.252	25.0	LOS B	2.8	20.0	0.80	0.70	42.2
East: Campbelltown Road											
4	L2	87	2.0	0.814	31.1	LOS C	20.5	149.1	0.96	0.95	41.1
5	T1	1667	5.0	0.814	25.4	LOS B	20.6	150.3	0.95	0.95	42.2
6	R2	44	2.0	0.156	20.0	LOS B	0.7	5.2	0.88	0.72	44.2
Approach		1798	4.8	0.814	25.6	LOS B	20.6	150.3	0.95	0.94	42.2
North: Chamberlain Street N											
7	L2	15	2.0	0.064	24.5	LOS B	0.9	6.1	0.74	0.62	43.6
8	T1	54	2.0	0.297	21.1	LOS B	3.4	24.1	0.80	0.69	42.9
9	R2	88	2.0	0.297	28.1	LOS B	3.4	24.1	0.83	0.74	41.4
Approach		156	2.0	0.297	25.3	LOS B	3.4	24.1	0.81	0.71	42.1
West: Moore Street											
10	L2	46	2.0	0.065	20.1	LOS B	1.0	7.0	0.66	0.70	44.1
11	T1	1175	5.0	0.851	28.5	LOS C	23.1	168.7	0.96	1.00	40.9
12	R2	64	2.0	0.230	19.6	LOS B	1.1	7.7	0.87	0.74	44.6
Approach		1285	4.7	0.851	27.8	LOS B	23.1	168.7	0.94	0.98	41.2
All Vehicles		3371	4.5	0.851	26.4	LOS B	23.1	168.7	0.94	0.93	41.8

ANNEXURE F: FUTURE SIDRA SUMMARIES

(SHEET 7 OF 15)

Campbelltown Road / Blaxland Road Existing Volumes plus Background Growth

MOVEMENT SUMMARY											
Site: 103 [Campbelltown / Blaxland EX AM + Growth]											
Campbelltown Road / Blaxland Road											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Optimum Cycle Time - Minimum Delay)											
Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Campbelltown Road S											
1	L2	255	2.0	0.191	8.6	LOS A	3.2	22.9	0.32	0.64	51.9
2	T1	1165	5.0	0.807	32.1	LOS C	31.4	228.9	0.91	0.86	39.3
Approach		1420	4.5	0.807	27.9	LOS B	31.4	228.9	0.80	0.82	41.1
North: Campbelltown Road N											
8	T1	1400	5.0	0.503	6.4	LOS A	15.4	112.7	0.45	0.41	54.3
9	R2	595	2.0	0.777	34.3	LOS C	11.2	79.7	1.00	0.88	37.9
Approach		1995	4.1	0.777	14.7	LOS B	15.4	112.7	0.62	0.55	48.1
West: Blaxland Road											
10	L2	581	2.0	0.646	20.0	LOS B	21.3	151.8	0.80	0.83	44.7
12	R2	230	2.0	0.406	51.9	LOS D	5.7	40.6	0.95	0.78	32.0
Approach		811	2.0	0.646	29.0	LOS C	21.3	151.8	0.84	0.82	40.2
All Vehicles		4226	3.8	0.807	21.9	LOS B	31.4	228.9	0.72	0.69	43.9

MOVEMENT SUMMARY											
Site: 103 [Campbelltown / Blaxland EX PM + Growth]											
Campbelltown Road / Blaxland Road											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)											
Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Campbelltown Road S											
1	L2	279	2.0	0.210	9.4	LOS A	4.2	30.0	0.34	0.65	51.3
2	T1	1290	5.0	0.863	38.5	LOS C	41.7	304.3	0.92	0.92	36.8
Approach		1569	4.5	0.863	33.3	LOS C	41.7	304.3	0.82	0.87	38.8
North: Campbelltown Road N											
8	T1	1629	5.0	0.575	6.9	LOS A	20.5	149.8	0.48	0.44	53.9
9	R2	651	2.0	0.853	49.2	LOS D	14.6	103.8	1.00	0.99	32.8
Approach		2280	4.1	0.853	19.0	LOS B	20.5	149.8	0.63	0.60	45.5
West: Blaxland Road											
10	L2	740	2.0	0.847	37.0	LOS C	31.7	225.4	0.95	1.03	37.1
12	R2	286	2.0	0.521	57.4	LOS E	7.9	56.3	0.97	0.80	30.5
Approach		1026	2.0	0.847	42.7	LOS D	31.7	225.4	0.95	0.97	35.0
All Vehicles		4875	3.8	0.863	28.6	LOS C	41.7	304.3	0.76	0.76	40.7

ANNEXURE F: FUTURE SIDRA SUMMARIES

(SHEET 8 OF 15)

Campbelltown Road / Blaxland Road Existing Volumes plus DFO plus Background Growth

MOVEMENT SUMMARY

Site: 103 [Campbelltown / Blaxland EX AM + DFO + Growth]

Campbelltown Road / Blaxland Road

Existing

AM peak period

Signals - Fixed Time Isolated Cycle Time = 125 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Campbelltown Road S											
1	L2	255	2.0	0.188	9.0	LOS A	3.6	26.0	0.31	0.64	51.6
2	T1	1233	5.0	0.792	30.4	LOS C	35.1	256.4	0.88	0.80	40.1
Approach		1488	4.5	0.792	26.7	LOS B	35.1	256.4	0.78	0.77	41.7
North: Campbelltown Road N											
8	T1	1468	5.0	0.511	6.2	LOS A	17.2	125.3	0.43	0.39	54.5
9	R2	595	2.0	0.781	38.8	LOS C	13.1	93.1	1.00	0.88	36.2
Approach		2063	4.1	0.781	15.6	LOS B	17.2	125.3	0.59	0.53	47.5
West: Blaxland Road											
10	L2	581	2.0	0.680	23.9	LOS B	25.3	179.9	0.84	0.87	42.7
12	R2	230	2.0	0.436	59.4	LOS E	6.5	46.6	0.96	0.79	30.1
Approach		811	2.0	0.680	33.9	LOS C	25.3	179.9	0.88	0.84	38.2
All Vehicles		4362	3.9	0.792	22.8	LOS B	35.1	256.4	0.71	0.67	43.5

MOVEMENT SUMMARY

Site: 103 [Campbelltown / Blaxland EX PM + DFO + Growth]

Campbelltown Road / Blaxland Road

Existing

AM peak period

Signals - Fixed Time Isolated Cycle Time = 125 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Campbelltown Road S											
1	L2	279	2.0	0.208	9.5	LOS A	4.4	31.1	0.33	0.65	51.2
2	T1	1381	5.0	0.882	40.6	LOS C	47.7	348.2	0.92	0.93	36.1
Approach		1660	4.5	0.882	35.4	LOS C	47.7	348.2	0.83	0.89	37.9
North: Campbelltown Road N											
8	T1	1720	5.0	0.599	7.0	LOS A	22.6	165.0	0.48	0.45	53.9
9	R2	651	2.0	0.889	59.0	LOS E	16.2	115.4	1.00	1.05	30.2
Approach		2371	4.2	0.889	21.2	LOS B	22.6	165.0	0.62	0.61	44.3
West: Blaxland Road											
10	L2	740	2.0	0.883	46.7	LOS D	36.3	258.7	0.98	1.09	33.8
12	R2	286	2.0	0.542	60.4	LOS E	8.3	59.1	0.98	0.80	29.8
Approach		1026	2.0	0.883	50.5	LOS D	36.3	258.7	0.98	1.01	32.6
All Vehicles		5057	3.8	0.889	31.8	LOS C	47.7	348.2	0.76	0.78	39.3

ANNEXURE F: FUTURE SIDRA SUMMARIES

(SHEET 9 OF 15)

Campbelltown Road / Blaxland Road Existing Volumes plus Proposal plus Background Growth

MOVEMENT SUMMARY												
 Site: 103 [Campbelltown / Blaxland EX AM + ResRet + Growth]												
Campbelltown Road / Blaxland Road												
Existing												
AM peak period												
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Optimum Cycle Time - Minimum Delay)												
Movement Performance - Vehicles												
Mov ID	OD Mov	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 per veh	Average Speed km/h	
South: Campbelltown Road S												
1	L2	255	2.0	0.185	9.1	LOS A	3.9	28.0	0.29	0.64	51.5	
2	T1	1387	5.0	0.830	32.5	LOS C	45.1	329.5	0.88	0.82	39.2	
Approach		1642	4.5	0.830	28.9	LOS C	45.1	329.5	0.79	0.79	40.7	
North: Campbelltown Road N												
8	T1	1521	5.0	0.517	6.0	LOS A	18.8	136.9	0.40	0.37	54.6	
9	R2	595	2.0	0.812	47.1	LOS D	15.6	111.0	1.00	0.90	33.4	
Approach		2116	4.2	0.812	17.6	LOS B	18.8	136.9	0.57	0.52	46.4	
West: Blaxland Road												
10	L2	581	2.0	0.724	32.8	LOS C	28.1	199.7	0.89	0.94	38.7	
12	R2	230	2.0	0.463	66.8	LOS E	7.4	52.6	0.97	0.79	28.3	
Approach		811	2.0	0.724	42.5	LOS C	28.1	199.7	0.91	0.90	35.1	
All Vehicles		4569	3.9	0.830	26.1	LOS B	45.1	329.5	0.71	0.68	41.9	

MOVEMENT SUMMARY												
 Site: 103 [Campbelltown / Blaxland EX PM + ResRet + Growth]												
Campbelltown Road / Blaxland Road												
Existing												
AM peak period												
Signals - Fixed Time Isolated Cycle Time = 125 seconds (Optimum Cycle Time - Minimum Delay)												
Movement Performance - Vehicles												
Mov ID	OD Mov	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 per veh	Average Speed km/h	
South: Campbelltown Road S												
1	L2	279	2.0	0.208	9.5	LOS A	4.4	31.1	0.33	0.65	51.2	
2	T1	1424	5.0	0.910	47.0	LOS D	53.2	388.2	0.94	0.99	33.9	
Approach		1703	4.5	0.910	40.8	LOS C	53.2	388.2	0.84	0.94	35.9	
North: Campbelltown Road N												
8	T1	1864	5.0	0.649	7.5	LOS A	26.3	192.3	0.52	0.48	53.5	
9	R2	651	2.0	0.889	59.0	LOS E	16.2	115.4	1.00	1.05	30.2	
Approach		2515	4.2	0.889	20.8	LOS B	26.3	192.3	0.64	0.63	44.6	
West: Blaxland Road												
10	L2	740	2.0	0.892	49.4	LOS D	37.2	265.1	0.99	1.11	33.0	
12	R2	286	2.0	0.542	60.4	LOS E	8.3	59.1	0.98	0.80	29.8	
Approach		1026	2.0	0.892	52.5	LOS D	37.2	265.1	0.99	1.02	32.0	
All Vehicles		5244	3.9	0.910	33.5	LOS C	53.2	388.2	0.77	0.81	38.6	

ANNEXURE F: FUTURE SIDRA SUMMARIES (SHEET 10 OF 15)

Campbelltown Road / Queen Street Existing Volumes plus Background Growth

MOVEMENT SUMMARY											
Site: 104 [Campbelltown / Queen EX AM + Growth]											
Campbelltown Road / Queen Street Existing AM peak period Signals - Fixed Time Isolated Cycle Time = 130 seconds (Practical Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Sain v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Campbelltown Road S											
1	L2	22	2.0	0.798	54.0	LOS D	26.8	195.5	0.99	0.91	32.9
2	T1	858	5.0	0.798	48.4	LOS D	26.8	196.0	0.99	0.91	33.5
3	R2	202	2.0	0.624	33.0	LOS C	8.5	60.2	0.85	0.79	38.5
Approach		1082	4.4	0.798	45.7	LOS D	26.8	196.0	0.96	0.89	34.3
East: Queen St E											
4	L2	342	2.0	0.187	5.6	LOS A	0.0	0.0	0.00	0.53	54.8
5	T1	423	2.0	0.796	57.7	LOS E	16.2	115.0	0.97	0.96	30.7
6	R2	84	2.0	0.796	69.7	LOS E	15.3	109.0	1.00	1.08	28.6
Approach		849	2.0	0.796	37.9	LOS C	16.2	115.0	0.58	0.80	37.1
North: Campbelltown Road N											
7	L2	60	2.0	0.574	18.8	LOS B	14.3	104.1	0.75	0.68	48.4
8	T1	986	5.0	0.574	13.3	LOS A	15.2	110.7	0.76	0.67	49.1
9	R2	574	2.0	0.796	38.4	LOS C	27.4	195.2	0.95	0.96	36.4
Approach		1620	3.8	0.796	22.4	LOS B	27.4	195.2	0.82	0.77	43.7
West: Queen St W											
10	L2	364	2.0	0.199	5.7	LOS A	0.0	0.0	0.00	0.53	54.8
11	T1	232	2.0	0.783	69.5	LOS E	7.8	55.8	1.00	0.88	28.1
Approach		596	2.0	0.783	30.5	LOS C	7.8	55.8	0.39	0.67	40.1
All Vehicles		4147	3.3	0.798	32.8	LOS C	27.4	196.0	0.75	0.79	39.0

MOVEMENT SUMMARY											
Site: 104 [Campbelltown / Queen EX PM + Growth]											
Campbelltown Road / Queen Street Existing AM peak period Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time) Variable Sequence Analysis applied. The results are given for the selected output sequence.											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Sain v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Campbelltown Road S											
1	L2	24	2.0	0.525	31.2	LOS C	24.3	177.3	0.72	0.65	41.3
2	T1	994	5.0	0.525	25.7	LOS B	24.4	177.8	0.72	0.65	42.2
3	R2	297	2.0	0.748	58.7	LOS E	16.1	114.3	1.00	0.99	30.3
Approach		1315	4.3	0.748	33.2	LOS C	24.4	177.8	0.78	0.72	38.8
East: Queen St E											
4	L2	360	2.0	0.197	5.7	LOS A	0.0	0.0	0.00	0.53	54.8
5	T1	308	2.0	0.803	69.4	LOS E	18.0	128.0	0.99	0.93	28.0
6	R2	59	2.0	0.803	88.7	LOS F	9.3	66.1	1.00	1.01	24.8
Approach		727	2.0	0.803	39.4	LOS C	18.0	128.0	0.50	0.74	36.5
North: Campbelltown Road N											
7	L2	112	2.0	0.870	54.4	LOS D	50.9	370.3	0.98	0.96	32.9
8	T1	1464	5.0	0.870	42.2	LOS C	55.9	407.9	0.96	0.93	35.4
9	R2	366	2.0	0.723	29.1	LOS C	15.7	112.0	0.97	0.91	40.1
Approach		1942	4.3	0.870	40.4	LOS C	55.9	407.9	0.97	0.93	36.1
West: Queen St W											
10	L2	509	2.0	0.278	5.7	LOS A	0.0	0.0	0.00	0.53	54.8
11	T1	367	2.0	0.894	84.2	LOS F	15.0	106.8	1.00	1.00	25.3
Approach		876	2.0	0.894	38.5	LOS C	15.0	106.8	0.42	0.73	36.9
All Vehicles		4860	3.5	0.894	38.0	LOS C	55.9	407.9	0.75	0.81	37.0

ANNEXURE F: FUTURE SIDRA SUMMARIES

(SHEET 11 OF 15)

Campbelltown Road / Queen Street Existing Volumes plus DFO plus Background Growth

MOVEMENT SUMMARY												
Site: 104 [Campbelltown / Queen EX AM + DFO + Growth]												
Campbelltown Road / Queen Street												
Existing												
AM peak period												
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)												
Variable Sequence Analysis applied. The results are given for the selected output sequence.												
Movement Performance - Vehicles												
Mov ID	OD Mov	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 per veh	Average Speed km/h	
South: Campbelltown Road S												
1	L2	22	2.0	0.874	71.3	LOS F	33.9	247.5	1.00	0.99	28.5	
2	T1	858	5.0	0.874	65.8	LOS E	34.0	248.1	1.00	0.99	28.9	
3	R2	202	2.0	0.558	36.6	LOS C	9.5	67.8	0.85	0.79	37.1	
Approach		1082	4.4	0.874	60.4	LOS E	34.0	248.1	0.97	0.95	30.2	
East: Queen St E												
4	L2	342	2.0	0.187	5.6	LOS A	0.0	0.0	0.00	0.53	54.8	
5	T1	468	2.0	0.861	71.0	LOS F	20.5	146.2	0.97	1.03	27.7	
6	R2	84	2.0	0.861	83.5	LOS F	20.5	146.2	1.00	1.16	25.9	
Approach		894	2.0	0.861	47.2	LOS D	20.5	146.2	0.60	0.85	33.9	
North: Campbelltown Road N												
7	L2	60	2.0	0.598	21.8	LOS B	16.3	118.3	0.79	0.71	46.5	
8	T1	986	5.0	0.598	16.3	LOS B	17.3	126.1	0.79	0.70	47.3	
9	R2	642	2.0	0.856	50.4	LOS D	41.1	292.7	0.98	0.99	32.6	
Approach		1688	3.8	0.856	29.4	LOS C	41.1	292.7	0.86	0.81	40.3	
West: Queen St W												
10	L2	432	2.0	0.236	5.7	LOS A	0.0	0.0	0.00	0.53	54.8	
11	T1	314	2.0	0.941	94.5	LOS F	13.6	96.9	1.00	1.05	23.6	
Approach		746	2.0	0.941	43.1	LOS D	13.6	96.9	0.42	0.75	35.3	
All Vehicles		4410	3.3	0.941	42.9	LOS D	41.1	292.7	0.76	0.84	35.2	

MOVEMENT SUMMARY												
Site: 104 [Campbelltown / Queen EX PM + DFO + Growth]												
Campbelltown Road / Queen Street												
Existing												
AM peak period												
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)												
Variable Sequence Analysis applied. The results are given for the selected output sequence.												
Movement Performance - Vehicles												
Mov ID	OD Mov	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 per veh	Average Speed km/h	
South: Campbelltown Road S												
1	L2	24	2.0	0.642	42.2	LOS C	29.1	212.5	0.85	0.77	36.8	
2	T1	994	5.0	0.642	36.7	LOS C	29.2	213.1	0.85	0.76	37.5	
3	R2	297	2.0	0.589	50.2	LOS D	15.0	106.6	0.92	0.91	32.6	
Approach		1315	4.3	0.642	39.8	LOS C	29.2	213.1	0.87	0.80	36.3	
East: Queen St E												
4	L2	360	2.0	0.197	5.7	LOS A	0.0	0.0	0.00	0.53	54.8	
5	T1	377	2.0	0.774	65.5	LOS E	16.9	120.6	0.97	0.92	28.9	
6	R2	59	2.0	0.774	80.1	LOS F	14.0	99.4	1.00	1.04	26.5	
Approach		796	2.0	0.774	39.5	LOS C	16.9	120.6	0.53	0.75	36.5	
North: Campbelltown Road N												
7	L2	112	2.0	1.024	97.3	LOS F	72.7	528.5	1.00	1.19	19.9	
8	T1	1464	5.0	1.024	102.7	LOS F	84.2	614.9	1.00	1.25	20.6	
9	R2	457	2.0	0.806	47.3	LOS D	23.9	170.0	0.99	1.00	33.5	
Approach		2033	4.2	1.024	90.0	LOS F	84.2	614.9	1.00	1.19	22.5	
West: Queen St W												
10	L2	600	2.0	0.328	5.7	LOS A	0.0	0.0	0.00	0.53	54.8	
11	T1	412	2.0	1.003	118.1	LOS F	20.3	144.7	1.00	1.18	20.5	
Approach		1012	2.0	1.003	51.4	LOS D	20.3	144.7	0.41	0.79	32.7	
All Vehicles		5156	3.4	1.024	61.8	LOS E	84.2	614.9	0.78	0.94	28.7	

ANNEXURE F: FUTURE SIDRA SUMMARIES

(SHEET 12 OF 15)

Campbelltown Road / Queen Street Existing Volumes plus Proposal plus Background Growth

MOVEMENT SUMMARY											
Site: 104 [Campbelltown / Queen EX AM + ResRet + Growth]											
Campbelltown Road / Queen Street											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)											
Variable Sequence Analysis applied. The results are given for the selected output sequence.											
Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Campbelltown Road S											
1	L2	22	2.0	0.989	109.5	LOS F	45.2	329.8	1.00	1.22	22.0
2	T1	858	5.0	0.989	103.9	LOS F	45.2	329.8	1.00	1.23	22.3
3	R2	202	2.0	0.569	38.6	LOS C	9.9	70.2	0.87	0.80	36.3
Approach		1082	4.4	0.989	91.8	LOS F	45.2	329.8	0.98	1.15	24.0
East: Queen St E											
4	L2	342	2.0	0.187	5.6	LOS A	0.0	0.0	0.00	0.53	54.8
5	T1	481	2.0	0.834	65.6	LOS E	20.8	147.9	0.96	0.98	28.9
6	R2	84	2.0	0.834	80.4	LOS F	19.5	139.0	1.00	1.13	26.5
Approach		907	2.0	0.834	44.3	LOS D	20.8	147.9	0.60	0.83	34.8
North: Campbelltown Road N											
7	L2	60	2.0	0.632	23.5	LOS B	17.8	129.3	0.82	0.74	45.5
8	T1	986	5.0	0.632	18.1	LOS B	18.7	136.6	0.82	0.73	46.1
9	R2	695	2.0	0.944	72.7	LOS F	56.5	402.0	1.00	1.07	27.2
Approach		1741	3.7	0.944	40.1	LOS C	56.5	402.0	0.89	0.87	36.1
West: Queen St W											
10	L2	586	2.0	0.320	5.7	LOS A	0.0	0.0	0.00	0.53	54.8
11	T1	444	2.0	1.018	125.1	LOS F	22.7	161.6	1.00	1.22	19.6
Approach		1030	2.0	1.018	57.2	LOS E	22.7	161.6	0.43	0.82	31.0
All Vehicles		4760	3.2	1.018	56.3	LOS D	56.5	402.0	0.76	0.91	31.2

MOVEMENT SUMMARY											
Site: 104 [Campbelltown / Queen EX PM + ResRet + Growth]											
Campbelltown Road / Queen Street											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Practical Cycle Time)											
Variable Sequence Analysis applied. The results are given for the selected output sequence.											
Movement Performance - Vehicles											
Mov ID	OD Mov	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 per veh	Average Speed km/h
South: Campbelltown Road S											
1	L2	24	2.0	1.082	167.0	LOS F	67.2	489.9	1.00	1.49	16.1
2	T1	994	5.0	1.082	162.5	LOS F	67.2	489.9	1.00	1.50	16.1
3	R2	297	2.0	0.866	62.8	LOS E	19.3	137.5	1.00	0.97	29.3
Approach		1315	4.3	1.082	140.0	LOS F	67.2	489.9	1.00	1.38	17.9
East: Queen St E											
4	L2	360	2.0	0.197	5.7	LOS A	0.0	0.0	0.00	0.53	54.8
5	T1	385	2.0	0.815	68.8	LOS E	18.2	129.7	0.98	0.96	28.2
6	R2	59	2.0	0.815	83.1	LOS F	14.3	101.5	1.00	1.06	26.0
Approach		804	2.0	0.815	41.6	LOS C	18.2	129.7	0.54	0.77	35.8
North: Campbelltown Road N											
7	L2	112	2.0	0.896	35.4	LOS C	33.7	245.0	0.99	0.96	39.6
8	T1	1464	5.0	0.896	29.1	LOS C	36.0	262.6	0.99	0.96	40.5
9	R2	601	2.0	0.754	40.7	LOS C	32.8	233.3	0.91	0.93	35.6
Approach		2177	4.0	0.896	32.6	LOS C	36.0	262.6	0.96	0.95	39.0
West: Queen St W											
10	L2	643	2.0	0.351	5.7	LOS A	0.0	0.0	0.00	0.53	54.8
11	T1	425	2.0	1.035	135.1	LOS F	22.6	161.0	1.00	1.24	18.5
Approach		1068	2.0	1.035	57.2	LOS E	22.6	161.0	0.40	0.81	30.9
All Vehicles		5364	3.4	1.082	65.2	LOS E	67.2	489.9	0.80	1.00	28.8

ANNEXURE F: FUTURE SIDRA SUMMARIES (SHEET 13 OF 15)

Queen Street / Site Driveway Existing plus Background Growth

MOVEMENT SUMMARY											
Site: 101 [Queen / Queen Driveway Signalised EX AM + Growth]											
Queen Street / 32 Queen Street Driveway(Signalised Intersection)											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: 32 Queen Street Driveway (Signalised)											
1	L2	1	0.0	0.001	15.7	LOS B	0.0	0.1	0.63	0.59	46.7
3	R2	1	0.0	0.004	25.9	LOS B	0.0	0.2	0.88	0.59	41.4
Approach		2	0.0	0.004	20.8	LOS B	0.0	0.2	0.75	0.59	43.8
East: Queen Street											
4	L2	6	0.0	0.006	9.4	LOS A	0.1	0.4	0.49	0.62	50.7
5	T1	1081	2.0	0.739	16.5	LOS B	12.5	89.3	0.92	0.86	47.2
Approach		1087	2.0	0.739	16.5	LOS B	12.5	89.3	0.92	0.86	47.2
West: Queen Street											
11	T1	647	2.0	0.301	4.9	LOS A	4.1	29.4	0.54	0.45	55.4
12	R2	12	0.0	0.301	10.5	LOS A	3.4	24.2	0.58	0.47	53.7
Approach		659	2.0	0.301	5.0	LOS A	4.1	29.4	0.54	0.45	55.3
All Vehicles		1748	2.0	0.739	12.2	LOS A	12.5	89.3	0.77	0.71	50.0

MOVEMENT SUMMARY											
Site: 101 [Queen / Queen Driveway Signalised EX PM + Growth]											
Queen Street / 32 Queen Street Driveway(Signalised Intersection)											
Existing											
AM peak period											
Signals - Fixed Time Isolated Cycle Time = 40 seconds (Practical Cycle Time)											
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: 32 Queen Street Driveway (Signalised)											
1	L2	7	0.0	0.008	12.1	LOS A	0.1	0.5	0.57	0.63	48.9
3	R2	9	0.0	0.032	22.0	LOS B	0.2	1.1	0.88	0.66	43.2
Approach		16	0.0	0.032	17.7	LOS B	0.2	1.1	0.74	0.65	45.6
East: Queen Street											
4	L2	7	0.0	0.009	10.5	LOS A	0.1	0.4	0.62	0.63	49.9
5	T1	759	2.0	0.789	19.1	LOS B	8.2	58.6	0.99	0.97	45.6
Approach		766	2.0	0.789	19.0	LOS B	8.2	58.6	0.99	0.97	45.7
West: Queen Street											
11	T1	1022	2.0	0.512	6.2	LOS A	6.8	48.3	0.69	0.58	54.3
12	R2	4	0.0	0.512	11.7	LOS A	5.9	42.3	0.72	0.58	52.9
Approach		1026	2.0	0.512	6.2	LOS A	6.8	48.3	0.69	0.58	54.3
All Vehicles		1808	2.0	0.789	11.7	LOS A	8.2	58.6	0.82	0.75	50.2

ANNEXURE F: FUTURE SIDRA SUMMARIES (SHEET 14 OF 15)

Queen Street / Site Driveway Existing plus DFO plus Growth

MOVEMENT SUMMARY

Site: 101 [Queen / Queen Driveway Signalised EX AM + DFO + Growth]

Queen Street / 32 Queen Street Driveway(Signalised Intersection)

Existing

AM peak period

Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: 32 Queen Street Driveway (Signalised)											
1	L2	86	0.0	0.122	16.6	LOS B	1.4	9.7	0.68	0.72	46.2
3	R2	113	0.0	0.435	28.4	LOS B	2.7	19.0	0.96	0.77	40.2
Approach		199	0.0	0.435	23.3	LOS B	2.7	19.0	0.84	0.75	42.6
East: Queen Street											
4	L2	113	0.0	0.117	9.8	LOS A	1.1	7.5	0.54	0.69	50.4
5	T1	1081	2.0	0.749	16.8	LOS B	12.9	91.6	0.92	0.87	47.0
Approach		1194	1.8	0.749	16.2	LOS B	12.9	91.6	0.88	0.86	47.3
West: Queen Street											
11	T1	647	2.0	0.424	5.8	LOS A	6.4	45.7	0.61	0.53	54.4
12	R2	86	0.0	0.424	13.2	LOS A	2.6	18.3	0.82	0.71	50.5
Approach		733	1.8	0.424	6.7	LOS A	6.4	45.7	0.63	0.56	53.9
All Vehicles		2126	1.6	0.749	13.6	LOS A	12.9	91.6	0.79	0.74	48.9

MOVEMENT SUMMARY

Site: 101 [Queen / Queen Driveway Signalised EX PM + DFO + Growth]

Queen Street / 32 Queen Street Driveway(Signalised Intersection)

Existing

AM peak period

Signals - Fixed Time Isolated Cycle Time = 40 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	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 per veh	Average Speed km/h
South: 32 Queen Street Driveway (Signalised)											
1	L2	237	0.0	0.284	13.2	LOS A	3.0	21.0	0.67	0.75	48.2
3	R2	160	0.0	0.574	24.4	LOS B	3.2	22.5	0.97	0.81	42.0
Approach		397	0.0	0.574	17.7	LOS B	3.2	22.5	0.79	0.77	45.5
East: Queen Street											
4	L2	160	0.0	0.215	11.2	LOS A	1.6	11.4	0.69	0.73	49.5
5	T1	759	2.0	0.789	19.1	LOS B	8.2	58.6	0.99	0.97	45.6
Approach		919	1.7	0.789	17.7	LOS B	8.2	58.6	0.94	0.93	46.3
West: Queen Street											
11	T1	1022	2.0	0.812	12.5	LOS A	17.0	121.3	0.89	0.92	49.4
12	R2	237	0.0	0.812	18.3	LOS B	6.2	43.6	0.98	0.96	46.4
Approach		1259	1.6	0.812	13.6	LOS A	17.0	121.3	0.91	0.93	48.8
All Vehicles		2575	1.4	0.812	15.7	LOS B	17.0	121.3	0.90	0.90	47.4

ANNEXURE F: FUTURE SIDRA SUMMARIES (SHEET 15 OF 15)

Queen Street / Site Driveway plus Proposal plus Growth plus Background Growth

MOVEMENT SUMMARY

Site: 101 [Queen / Queen Driveway Signalised EX AM + ResRet + Growth]

Queen Street / 32 Queen Street Driveway(Signalised Intersection)

Existing

AM peak period

Signals - Fixed Time Isolated Cycle Time = 50 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %				Vehicles veh	Distance m			
South: 32 Queen Street Driveway (Signalised)											
1	L2	202	0.0	0.259	15.9	LOS B	3.3	22.9	0.69	0.75	46.6
3	R2	281	0.0	0.841	33.5	LOS C	8.1	56.4	1.00	1.01	38.1
Approach		483	0.0	0.841	26.1	LOS B	8.1	56.4	0.87	0.90	41.2
East: Queen Street											
4	L2	186	0.0	0.193	10.0	LOS A	1.9	13.1	0.56	0.71	50.3
5	T1	1081	2.0	0.851	23.8	LOS B	15.8	112.5	0.98	1.04	43.1
Approach		1267	1.7	0.851	21.7	LOS B	15.8	112.5	0.92	0.99	44.1
West: Queen Street											
11	T1	647	2.0	0.524	7.2	LOS A	8.7	62.1	0.67	0.59	53.3
12	R2	146	0.0	0.524	15.9	LOS B	2.6	18.4	0.93	0.78	47.5
Approach		793	1.6	0.524	8.8	LOS A	8.7	62.1	0.72	0.63	52.2
All Vehicles		2543	1.4	0.851	18.5	LOS B	15.8	112.5	0.85	0.86	45.7

MOVEMENT SUMMARY

Site: 101 [Queen / Queen Driveway Signalised EX PM + ResRet + Growth]

Queen Street / 32 Queen Street Driveway(Signalised Intersection)

Existing

AM peak period

Signals - Fixed Time Isolated Cycle Time = 70 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %				Vehicles veh	Distance m			
South: 32 Queen Street Driveway (Signalised)											
1	L2	293	0.0	0.276	13.7	LOS A	5.1	35.5	0.54	0.73	47.9
3	R2	220	0.0	0.754	39.8	LOS C	8.0	55.7	1.00	0.90	35.7
Approach		513	0.0	0.754	24.9	LOS B	8.0	55.7	0.74	0.80	41.8
East: Queen Street											
4	L2	319	2.0	0.421	17.7	LOS B	6.8	48.5	0.75	0.78	45.4
5	T1	759	2.0	0.812	31.3	LOS C	14.6	104.2	0.99	0.96	39.6
Approach		1078	2.0	0.812	27.2	LOS B	14.6	104.2	0.92	0.91	41.2
West: Queen Street											
11	T1	1022	2.0	0.678	8.3	LOS A	18.0	128.2	0.68	0.63	52.3
12	R2	357	2.0	0.678	19.3	LOS B	10.6	75.3	0.88	0.85	45.4
Approach		1379	2.0	0.678	11.2	LOS A	18.0	128.2	0.73	0.69	50.4
All Vehicles		2970	1.7	0.812	19.4	LOS B	18.0	128.2	0.80	0.79	45.1