TRAFFIC, ACCESS AND PARKING ASSESSMENT

FOR

PROPOSED MIXED USE COMMERCIAL AND RESIDENTIAL DEVELOPMENT

AT

263 QUEEN STREET CAMPBELLTOWN

Ref. 16026r2

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Prepared By

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1.0 INTRODUCTION

Transport and Urban Planning Pty Ltd have been commissioned by Marchese Partners to assess the likely access, parking and traffic implications associated with the proposed mixed use 21 level commercial/residential redevelopment at 263 Queen Street Campbelltown.

To provide Council with relevant information concerning traffic, access and car parking aspects of the proposed site re-development, this assessment proposes to address the following:

- Determine the level of peak hour traffic generated by the proposal and impact on the adjoining road system;

- Undertake traffic impact evaluations regarding site access provisions to/from Queen Street;

- Assess parking demand and the provision of on-site parking within the development;

- Assess the proposal with regards to site access, servicing and manoeuvring, keeping in mind the comments from Council's Heritage Planners regarding the preservation of the existing heritage building and surrounds fronting Queen Street.

This assessment has been undertaken in accordance with the provisions of State Environmental Planning Policy Infrastructure (SEPP 11), the RMS Guide to Traffic Generation Developments 2002 and with particular regard to the relevant planning instruments adopted by Campbelltown City Council and the Department of Planning NSW.

This report should be read in conjunction with architectural drawings prepared by Marchese Partners Architects dated March 2017 and identified as Drawings DA1.00, DA1.07, DA2 and DA3.

2.0 SITE DETAILS

2.1 Site Location and Access

The subject site is located on the western side of Queen Street almost opposite Allman Street. The site is approximately 2,130m² in area and has existing separated in and out driveway access to Queen Street as shown in the photographs below.

1. Existing Queen Street Entry

2. Existing Queen Street Exit

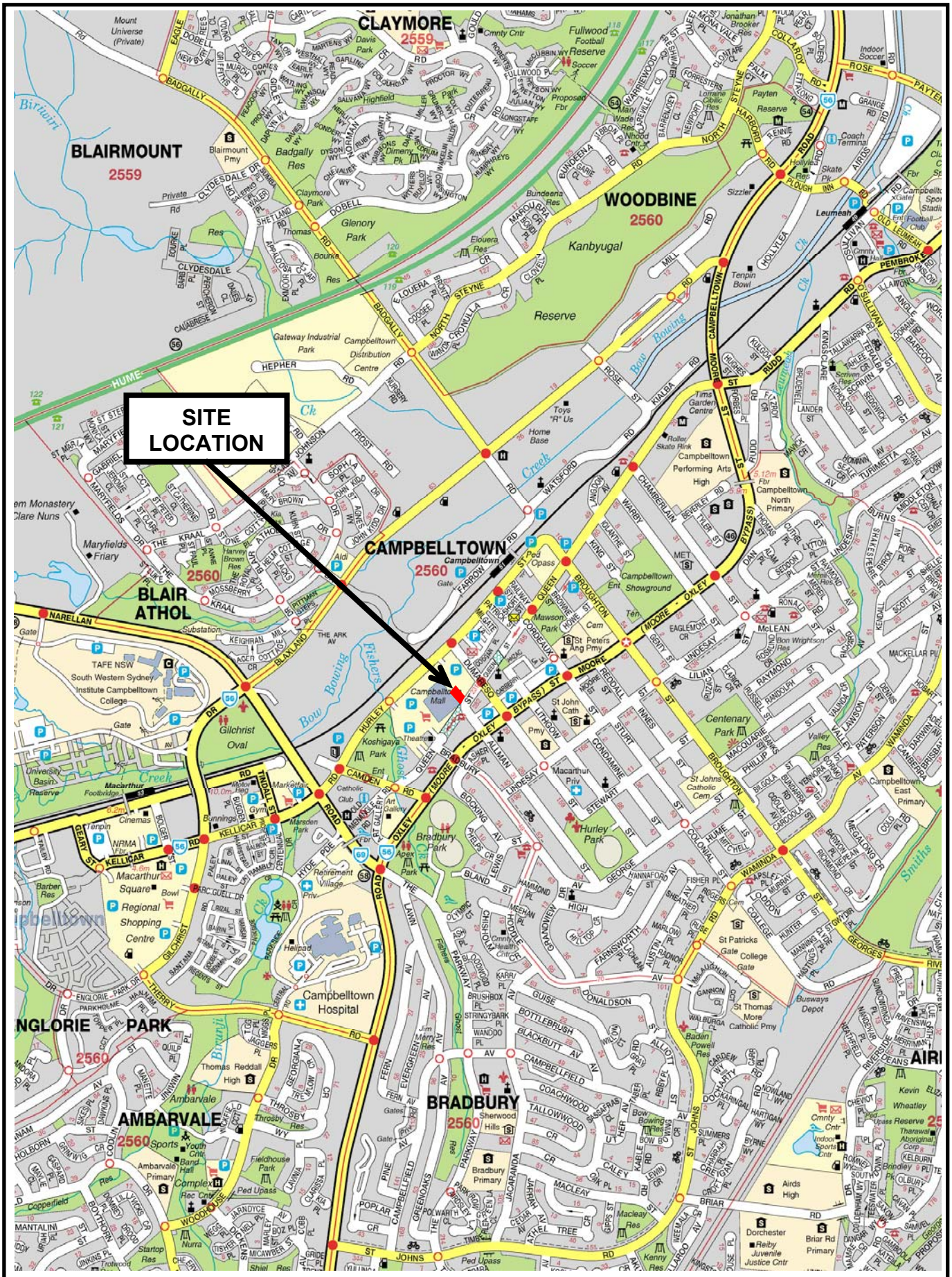
3. Exit View North

4. Exit View South

The location of the site in the local context is shown in **Figure 1** and **2** overleaf.

The site is a rectangle shape with an approximate frontage to Queen Street of 32 metres.

Separated vehicle access is currently only available to/from Queen Street, with all left and right turn movements permitted.



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NOT TO SCALE

FIGURE 1

263 QUEEN STREET
CAMPBELLTOWN

SITE LOCATION

JOB NO. 16026

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NOT TO SCALE

FIGURE 2

263 QUEEN STREET
CAMPBELLTOWN

SUBJECT SITE

JOB NO. 16026

2.2 Existing Use and Parking

The site is currently occupied by a heritage building fronting Queen Street and newer commercial/office/retail building at rear. On site car parking for up to 12 vehicles is available.

2.3 Adjoining Uses

On inspection, the subject site is located at the southern end of the Campbelltown Business Area and is adjoined on Queen Street by various other retail and commercial uses common to a CBD shopping strip.

3.0 DEVELOPMENT PROPOSAL

3.1 Built Form

The development proposal is to provide a mixed use commercial development over two levels **totalling 482m²** (60m² retail + 422m² commercial). A further 19 levels of residential apartments, **totalling 101** studio to three bedroom units.

The existing "bank" heritage building is to be retained totalling a further 137m² of ground retail floor area and top level of 127m² of commercial floor area.

Basement car parking over 4 levels for 139 vehicles and 22 bicycles is also proposed, see architect layout plans.

A breakdown of the residential apartments includes:

- 2 x studio apartments
- 8 x 1 bedroom apartments
- 16 x 1 bedroom + study
- 54 x 2 bedroom apartments
- 13 x 2 bedroom + study
- 8 x 3 bedroom apartments

Total 101 apartments

For the combined retail and commercial floor areas we have assumed the ground level (137m²) of heritage building to be a future bar/restaurant and 90% of the 9 new commercial suites to be professional offices.

3.2 Proposed Access

Two way vehicle access (in and out) is proposed along the site's most southern boundary, as shown within the architectural layout plans. The width of this access (5.8 metres) and ramp (3.0 metres + 300mm kerb either side) to the basement car park is constrained by the heritage building so that the ramp can only operate as one way (in or out) at a time.

Whilst we understand the location of this access does not fully comply with AS2890.1, we further understand that this location has been discussed with Council and Council appreciates that no other location is feasible.

3.3 Proposed Parking

The proposal aims to provide a total of 139 basement car parking spaces over 4 levels resident, visitor and commercial parking spaces, 21 bicycle parking spaces are also proposed.

Campbelltown City Council DCP 2014 at 5.4.4 indicates:

a) all car parking and access for vehicles, including disabled access spaces, shall be in accordance with AS2890 parts 1 and 2 (as amended), except as otherwise specified in the Plan.

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 unsignalised intersection.

d) Where existing, vehicular entry points shall be located at the rear or side streets.

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

f) Any parking provided at ground level shall be appropriately screened from public view.

g) 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).*

h) No required car parking space shall be in a stacked configuration.

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

Based on the above DCP we would calculate the on site residential car parking requirements at:

- 101 spaces for 101 dwellings plus
- 25.25 additional spaces
- 10.1 spaces for visitor parking

TOTAL: 136 spaces

A further 22 bicycle parking spaces are also required.

For the commercial component of the proposal 549m^2 Council's DCP 2014 indicates car parking at 1 space per 25m^2 of GLFA i.e. a further **22 spaces**.

In this regard it may be reasonable to conclude that the resident visitor spaces (11) may also be included in the 38 commercial space required as peak commercial and resident visitor car parking demands are unlikely to coincide.

By comparison, there is a provision in the Department of Planning Apartment Design Guide, Objective 3J-1 Design Criteria which states that *"for a development on sites that are within 800m of a railway station or light rail stop in the Sydney Metropolitan Area 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*." The RMS's Guide to Traffic Generating Developments recommends the following minimum requirements for high density flat buildings:

-	*0.4 spaces per studio unit*	=	*0.8*
-	*0.4 spaces per 1 bedroom unit*	=	*9.6*
-	*0.7 spaces per 2 bedroom unit*	=	*46.9*
-	*1.2 spaces per 3 bedroom unit plus*	=	*9.6*
-	*1.0 space per 7 units (for visitor parking)*	=	*14.4*
	TOTAL say		***81 spaces***

The commercial/office components of the proposal at 549m^2 the RMS Guide requires car parking at 1 space per 40m^2 GFA i.e. 14 spaces.

Whilst the retail components of the site at 197m^2, the RMS Guide requires car parking at 4.3 spaces per 100m^2 GLA i.e. 8 spaces.

NB: the parking rate of 4.3 spaces per 100m^2 is based on the combined floor area of the adjoining Campbelltown CBD exceeding 20,000m^2 where this additional commercial floor space is provided as an addition to the CBD and assumes linked trips.

Based on the RMS 2002 Guidelines the proposal requires a total 81 resident and 22 non resident on site parking spaces i.e. 103 car parking spaces including visitor spaces.

3.4 Servicing

Garbage collection facilities are located adjacent to the basement 1 loading dock area. It is proposed garbage collection will occur out of business hours by private contractors, whilst the loading dock for vehicles up to a small rigid truck will only be utilized in business hours Monday-Friday.

4.0 EXISTING CONDITIONS

4.1 Existing Road Network

Queen Street is an undivided 2 way 2 lane collector road running generally north/south from south of Allman Street to north of Broughton Street within the Campbelltown CBD. In the vicinity of the subject site and north of Allman Street, Queen Street has a 13.0 metre wide pavement, kerb to kerb, undulating but relatively straight alignment and is speed zoned to 50km/h with good sight lines (see photos). Half hour kerbside parking is permitted on both sides of Queen Street.

The Moore-Oxley By-pass zoned to 60km/h is located some 100 metres east and parallel to Queen Street. This six lane divided arterial north south route provides a major by-pass of the Campbelltown CBD linking to Appin and Narellan Roads to the south and Campbelltown Road and M5 Motorway to the north.

Hurley Street and the main southern rail line are located west of Queen Street. Existing traffic signals are located on Queen Street at Broughton Street, Railway Street and Dumaresq Street. Route bus services and taxis traverse Queen Street.

4.2 Existing Traffic Volumes and Conditions

Recent AADT traffic volumes (equivalent passenger cars) in Queen Street are no longer recorded by the RMS but are estimated at around 6000 veh/day (2015).

Conversely recently recorded AADT volumes on the Moore-Oxley by-pass at Camden Street are in the order of 29,000 veh/day and Hurley Street at Camden Street in the order of 14,000 veh/day (2015).

4.2.1 Hourly Volumes

Recent AM/PM peak hour counts undertaken for this assessment at the nearby Allman Street intersection with Queen Street, are summarised as follows:

TABLE 4.1

EXISTING PEAK HOUR VOLUMES FEBRUARY 2016

Time	Queen Street			Allman Street		
	NB Veh/hr	SB Veh/hr	Two Way Veh/hr	EB Veh/hr	WB Veh/hr	Two Way Veh/hr
7.00am-8.00am	172	161	**333**	147	153	**300**
8.00am-9.00am	196	210	**406***	181	201	**383***
4.00pm-5.00pm	238	215	**453***	227	211	**438***
5.00pm-6.00pm	227	217	**444**	215	210	**425**

* *Indicates peak hour*

Two way peak hour volumes on Queen Street past the subject site are in the order of 406 and 453 veh/hr during the Monday-Friday (AM and PM) peak hours.

4.2.2 Traffic Conditions and Service Levels

Existing traffic conditions in Queen Street are very good, i.e. moderate volume, low speed and good sighting lines. Traffic conditions at the adjoining Allman Street intersection are also good with good sight lines east/west, lower traffic speed to 50km/h and moderate opposing traffic volumes in peak times with lower volumes outside peak times.

The capacity of the road network is largely determined by the capacity of its intersections to cater for peak period traffic flows. The adjoining Camden Street/Allman Street tee intersection has been analysed using the SIDRA intersection simulation program.

SIDRA simulates the operations of intersections to provide a number of performance measures. The most useful measure provided is average delay per vehicle expressed in seconds per vehicle. Based on average delay per vehicle, SIDRA estimates the following Level of Service (LOS):

TABLE 4.2

EXISTING OPERATION
FEBRUARY 2016 TRAFFIC VOLUMES

Criteria	AM Peak	PM Peak
LOS	A	A
DS	0.261	0.247
AVD sec/veh	5.3	6.4
HMD sec/veh	8.9 (NB RT)	9.3 (NB RT)

Where:
LOS Level of service
DS Degree of saturation
AVD Average vehicle delay in seconds
HMD Highest movement delay in seconds

For Give Way and Stop signs, the average delay per vehicle in seconds is selected from the movement with the highest average delay per vehicle (HMD), equivalent to the following LOS:

- 0 to 14 = 'A' Good
- 15 to 28 = 'B' Acceptable delays and spare capacity
- 29 to 42 = 'C' Satisfactory but accident study required
- 43 to 56 = 'D' Near capacity and accident study required
- 57 to 70 = 'E' At capacity and requires other control mode
- <70 = 'F' Unsatisfactory and requires additional capacity

It should be noted that for roundabouts, Give Way and Stop signs, in some circumstances, simply examining the highest individual average delay can be misleading. The size of the movement with the highest average delay per vehicle should also be taken into account. Thus, for example, an intersection where all movements are operating at a Level of Service A, except one which is at a Level of Service E, may not necessarily define the intersection Level of Service as E if that movement is very small. That is, longer delays to a small number of vehicles may not justify upgrading an intersection unless a safety issue was also involved.

The analysis found that the give way controlled intersection of Queen Street with Allman Street is operating with average delays of less than 10 seconds per vehicle during the peak periods. This represents Levels of Service A, a good level of service.

4.3 Road Safety

A review of PC Crash Records (3 years) to end 2014 did not reveal any recorded accidents involving vehicles entering/exiting the subject site to/from Queen Street.

4.4 Public Transport

The site is within 500 metres walking distance to Campbelltown Railway Station, bus terminal and taxi facilities. Route bus services traverse Queen Street with bus stops within 100 metres of the site.

5.0 TRAFFIC GENERATION AND IMPACTS

5.1 Traffic Generation

The RMS Guide to Traffic Generating Developments, 2002 (Ver 2.2) and the supplementary technical direction TDT 2013/04A suggests that medium density housing and commercial uses including retail shops have the following traffic generation rates and characteristics during the AM and PM peak periods:

- **Shop Top Housing/Apartments**

- Weekday peak hour trips @ 0.4 to 0.5 per dwelling and
- Daily trips @ 4-5 per dwelling.

The 101 apartment dwellings should (in theory) realise **50 to 51 additional AM and PM peak hour trips** and up to 510 vehicle trips daily.

- **Retail Shops**

- Evening peak hour @ 7.5 trips per 100m^2 GLFA. The 197m^2 of retail and office areas should (in theory) realise up to 15 **additional evening peak hour trips**. However as the future uses are an extension to the existing Campbelltown commercial area actual traffic levels and future trips may be far lower due to the prevalence of a higher level of linked and walk trips.

- **Office/Commercial Uses**

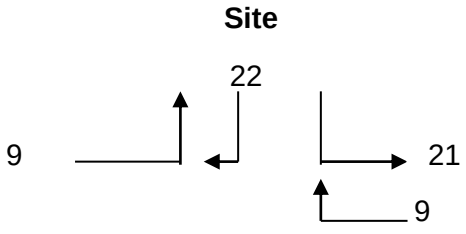
- Peak hour trips @ 2.0 trips per 100m^2 GFA. The office/commercial areas 549m^2 should result in up to **11 additional AM and PM trips**.

For assessment purposes we have adopted a projected AM peak of **+61** vehicles per hour and PM peak of **+77** additional trips.

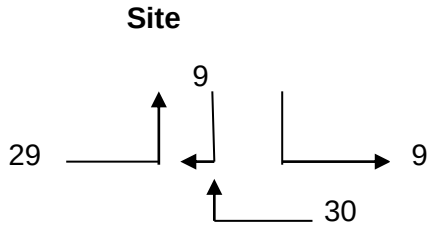
Assuming the future peak vehicle trips occur concurrently with the peak PM ground level use then the combined peak hour traffic scenario is:

- AM Peak 61 trips/hour including 18 in and 43 out
- PM Peak 77 trips/hour including 18 out and 59 in as follows:

AM Peak (veh/hr)



PM Peak (veh/hr)



Service vehicle trips are unlikely to conflict with peak hour trips, therefore we would expect peak hour traffic arrivals and departures as follows:

5.2 Traffic Impacts

The likely traffic impacts arising from these additional 50 to 51 residential and +34 retail trips in the PM peak 5-6pm should be viewed in the context of the existing situation.

- Firstly the additional traffic represents about 1.5 additional vehicle movements every minute in the peak hour;

- Secondly a higher level of linked and walk commercial trips and higher level of public transport trips for the residential use may see actual additional peak hour trips significantly reduced (ie. up to 50%).

Accordingly the adjacent tee intersection previously analysed in Table 4.2 has been re-analysed with SIDRA for the additional development traffic flows. The analysis found that the uncontrolled intersection of Queen Street with Allman Street would operate with average delays of less than 10 seconds per vehicle during the peak periods. This represents a continued Level of Service A, a good level of service.

TABLE 5.1

POST DEVELOPMENT OPERATION
FEBRUARY 2016 TRAFFIC VOLUMES

Criteria	AM Peak	PM Peak
LOS	A	A
DS	0.294	0.267
AVD sec/veh	7.5	7.5
HMD sec/veh	9.2 (NB RT)	9.7 (NB RT)

Where:
LOS Level of service
DS Degree of saturation
AVD Average vehicle delay in seconds
HMD Highest movement delay in seconds

Our conclusion in this regard is that the proposal should have no adverse traffic capacity impacts on Queen or Allman Streets.

5.3 Parking Provision

Based on the Department of Planning's "Apartment Design Guide" 2015 and RMS's Guide to Traffic Generating Developments" 2002 we have calculated an on site car parking requirement of 103 spaces (139 proposed).

It is expected that the retail/commercial and visitor parking comprising 8 retail spaces, 14 commercial spaces, 14 visitor spaces and a wash bay, will be available on basement level 1 with the remaining levels 2 to 4 being allocated to secure resident car parking.

6.0 PARKING AND SERVICING

6.1 Parking and Access

The proposal offers a total of 139 basement car parking spaces (over 4 levels) with a combined (single) two way entry/exit access to/from Queen Street for all in/out movements.

The parking layout ramp length (30 metres), grades (20.0%) and transitions (12.5%) are proposed to comply with AS2890.1 and 2.

To minimise any impact from entering vehicles queueing back to Queen Street a 2 car holding area is provided immediately within the site (6.0m wide). The one way section of the ramp to basement 1 (approx. 20 metres) will be controlled by traffic signals.

To prioritise inbound traffic and avoid any queuing, these signals will operate as follows;

- The inbound lane will always be green except when an exiting vehicle generates a call away to red for an exit movement green (approx. 10 seconds).

- Inbound vehicles will be held on a red at the top of the ramp (for approx. 10 seconds) in the event of an exiting vehicle.

- Once an exit vehicle has cleared the ramp inbound vehicles will resume with a green display signal and outbound vehicles will face a red display.

Given the constraints of the site, the access location, width and the movement of vehicles over the kerb to Queen Street, up to 1.5 vehicles (in or out) per minute in peak times, this arrangement is considered acceptable for a mixed use redevelopment in the Campbelltown CBD. This single two way access situation is commensurate with similar larger commercial developments with the CBD.

6.2 Servicing

The site will be serviced at basement level 1 and for (contracted) garbage collection by a small rigid truck and deliveries by courier vans and small trucks. A SRV turning area is provided directly opposite the entry/exit driveway/ramp specifically for this purpose.

The main points relating to the traffic and parking implications of the proposed development are as follows:

- The proposed development would increase employment densities close to existing public transport services;
- The proposed parking provision is in accordance with Department of Planning and RMS requirements and is considered appropriate;
- Access, servicing and layout arrangements will be provided in accordance with AS 2890.1 – 2004 and AS 2890.2 – 2002; and
- The existing road network will be able to cater for future traffic growth including the additional traffic generated by the proposed development.

7.0 CONCLUSIONS

A proposed new mixed use commercial and residential redevelopment over 21 levels and is located at 263 Queen Street, Campbelltown.

The projected post development peak hour traffic impacts on Queen Street, likely to arise from the proposed are well within acceptable good traffic service levels and in keeping with existing service levels.

The proposed development is conservatively expected to generate some 77 PM peak hour vehicle trips, based on the RMS Guide for Traffic Generating Developments 2002.

Analysis of the adjoining uncontrolled Tee intersection was undertaken using the SIDRA software to determine operating performance for:

- Existing volumes; and
- Existing volumes + development.

For both scenarios acceptable LOS indicators and minimal average vehicle delays were raised.

The development will provide 139 parking spaces in the basement car parks over 4 levels, including visitor and commercial spaces +21 bicycle spaces, which complies with the RMS requirements.

All parking bay lengths and widths and parking aisle widths meet the criteria set out in the Australian Standards and Campbelltown City Council's DCP 2014. The car park layout provides good circulation and access to all parking spaces.

Vehicular access to the basement car parks from the external road network is proposed at only one location to/from Queen Street opposite Allman Street. This access location has been discussed with Council as the only feasible location given the heritage constraints of the site.

The access provision proposed to reach the on site car parking provisions are considered the most practicable available given the constraints of the site by the adjoining heritage "bank" building and surrounds.

To further improve pedestrian safety along Queen Street, it is recommended that a speed hump be installed immediately prior to exiting the driveway and a safety mirror be installed for exiting vehicles to sight pedestrians on the footpath.

Bus services for this site are currently available with existing routes in Queen Street connecting with rail services at Campbelltown Railway Station.

Campbelltown Railway Station is located approximately 800 metres walk from the proposed development site. The station is located on the main southern line, operating between Goulburn and Sydney with selected services between Campbelltown and Sydney Terminal.

The proposed development is well served by the pedestrian and bicycle networks designated in the Campbelltown Pedestrian Access and Mobility Plan and Bicycle Strategy respectively.

Overall is it considered that the surrounding intersections and access road network will generally perform at satisfactory levels with the development in place.

Accordingly, it is **recommended** that Campbelltown City Council support and approve the development proposal so that a modern new mixed use commercial and 101 apartment redevelopment can proceed and provide additional commercial and residential opportunities within the Macarthur region.