Memo

in association with:
Gennaoui Consulting

To: Andrew Wilson Day St No1 Pty Ltd

From: Fred Gennaoui

Date: 4 September 2018

Job No: 13633.001

Subject: Residential Development at Day Street, Drummoyne

Background

Day Street No1 Pty Ltd is proposing the development of a Mixed Use commercial and residential redevelopment to accommodate 59 apartments and 710 m^2 of commercial space on a site formed by the consolidation of 63-69 Victoria Road and 45 Day Street Drummoyne. A planning proposal will be lodged with the Canada Bay Council.

TDG in association with Gennaoui Consulting has been commissioned to assist the development process by providing an overview of the broad traffic implications and comments on compliance with Council's parking requirements. It is understood that a detailed traffic study may be carried out at the development application stage, if required by Council.

The Proposal

The proposed development, shown in **Figure 1** will be situated on the south eastern corner of Day Street with Victoria Road. It is also bounded by Thornley Street and Formosa Street to the east and south respectively.

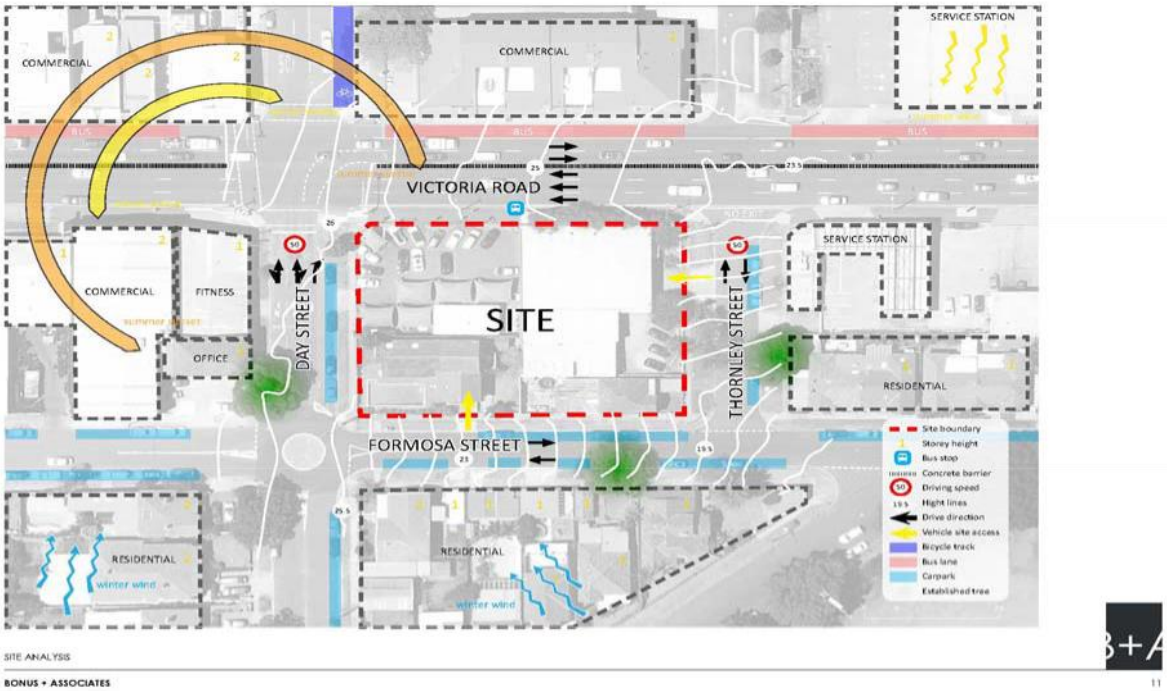

Figure 1: Location of Proposed Development

The planning proposal is for the construction of two residential buildings comprising a total of 59 apartments and about 710 m^2 of commercial/retail space as noted in **Table 1.**

Table 1. :Proposed Mixed Development

		Parking Requirements	
Residential	**No Units**	**Rate**	**Spaces**
1 bedroom	31	0.6	19
2 bedrooms	25	0.9	22
3 bedrooms	3	1.4	4
Total	**59**		**45**
Visitors		0.2	12
Total Spaces			**57**
Commercial / retail m^2	712	1 / 40 m^2	18
TOTAL Parking requirement			**75**
Parking Provided			75

The site is currently occupied by two residences, a car wash cafe in NW corner of site, a small shed building and lots of car parking spaces.

The Drummoyne Ambulance Station on the north eastern corner of the site (~ 850 m^2) with ambulance car parking. The Ambulance station may or may not remain in the completed project so it has been assumed to have a neutral impact from any potential change.

Parking Requirement

The Canada Bay Development Control Plan (DCP) 2013– Part C Section 7.8 stipulates the following parking provisions for mixed use developments. :

- Residential Apartments:
  - ~~0.6~~0.6 space per small dwelling (eg1 bedroom units)
  - 0.9 spaces per medium dwelling (2 bedrooms units)
  - 1.4 spaces per large dwelling (3 bedrooms units)
  - 0.2 visitor space per unit
- Commercial component
  - 1 space per 40 m^2 GFA for office
  - 1 space per 40 m^2 GLFA for retail

At its meeting of 3 November Council resolved to amend Council's DCP to align with the car parking requirements for the residential component of mixed developments with the RTA Guide to Traffic Generating Developments, but with maximum car parking controls, as per below:

- Residential Apartments:
  - O.6 space per small dwelling (eg1 bedroom units)
  - 0.9 spaces per medium dwelling (2 bedrooms units)
  - 1.4paces per large dwelling (3 bedrooms units)
  - 1 visitor spaces per 5 units
- Commercial component
  - 1 space per 40 m^2 GFA for office
  - 1 space per 40 m^2 GLFA for retail

Applying the latest adopted rates, 57 parking spaces including visitor parking would be needed for the apartments and 18 spaces for the commercial component to comply with Council's requirements, as noted in **Table 1**. The proposal will have 75 parking spaces.

All parking spaces will be designed to comply with Council's DCP and the Australian Standards "*AS 2890.1-2004 Parking Facilities Part 1 Off Street car parking*". Spaces for cars with a mobility impaired permit should comply with the "*AS/NZS 2890.6 - 2009, Parking Facilities Part 6: Off-Street parking for people with disabilities*". Loading facility will be designed in accordance with the Australian Standards *"AS 2890.2-2002 Parking facilities - Off-street commercial vehicle facilities"*.

The Road Network

The proposed development will be situated at the corner of Day Street with Victoria Road, Drumoyne.

Victoria Road is a major arterial Road under the control of the RMS. It has a six lane divided carriageway. A bus lane is provided in the eastbound direction. Parking is permitted on the bus lane between 10.00am and 3.00pm and from 7.00 pm to 6.00am. Similarly parking is permitted on the southern side of Victoria Road between 10.00am and 3.00pm and from 7.00 pm to 6.00am. Clearway or bus lane restrictions apply the rest of the time.

In view of the high volume of city bound traffic during the morning peak period, a tidal flow is in place resulting in four lanes in the eastbound direction including the bus lane and two only lanes in the westbound direction.

The section of Day Street, between Formosa Street and Renwick Street has four lanes undivided carriageway including dedicated parking lanes; traffic movements are restricted to a one-way northbound movement .as shown in **Figure 1**. A corresponding one–way southbound applies along Park Avenue between Renwick Street and Formosa Street.

Formosa Street and Thornley Street have narrow (~8m wide) two-way carriageway with parking permitted on both side.

Traffic signals control the intersection of Victoria Road with Day Street and with Park Avenue. The signals include pedestrian phases across Day Street and across the western approach of Victoria Road. The right turning movements from Victoria Road into Day Street are prohibited.

Traffic signals are also provided at the intersection of Victoria Road with Park Avenue.

A one lane circulating roundabout is provided at the intersection of Day Street with Formosa Street.

A median along Victoria Road restricts traffic to left turning in and out at Thornley Street.

The site is adjacent to bus services operating along Victoria Road. There are bus stops on both sides of Victoria Road in the vicinity of Day Street.

Access to Proposed Development

Pedestrian access to the West side of the development will be via Day Street; pedestrian access to the East side of the development will be via Thornley Street. Vehicles access to both buildings will be off Formosa Street; each building will be accessed by a separate driveway.

It will be designed to comply with the Australian Standards *AS 2890.1-2004 Parking Facilities Part 1 Off Street car parking.*

In view of the traffic restrictions in the vicinity of the site, access to and departure from the site will largely be as follows:

- Departing vehicles would mostly use Day Street to access Victoria Road and the Birkenhead Shopping Centre. Some vehicles may also use Formosa Street to access Henry Marine Drive.
- Arriving vehicles from the east would most likely use Park Avenue to access Formosa Street; the provision of an exclusive left turn lane in Victoria Road makes this turn much easier than into Thorley Street.
- Cars travelling from the west along Victoria Road would most likely use Renwick Street and Edwin Street t access Formosa Street.
- A smaller number of vehicles from the south would also travel along Henry Marine Drive.

Trip Generation & Distribution of Proposed Development

The following peak hourly trip generations stipulated in the RTA *Guide to Traffic Generating Developments Issue 2.2. October 2002* were adopted to estimate the likely trip generation of the residential component of the proposed development:

- 0.40 trips/unit for 1 bedroom unit
- 0.45 – 0.50 trips/unit for two bedroom units
- 0.65 trips/unit for 3 bedroom units

The commercial (retail) component of the development is expected to generate about 0.8 trips per parking space. The proposed development is therefore likely to generate about 40 trips during the morning and afternoon peak hours as noted in **Table 2**.

Table 2: Trip Generation of Proposed Development

				AM Peak		PM Peak	
Type of Units	**No Units**	**Rate**	**Trips**	**Arr**	**Dep**	**Arr**	**Dep**
1 bedroom	31	0.4	**13**	4	9	9	4
2 bedrooms	25	0.5	**13**	4	9	9	4
3 bedrooms	3	0.65	**2**	1	1	1	1
Total	**59**		**28**	**9**	**19**	**19**	**9**
Commercial	18 spaces	0.8 / space	14	7	7	7	7
Total			**42**	**15**	**25**	**24**	**16**

The distribution included in **Table 3** was adopted to assign the trips generated by the proposed development to the surrounding road network as noted in **Table 4.**

Table 3: Trip Distribution of Proposed Development

Distribution	AM Peak		PM Peak	
	Arr	Dep	Arr	Dep
Victoria / Park/ Formosa	30%		30%	
Victoria / Thornley/ Formosa	10%		10%	
Day /Victoria eastbound		40%		40%
Day / Victoria westbound		35%		35%
Formosa / Henry Marine	15%	15%	15%	15%
Victoria, Lyons, Renwick, Edwin/Formosa	35%		35%	
Day / Renwick / Birkenhead Point		10%		10%
Birkenhead Point / Renwick / Park / Formosa	10%		10%	
Total	**100%**	**100%**	**100%**	**100%**

It should be noted that traffic currently generated by the existing residences and the car wash café have not been discounted. This way a more conservative approach as to the impact of the proposed development could be assessed.

Table 4: Distribution of Trips Along Surrounding Streets

Trips	AM Peak		PM Peak	
	Arr	Dep	Arr	Dep
Victoria / Park/ Formosa	5	0	7	0
Victoria / Thornley/ Formosa	2	0	2	0
Day /Victoria eastbound	0	10	0	7
Day / Victoria westbound	0	9	0	6
Formosa / Henry Marine	2	4	4	2
Victoria / Lyons / Renwick / Edwin/ Formosa	5	0	9	0
Day / Renwick / Birkenhead Point	0	3	0	2
Birkenhead Point / Renwick / Park / Formosa	2	0	2	0
Total	**16**	**26**	**24**	**17**

Traffic Impact on Surrounding Roads

Canada Bay Council has requested that the traffic assessment includes the cumulative impact of existing traffic volumes, traffic generated by DA2015/0105 and traffic generated by the proposal; a comment on the traffic implications on Thornley Street was also required.

The existing traffic volumes and volumes generated by the proposal at 77-105 Victoria Road included in **Table 5** were obtained from the traffic report prepared in March 2015 by Colston Budd Hunt & Kafes *Traffic and Parking Report For Proposed Mixed Use Development, 77-105 Victoria Road, Drummoyne.*

The likely trip generated by the proposed development would at best marginally affect traffic conditions along the surrounding road network as noted in **Table 5,** particularly along Victoria Road where the additional traffic would account for less than half a percent; this level of increase would be less that the daily variation in traffic volumes along Victoria Road. Whilst Formosa Street and Day Street may experience higher increases of up to 10 percent, the anticipated volumes would not exceed the environmental capacity of these roads.

Table 5: Traffic Volumes on Surrounding Road Network

AM Peak		Existing *		With 105 Victoria *		With proposal	
		NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
Victoria Rd							
	East of Day	1865	2405	1865	2405	1865	2415
	West of Day	1930	2160	1930	2160	1939	2160
	west of Church	2075	2160	2075	2160	2084	2160
Formosa St						0	0
	west of Thornley	200	15	200	15	211	19
	east of Day	200	15	200	15	222	20
	west of Day	100	55	100	55	100	60
	west of Church St	85	60	85	60	85	65
Day Street	south of Victoria	375		375		397	0
Thornley St **	south of Victoria	20	20	20	20	20	22
PM Peak							
Victoria Rd							
	south of Day	2665	2850	2675	2855	2675	2861
	north of Day	2710	2790	2720	2720	2726	2720
	north of Church St	2705	2790	2710	2710	2716	2710
Formosa St						0	0
	north of Thornley	170	35	170	35	185	37
	south of Day	170	35	170	35	184	44
	north of Day	65	100	70	125	70	134
	north of Church St	75	85	75	95	75	104
Day Street	south of Victoria	300		305		319	0
Thornley St **	south of Victoria	20	20	20	20	20	22

*source Colston Budd Hunt & Kafes **Estimated

In order to assess the impact on the two nearby intersections, an assessment of their operation was carried out for the following two scenarios:

- Scenario 1: Existing volumes plus proposed development at 105 Victoria Rd
- Scenario 2: As per scenario 1 plus proposed Day Street Development

The concepts of intersection capacity and level of service, as defined in the RTA Guidelines, are included in **Table 6** together with criteria for their assessment.

The assessment of the level of service of traffic signals is based on the evaluation of the average delay (seconds/vehicle) of vehicles on all approaches; the assessment of the level of service of roundabouts and signed controlled intersections is based on the average delay (seconds/vehicle) of the critical movement. The analysis of the operation of the two intersections was carried out using the SIDRA computer modelling program. The results of this analysis are summarised in **Table 7** and **8** for the intersections of Day Street with Victoria Road and with Formosa Street respectively.

Table 6: Level of Service Criteria for Intersections

Level of Service	Average Delay per Vehicle (seconds/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 - 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, required other control mode

*Source: Roads and Traffic Authority of NSW (2002) "*Guide to Traffic Generating Developments*". Issue 2.2. October.

The trip generation of the proposed development is not likely to further impact on the nearby intersections during the morning and afternoon peak periods as noted in **Tables 7** and **8**.

Table 7: Operation of Victoria Rd / Day St Intersection (Traffic Signals)

		Intersection		Day Street Approach		
		D secs	LoS	D secs	LoS	Queue length m
Scenario 1	AM Peak	12	A	27	B	27
	PM Peak	21	B	>70	F	56
Scenario 2	AM Peak	12	A	27	B	27
	PM Peak	21	B	>70	F	59

Table 8: Operation of Formosa St / Day St Intersection (Roundabout)

		Formosa Street East approach			Day Street South Approach		
		D secs	LoS	Queue length m	D secs	LoS	Queue length m
Scenario 1	AM Peak	6.6	A	3	6.1	A	10
	PM Peak	6.5	A	5	5.8	A	7
Scenario 2	AM Peak	6.8	A	3	6.2	A	10
	PM Peak	6.6	A	5	5.8	A	7

During the morning peak, the existing queue along Day Street on 90 percent of the time is not likely to exceed 27m and would remain the same following the proposed development. During the afternoon peak a longer queues is currently occurring; it would only be marginally exacerbated as a result of the proposed development.

Conclusions

The proposed development will comply with Council's parking requirements. Furthermore, the access to and from the basement car park, the car parking spaces and layout, circulation and facilities for waste removal vehicles will comply with the Australian Standards.

The proposed development is not likely to unduly impact the major approach roads and intersections.

Fred Gennaoui