Our Ref: 21009

12 October 2021

Meriton Group
Level 11, Meriton Tower, 528 Kent Street
SYDNEY NSW 2000

Attention: Matthew Lennartz

Dear Matt,

RE: 263-281 PENNANT HILLS ROAD, CARLINGFORD
PLANNING PROPOSAL FOR ADDITIONAL PERMITTED USE – TRAFFIC STATEMENT

As requested, please find herein The Transport Planning Partnership (TTPP)'s traffic statement for the planning proposal to City of Parramatta Council (Council) for additional permitted uses at 263-281 Pennant Hills Road, Carlingford.

Background

A significant portion of the site benefits from DA approval for the construction of five residential apartment buildings ranging from 9-11 storeys comprising 450 units. However, Meriton has secured additional adjoining properties which potentially gives an ultimate yield of 600-700 residential units within the 2.8ha site.

This traffic statement supports a Planning Proposal at 263-281Pennant Hills Road, Carlingford. The Planning Proposal seeks approval for an additional permitted use (APU) of a supermarket and retail up to 2,000m^2 GFA. It is not proposed to increase the maximum permitted floor area of the site which is approximately 63,300m^2.

As a result of the scale of the approved development and the generally poor surrounding retail services with inconvenient access (i.e., they are located on the opposite side of Pennant Hills Road), this planning proposal has been submitted to allow a small proportion of the permitted GFA to be used for commercial premises to facilitate a small 'metro style' supermarket and some ancillary retail / business premises.

It is noted that the site falls within the Carlingford Precinct identified in The Hills Development Control Plan 2012.

Existing Site

The subject site is situated in Parramatta local government area. The site currently contains vacant land and low-density residential dwellings accessed directly via Pennant Hills Road.

The site is bound by Pennant Hills Road to the east which is a classified state main road and by Shirley Street to the north and west which is a local road.

Vehicular access to the site is currently via numerous existing crossovers along Pennant Hills Road and Shirley Street which provided access to former low-density dwellings.

As TfNSW have policies to limit access to classified roads, it is proposed that all future access will be from Shirley Street.

A bus stop is located along Pennant Hills Road which provides connections to Macquarie Park and Epping. On the other side of Pennant Hills Road, bus connections are provided to Parramatta.

The site is located close to the future Carlingford light rail station which will be located approximately 400m to the west of the site with direct pedestrian routes linking the subject site to the future station. The future light rail stop will transform accessibility to the site and provide frequent services to Parramatta Interchange and Westmead. The light rail is expected to open in 2023.

The Proposal

A Planning Proposal is to be lodged with City of Parramatta Council (Council) seeking approval for an additional permitted use (APU) of a small 'metro-style' supermarket and associated retail up to 2,000m^2 GFA within the definition of commercial premises. It is not proposed to increase the maximum permitted floor area of this site (which is approximately 63,300m^2) meaning the proposed retail would be only 3% of the permitted GFA of the site.

It is assumed that the retail space would primarily be occupied by a small 'metro-style' supermarket catering to the site and the local precinct as shown in the concept plan supporting the planning proposal.

Traffic Assessment

A comparison of trip generation of 2,000m^2 GFA of residential and retail/supermarket area is provided below.

Trip Generation (Residential)

RMS Guide to Traffic Generating Developments stipulates that high density residential flat buildings (in metropolitan sub-regional centres) would generate 0.29 trips per unit during peak periods.

Assuming that average unit size is about 80m^2, 2,000m^2 area could accommodate 25 residential units.

Adopting a traffic generation rate of 0.29 trips per unit, 25 units would generate approximately 7 vehicle trips per hour.

Trip Generation (Retail/Supermarket)

The trip generation of the proposed 2,000m^2 GFA retail uses of the site have been assessed based on the following traffic rates for shopping centres:

- **RMS Guide to Traffic Generating Developments (GTGD) 2002**. This gives trip generation rates for independent shopping centres with a range of sizes

Table 3.1
Peak hour traffic generation rate

Range in Total Floor Area. (GLFA - m^2).	Peak Hour Generation Rate. (vehicles per 100m^2 GLFA)		
	Thursday. (V(P)/A)	Friday. (V(P)/A)	Saturday PVT(A)
0 - 10,000	12.3	12.5	16.3
10,000 - 20,000	7.6	6.2	7.5
20,000 - 30,000	5.9	5.6	7.5
30,000 - 40,000	4.6	3.7	6.1

The trip rate was based upon a set of regression calculations which identified the contributors to the traffic generation including supermarket and specialty shops

Thursday:

V(P) = 20 A(S) + 51 A(F) + 155 A(SM) + 46 A(SS) + 22 A(OM)
(vehicle trips per 1000m^2).

Friday:

V(P)= 11 A(S) + 23 A(F) + 138 A(SM) + 56 A(SS) + 5 A(OM)
(vehicle trips per 1000m^2).

Saturday:

PVT= 38 A(S) + 13 A(F) + 147 A(SM) + 107 A(SS)
(vehicle trips per 1000m^2).

where:

A(S): Slow Trade gross leasable floor area (Gross Leasable Floor Area in square metres) includes major department stores such as David Jones and Grace Bros., furniture, electrical and whitegoods stores.

A(F): Faster Trade GLFA - includes discount department stores such as K-Mart and Target, together with larger specialist stores such as Fosseys.

A(SM): Supermarket GLFA - includes stores such as Franklins and large fruit markets.

A(SS): Specialty shops, secondary retail GLFA - includes specialty shops and take-away stores such as McDonalds. These stores are grouped as they tend to not be primary attractors to the centre.

A(OM): Office, medical GLFA: includes medical centres and general business offices.

- **RMS Updated Traffic Surveys Technical Direction (TDT 2013/04a)**

  This study was undertaken for TfNSW by the undersigned in 2011 for larger shopping centres and are not therefore specifically relevant. However, the associated regression equations were updated which reflected a change in shopping habits

Shopping Centres

Extensive surveys of shopping centres were conducted in 1978, 1990 and again in 2011. The latter survey involved ten larger shopping centres, seven in the Sydney metropolitan area and one each at Mittagong, Shellharbour and Tuggerah. Peak hour trip generation rates are as follows:

Range in Total Floor Area (GLFA – m^2)	Peak Hour Generation Rate (vehicles per 100m^2 GLFA)			
	Thursday (V(P)/A)	Friday (V(P)/A)	Saturday PVT (A)	Sunday
0 – 10,000	12.3	12.5	16.3	
10,000 – 20,000	7.6 (6.2)	6.2 (6.7)	7.5 (7.5)	(6.6)
20,000 – 30,000	5.9 (6.0)	5.6 (5.9)	7.5 (7.0)	(6.3)
30,000 – 40,000	4.6	3.7	6.1	
40,000 – 70,000	(4.4)	(4.4)	(5.5)	(4.6)
70,000+	(3.1)	(4.0)	(3.6)	(3.2)

* Figures in brackets refer to 2011 surveys. Other figures are as per 1978 and 1990 surveys. Caution should be used in comparing the data in that they reflect changes in shopping behaviours. Seasonally adjusted rates appear to be in the order of 3-5% higher than the quoted 2011 rates.

The trip rate was based upon a set of regression calculations which identified the contributors to the traffic generation including supermarket and specialty shops.

Site Peak Hour Vehicle Trips

Thursday:

$$PVT = 0.017\ A(S) + 0.003\ A(F) + 0.137\ A(SM) + 0.032\ A(SS) + 0.164\ A(OM) - 0.011\ A(C)$$

$$R^2 = 0.99$$

Friday:

$$PVT = 0.031\ A(S) + 0.032\ A(F) + 0.134\ A(SM) + 0.016\ A(SS) + 0.158\ A(OM) - 0.033\ A(C)$$

$$R^2 = 1.00$$

Saturday:

$$PVT = 0.023\ A(S) + 0.01\ A(F) + 0.17\ A(SM) + 0.031\ A(SS) + 0.201\ A(OM) - 0.019\ A(C)$$

$$R^2 = 0.98$$

Sunday:

$$PVT = 0.013\ A(S) + 0.034\ A(F) + 0.16\ A(SM) + 0.027\ A(SS) - 0.002\ A(C)$$

$$R^2 = 0.97$$

- **TfNSW Trip Generation Study of Small Suburban Shopping Centres prepared by Bitzios Consulting in 2018**

Table 10.1: Smaller Suburban Shopping Centres Trip Generation Recommendations

Day	Period	Recommended Models		
		0 – 1,000m square GLFA	1,000 – 6,000m square GLFA	6,000 – 10,000m square GLFA
Vehicle Trips				
Wednesday /Thursday	AM Peak	0.192*A	0.066*A + 126	0.076*MT + 0.075*OT
	PM Peak	0.259*A	0.089*A + 170	0.216*A – 591
	Daily	2.022*A	0.695*A + 1327	1.684*A – 4608
Friday	AM Peak	0.196*A	0.068*A + 129	0.067*MT + 0.116*OT
	PM Peak	'Site Specific Method'	'Site Specific Method'	'Site Specific Method'
	Daily	1.856*A	0.638*A + 1218	1.546*A – 4229
Weekend (Saturday or Sunday)	Peak	0.283*A	0.097*A + 186	0.236*A – 646
	Daily	1.894*A	0.651*A + 1243	1.577*A - 4316
Person Trips				
Wednesday /Thursday	AM Peak	0.251*A	0.086*A + 164	0.209*A - 571
	PM Peak	0.367*A	0.126*A + 241	0.108*A + 105
	Daily	2.831*A	0.973*A + 1858	1.033*A + 1477
Friday	AM Peak	0.254*A	0.087*A + 166	0.108*A + 105
	PM Peak	0.383*A	0.132*A + 252	0.319*A – 874
	Daily	2.51*A	0.863*A + 1647	0.91*A + 1299
Weekend (Saturday or Sunday)	Peak	0.428*A	0.147*A + 281	0.357*A – 976
	Daily	2.849*A	0.979*A + 1870	1.229*MT + 1.308*OT

A = GLFA
MT = Major Tenant's GLFA
OT = Other Tenants' Total GLFA
'Site Specific Method' = Select the most representative site(s) from the detailed data and use its trip generation rate(s).

Furthermore, *Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments, Austroads 2020* provides the following commentary.

For the purposes of a traffic impact assessment, the following three types of trips are commonly used:

- *New trip – in traffic impact studies, unlinked trips are generally referred to as new trips. These are trips attracted to the development and without the development would not have been made, hence they constitute a new trip.*
- *Diverted drop-in trips – a linked trip from an origin to a destination that has made a significant network diversion to use the new development.*
- *Undiverted drop-in trips – a linked trip from an origin to a destination that previously passed the development site. It is also referred to as a pass-by trip and the new development is an intermediate stop on a trip that is made from an origin to a destination.*

A typical example of the segmentation of traffic generation for shopping centres and fast food outlets is shown in Table C8 1.

Table C8 2: Segmentation of traffic generation for shopping centres

Development	Trip segmentation		
	New (%)	Diverted drop In (%)	Undiverted drop in (%)
Shopping centres > 20 000 m2	63	18	19
Shopping centres 3 000 m2 – 20 000 m2	50	22	28
Shopping centres < 3 000 m2	50	32	18
Fast food outlets	40	25	35

Source - Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments, Austroads 2020

As such, it is assumed that 50 percent of trips generated by the proposed development would be considered as "new trips".

A summary of the Thursday peak hour trip generation of the proposed retail uses is presented in Table 1.

Table 1: Retail/Supermarket Trip Generation – "New Trips"

Traffic Rates	Yield (m^2 GLFA#)	Thursday Peak Hour Trip Generation Rates	Trip Generation*
RMS GTGD 2002	1,500	• AM Peak^: Vehicle Trips = 78 x GLFA/1,000m^2 • PM Peak: Vehicle Trips = 155 x GLFA/1,000m^2	• 59 vph in AM Peak • 116 vph in PM Peak
RMS TDT 2013/04a	1,500	• AM Peak^: Vehicle Trips = 6.2 x GLFA /100m^2 • PM Peak: Vehicle Trips = 12.3 x GLFA/100m^2	• 47 vph in AM Peak • 92 vph in PM Peak
TfNSW Trip Generation Study of Small Suburban Shopping Centres (Table 10.1)	1,500	• AM Peak: Vehicle Trips = 0.066 x GLFA+126 • PM Peak: Vehicle Trips = 0.089 x GLFA+170	• 113 vph in AM Peak • 152 vph in PM Peak

Note: *- Reduction factor of 50% has been applied to estimate "new trips";
- Assuming that GLFA is approximately 75% of GFA
^ - AM peak trip generation is assumed to be 50% of PM trip generation

On the basis of existing TfNSW data, the expected additional trips on the main road network would be limited to around 47 to 113 vph during the weekday AM peak period and around 92 to 152 vph in the PM peak periods, which is equivalent to one to three additional vehicles per minute, which is considered minor in the surrounding context as described below.

Subject Site

It is anticipated that the trip generation of the proposed retail uses would be much lower than the vehicle trip rates specified in the above documents due to the following reasons:

- Retail would primarily cater to the future residents within the precinct or in vicinity of the area.
- The majority of future residents within this site (and the surrounding areas) would take multi-purpose link trips (i.e., grocery shopping after their work shifts prior to arriving home) so the trip to the retail is not additional.
- If there is no retail component within this precinct, then trips to retail developments beyond the site by the approved residential component would generate external trips to the road network to access other local retail centres.
- It is expected that there would be some diverted trips from traffic already using Pennant Hills Road/Cumberland Highway, which means the additional traffic on the main road network would be much less than the figures quoted in Table 1. This is particularly relevant given that the other retail offerings in the local area are on the opposite site of Pennant Hills Road.
- The 2,000m^2 is likely to be a maximum area and is likely to be smaller in any future DA – the current concept plan shows and area of 1600m^2.
- The site is within walking distance of the light rail station and bus stops so many of the trips would be walk by trips from public transport customers.
- The Planning Proposal will only accommodate a small metro style supermarket (1,200m^2) which will provide limited day to day items and groceries so it will not necessarily require or encourage access by cars unlike larger format supermarkets.

- The retail offering will sit within area of high amenity with high pedestrian/cycle activity which will provide opportunities for active travel and reduced car dependency.
- The above traffic generation studies do not contemplate the above retail offer as they are primarily destination retail centres with major retail (e.g., David Jones, Target, Myer, Big W). Indeed, the other shopping destinations in the vicinity of the subject site are also this destination type of retail centres as opposed to walk by metro type shopping.

Traffic Modelling

Due to the COVID-19 health concerns and restrictions imposed by the NSW Government, there has been significant changes in traffic throughout state road network. As a result, reliable and accurate traffic survey data could not be collected at the time of this proposal.

It is proposed to undertake traffic survey collection and traffic modelling prior to submission of the subsequent Development Application.

However, it is our view that one to three additional new trips per minute (which would be a combination of in and out movements which would also be travelling in different directions to different locations) is extremely unlikely to result in any material change in traffic modelling outputs.

In addition, Table 2 shows two-way traffic volumes at key locations, which have been obtained from Carlingford Precinct – Traffic and Transport Study, Phase 1 – Due Diligence study undertaken by Cardno. Traffic surveys were undertaken in July 2017. Figures in parentheses present percentage of additional traffic in comparison to the existing 2017 traffic volume.

Table 2: Retail/Supermarket Trip Generation – "New Trips"

Locations	2017 Two-Way Traffic Volume (vehicle/hour)	
	AM Peak Hour	PM Peak Hour
Pennant Hills Rd, west of Jenkins Rd	3,513 (<1%)	3,475 (1-2%)
Pennant Hills Rd, north of Carlingford Rd	2,995 (<1%)	3,349 (<1%)
Carlingford Rd, east of Pennant Hills Rd	1,987 (1-2%)	2,343 (1-2%)
Marsden Rd, east of Pennant Hills Rd	1,709 (1-2%)	1,823 (1-2%)

Source: Carlingford Precinct – Traffic and Transport Study, Phase 1 – Due Diligence, Cardno 2017/18

As presented in Table 2, the additional traffic generated by the proposed Planning Proposal is likely to have minimal impact (i.e., around 1% to 2% increase in existing traffic volume) at key locations and is likely to be less given the points above.

Parking Assessment

The parking requirement of the proposal will be provided in accordance with Part C of The Hills Development Control Plan (DCP) 2012.

The Hills DCP 2012 stipulates a minimum car parking requirement of 1 space per 18.5m^2 gross leasable floor area (GLFA) for retail shops (including shopping centres and general business retail).

Assuming that GLFA is approximately 75% of GFA, the proposed retail yield of 1,500m^2 GLFA will require a total minimum car parking requirement of 81 spaces.

It is noted that detailed parking assessment will be undertaken in subsequent Development Application(s).

Conclusion

A Planning Proposal is to be lodged with City of Parramatta Council (Council) seeking approval for an additional permitted use (APU) of a supermarket and retail up to 2,000m^2 GFA. It is not proposed to increase the maximum permitted floor area of this precinct.

Whilst there are studies available of the traffic generation of shopping centres in documents dating from 2002 to 2018, there have tended to be on destination shopping not the current proposal for a small metro style supermarket.

It is anticipated that the trip generation of the proposed retail uses would be much lower than the vehicle trip rates specified in the TfNSW reports due to the following reasons:

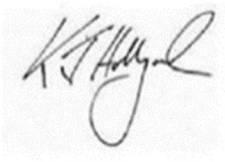
- The Planning Proposal will only accommodate a small metro style supermarket (1,200m^2) which will provide limited day to day items and groceries. The TfNSW traffic generation studies do not contemplate the above retail offer as they are primarily destination retail. Indeed, the other shopping destinations in the vicinity are this destination type of retail as opposed to walk by metro type shopping proposed at this site.
- Retail would therefore primarily cater to the future residents within the precinct or in vicinity of the area. It would be local rather than destination shopping
- The majority of future residents within this site would take multi-purpose link trips (i.e., grocery shopping after their work shifts prior to arriving home).
- It is expected that there would be some diverted trips from traffic already using Pennant Hills Road/Cumberland Highway. This is particularly relevant given that the other retail offerings in the local area are on the opposite site of Pennant Hills Road.
- The 2,000m^2 is likely to be a maximum area and is likely to be smaller in any future DA – the current concept plan shows and area of 1600m^2.

- The site is within walking distance of the light rail station and bus stops so many of the trips would be 'walk by' trips from public transport customers
- Finally, if there is no retail component provided within this precinct, then trips to retail developments beyond the site by the approved residential component would generate external trips to the road network to access other local retail centres.

However, even if we assessed the worst case scenario of using the data from TfNSW studies, it is our view that the estimated up to three additional trips per minute (which would be a combination of in and out movements and which would also be travelling in different directions to different locations) is extremely unlikely to result in any change in traffic modelling outputs. Indeed Table 2 above confirms that the increase in traffic at any of the intersections would be marginal.

We trust the above is to your satisfaction. Should you have any queries regarding the above or require further information, please do not hesitate to contact the undersigned on 8437 7800.

Yours sincerely,



Ken Hollyoak
Director