

Reference: #16S1472000

11 March 2016

Platform Architects
Level 1, 42 Market Lane
MANLY NSW 2095

Attention: Bridie Gough (Director)

Dear Bridie

MIDDLETON AVENUE, CASTLE HILL – PRELIMINARY SITE TRANSPORT ASSESSMENT

Background

Platform Architects engaged GTA Consultants (GTA) to provide specialist traffic and transport advice to assist with the Planning Proposal for a high density residential development in Castle Hill. The subject site includes 22-36 Middleton Avenue and 5-19 Hughes Avenue, between Dawes Avenue and Ashford Avenue, in Castle Hill.

The site location together with future Sydney Metro Northwest stations and Castle Hill Town Centre are shown in Figure 1 with the local area context illustrated in Figure 2.

Figure 1: Site Location and Local Context



Basemap Source: Sydney

melbourne
sydney
brisbane
canberra
adelaide
gold coast
townsville
perth

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Figure 2: Site Location



Basemap Source: Google Maps

The planning proposal will seek to change the existing R3 Zoning to permit a higher Floor Space Ratio (FSR) to support some 500 residential apartments within five separate buildings. Two new public roads are also proposed to link Middleton Avenue with Hughes Avenue, forming extensions to Cadman Crescent and Ashford Avenue.

This letter provides preliminary traffic, transport and parking information to assist and inform the project team in preparation for the submission of the Planning Proposal.

Existing Operations

GTA has conducted a background review of the site and its surrounds to gain an understanding of the existing operation of the transport network in the site's vicinity, and the existing nature of land uses on and around the site. Our key observations/ findings include:

- the speed limit on the local roads is a default 50km/h, typical of this type of lower order residential street
- the properties surrounding the site are typically low-density detached dwellings of 1-2 storeys
- the wide carriageway along Middleton Avenue allows for on-street parking on both sides while maintaining two traffic lanes
- Middleton Avenue carries moderate levels of traffic consistent with that of a typical road of its nature
- the site is located approximately 300m south of the future Showground Station, currently under construction as part of the Sydney Metro Northwest project and due for opening in 2019

- master planning is currently being undertaken to develop a neighbourhood centre with greater density in close proximity to the new Showground Station.

Proposed Development Scheme

It is understood that two potential development schemes are being considered, with these being based on FSRs of 2.3:1 and 3.0:1 respectively. Incorporating these indicative FSRs, the anticipated apartment yields for the proposal are as follows:

- FSR 2.3:1 386 apartments
- FSR 3.0:1 503 apartments.

As such, consideration has been given to potential schemes that incorporate in the order of 390 to 500 apartments.

Car Parking Requirements

The car parking requirements for different development types and land uses are set out in The Hills Shire Council Development Control Plan (DCP) 2012. A summary of the relevant DCP 2012 parking requirements are set out in Table 1.

Table 1: DCP 2012 Car Parking Requirements

Description	DCP Parking Rate
Residential Flat Buildings and Multi Dwelling Housing	1 space per 1-bedroom apartment
	2 spaces per 2 or 3-bedroom apartments
	2 visitor spaces per 5 apartments

Given the location of the site with respect to the future Showground Station, reference has been made to the RMS Guide to Traffic Generating Developments (2002).

Given that the site will have access to high frequency public transport services once the Sydney Metro Northwest is operating, and noting that master planning is being undertaken to create a centre proximate to Showground Station, the residential rates have been adopted based on high density residential flat buildings in a metropolitan sub-regional centre. These rates are set out in Table 2.

Table 2: RMS Guide Car Parking Requirements

Description	RMS Parking Rate
High Density Residential Flat Buildings	0.6 spaces/ studio
	0.6 spaces/ 1-bedroom
	0.9 spaces/ 2-bedroom
	1.4 spaces/ 3-bedroom
	1 visitor space/ 5-7 apartments

Visitor spaces must be clearly marked, appropriately grouped and conveniently located, ideally close to vehicular accesses for each car parking area. All adaptable residential apartments must be allocated an adaptable car space, being 3.8m wide (as per AS 4299:1995), or alternatively in accordance with AS 2890.6:2009. The site will also be required to provide a car wash bay (as required and as practically usable) in accordance with DCP 2012.

Motorcycle parking should be provided at the rate of 1 space per 50 car spaces, as per the requirements of DCP 2012. These spaces are to be designed in accordance with AS/NZS2890.1:2004, being 1.2m wide by 2.5m long.

Car parking spaces should be designed in accordance with Table 4, Part C, Section 1 of DCP 2012 and relevant Australian Standards. Swept paths will confirm the adequacy of the design in terms of vehicle access and manoeuvring, as well as the ability for all vehicles to enter and exit the site in a forward direction.

Application to Proposal Schemes

Based on the indicative schemes proposed, the following car parking provisions would be applicable under the requirements of DCP 2012 and RMS Guide. It is noted that these provisions vary based on the breakdown of the number of bedrooms in each apartment, and as such a range has been presented based upon minimum and maximum outcomes.

Table 3: Car Parking Provision Requirements

Parking Rates	Proposal Scheme	Resident Spaces	Visitor Spaces	Total Spaces Required
DCP 2012	FSR 2.3:1	386-772	155	541-927
	FSR 3.0:1	503-1006	202	705-1208
RMS Guide	FSR 2.3:1	232-541	55-78	287-619
	FSR 3.0:1	305-705	72-101	377-806

Under the requirements of DCP 2012, the FSR 2.3:1 proposal would generate a parking requirement of up to 927 spaces, and the FSR 3.0:1 proposal a requirement of up to 1,208 spaces.

Applying the RMS Guide rates, the FSR 2.3:1 proposal would need to provide up to 619 spaces and the FSR 3.0:1 proposal up to 806 spaces.

Bicycle Parking Requirements

DCP 2012 does not specify parking rates for residential land uses. Accordingly, reference has been made to the Austroads Guide to Traffic Engineering Practice Part 14, which provides a series of rates for a variety of land uses. These rates are reproduced in Table 4.

Table 4: Bicycle Parking Provision

Land Use	Proposal Scheme	Residents		Visitors		Total Spaces
		Rate	Spaces	Rate	Spaces	
Residential Flat	FSR 2.3:1	1 per 3 apartments	129 spaces	1 per 12 apartments	33 spaces	162 spaces
	FSR 3.0:1		168 spaces		42 spaces	210 spaces

Applied to the proposal schemes, the FSR 2.3:1 scheme would require 162 bicycle parking spaces, and the FSR 3.0:1 would require 210 bicycle parking spaces.

Bicycle parking for residents is to be provided in a secure location (i.e. individual cages or secure room/ enclosure). Bicycle parking for visitors is to be provided in an easily accessible location which enables frames and wheels to be secured to a high quality rail. Visitor bicycle parking locations need to be located away from pedestrian and vehicle

thoroughfares, and should not consist of individual groups of more than 16 spaces in any one location.

Bicycle parking spaces need to be designed in accordance with the relevant Australian Standard AS2890.3:2015 – Bicycle Parking Facilities.

Vehicular Access Requirements

Vehicular access driveways must be located and designed in accordance with DCP 2012 and relevant Australian Standards. The proposed site access driveways and design will need to consider the location of adjacent properties and their driveways, provide adequate separation to nearby intersections and achieve acceptable sight distances.

It is also recommended that the proposed driveways be located clear of existing services infrastructure (i.e. drainage, on-street bus stops etc.) or otherwise will be required to relocate such infrastructure.

The provision of two vehicular access driveways to service the proposal is considered adequate given the potential scope of development and its likely traffic generation. These locations are also considered generally workable, subject to ensuring adequate sight distances can be achieved over the existing crest on Middleton Avenue, and that the existing bus stop is not affected by the proposed northern access location.

Reduction in Private Vehicle Usage

Encouraging the use of public transport, as well as walking and cycling, as modes of transport is critical to reducing motor vehicle usage. When the future Showground Station opens as part of the Sydney Metro Northwest project, the site will have excellent public transport accessibility to/ from the Sydney CBD and major centres in Sydney's north and west. This proposal provides a prime opportunity for development in the area that takes advantage of this significant improvement in accessibility by public transport, and encourage development that demonstrates increased mode share by public transport at the expense of additional private vehicle trips. However, while the 'carrot' in the form of improved public transport is to be provided, the 'stick' of additional reinforcement of mode share shift will also need to be provided, by not encouraging high levels of car ownership or parking within the site.

It is also recommended that quality pedestrian connectivity be provided within the site which integrates with the existing Middleton Avenue footpath, so as to facilitate convenient links between the site and the future Showground Station.

New Road Considerations

The proposal plans include the construction of two additional roads internal to the subject site, between Middleton Avenue and Hughes Avenue. The first of these is to be provided by way of a western extension of Cadman Crescent from Hughes Avenue to Middleton Avenue, where it terminates at a priority controlled T-intersection. The second is to be provided by an eastern extension of Ashford Avenue from Middleton Avenue through to Hughes Avenue, where it will continue east. These road proposals are consistent with those identified by the NSW Department of Planning and Environment and Precinct Planning.

Consideration will need to be given to the nature of the intersection treatments, particularly those where four-way intersections will eventuate as a result of the proposed road extensions. These intersections should be designed in-line with Council requirements and be consistent with existing treatments at similar intersections in the vicinity.

Loading Facilities

DCP 2012 requires that residential flat buildings are able to be accessed by service vehicles and emergency vehicles (including NSW Fire Appliances and ambulances). It is expected that these vehicles would be able to access the development by way of the existing and proposed road network adjacent to the site. Through site links are preferred for emergency vehicle access, rather than cul-de-sacs and terminating internal roads.

Provision will need to be made for removalist trucks and garbage collection vehicles within the site in designated areas proximate to garbage rooms and lifts. These areas need to be designed in accordance with AS2890.2:2002 with appropriate manoeuvring area, dock dimensions and height clearances. Swept path assessments will be able to confirm the accessibility of loading areas within the site for access by the relevant design vehicles.

Height clearance requirements for garbage collection vehicles are typical specific and largely dependent on Council's largest garbage truck and/ or that of private contractors servicing the area. It is noted that travel height and operating heights can differ, and both will need to be considered.

The largest Council garbage trucks are typically in the order of 10-11m long, with a travel height of up to 3.8m to 4m. The operational heights can be quite a lot higher, depending on vehicle specifications, bin size and type etc.

AS2890.2:2002 requires a height clearance of 4.5m for larger trucks including those required to access the site (i.e. removalist trucks and garbage trucks). However, typical height clearances of these vehicles can often be below this requirement, being in the order of 4-4.2m.

Traffic Generation

Traffic generation estimates for a range of land uses including residential dwellings are typically sourced from relevant RMS Guidelines. The most recent updated data can be found in the RMS Technical Direction Updated Traffic Surveys (TDT/2013/04a).

Existing Site Generated Traffic

In order to accurately assess the impact of the proposal, it is necessary to consider the traffic generated by the existing land use, in this case the detached dwellings on the site. TDT/2013/04a indicates that low density detached residential dwellings in Sydney generate in the order of 0.95-0.99 trips per dwelling in a typical weekday peak hour, and 10.7 trips per dwelling per day.

Applied to the existing 16 dwellings within the site, the site would be currently generating approximately 15-16 trips in any peak hour and 170 trips per day.

Future Proposal Generated Traffic

As per the existing assessment, the rates in TDT/2013/04a have been applied to the potential yield. The traffic generation rates for high density residential flat dwellings in Sydney are as follows:

- AM Peak Hour: 0.19 trips/ dwelling/ hour
- PM Peak Hour: 0.15 trips/ dwelling/ hour
- Typical Weekday: 1.52 trips/ dwelling/ day.

Considering the two potential proposal schemes (FSR 2.3:1 and FSR 3.0:1), the total traffic generation and net increase in traffic generated by the site have been estimated, as detailed in Table 5.

Table 5: Estimated Traffic Generation

Proposal Scheme	Peak Period	Existing Traffic	Future Traffic	Net Increase
FSR 2.3:1	AM Peak	16 trips	73 trips	+57 trips
	PM Peak	15 trips	58 trips	+43 trips
	Daily	171 trips	587 trips	+416 trips
FSR 3.0:1	AM Peak	16 trips	96 trips	+80 trips
	PM Peak	15 trips	75 trips	+60 trips
	Daily	171 trips	765 trips	+594 trips

Based on the maximum yield being considered, the proposal could be expected to generate up to 96 trips in a weekday peak hour, and 765 trips over a typical weekday.

However, taking into account vehicle trips being generated by the existing dwellings within the site, the net increase in traffic is expected to be no greater than 80 trips in any peak hour, and 600 trips over a typical weekday.

It is recommended that the impact of this additional traffic be further investigated during the planning phases of the proposal by way of intersection assessments at nearby key intersections. These assessments will need to account for the likely directional split of traffic into and out of the site, as well its distribution in different directions to/ from the site.

I trust this provides a sufficient assessment of the traffic, transport and parking considerations as part of the preliminary assessment for the site. Naturally, should you have any questions or require any further information, please do not hesitate to contact me in our Sydney office on (02) 8448 1800.

Yours sincerely

GTA CONSULTANTS



Rhys Hazell
Associate