



Traffic Impact Assessment

3 Berith Street, Wheeler Heights NSW 2097

September 2018



APEX ENGINEERS

Type of Assessment: Traffic Impact Assessment

Site Location: 3 Berith Street, Wheeler Heights NSW 2097

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1. Introduction

APEX Engineers were engaged by Astute Invest Pty Ltd to provide a traffic impact assessment as a part of the development application (under SEPP SL Housing) for the proposed 6 unit (2 x 2 bedroom units + 4 x 3 bedroom units) seniors' living development at 3 Berith Street in Wheeler Heights.

This report has been structured into the following sections:

- **Section 2** describes the existing transport conditions in the locality;
- **Section 3** assesses the statutory parking provision requirements relevant to the subject proposal;
- **Section 4** provides a design review of the proposed on-site car parking area against the relevant Australian Standard clauses;
- **Section 5** assesses the traffic impacts of the proposed development on the local road network; and
- **Section 6** provides the summary and conclusions of the study.

2. Background and Existing Conditions

2.1 Site Description and Local Road Network

The subject site is located at 3 Berith Street in Wheeler Heights, within a predominantly residential zone. The overall site includes a land area of approximately 1,269 square metres. At the site frontage, Berith Street is a local road and includes an undivided carriageway which caters for bidirectional traffic. A posted speed limit of 40km/hr applies to traffic on Berith Street, between 8am-9.30am and 2.30pm-4pm, on school days. At other times, a default speed limit of 50 km/hr applies.

Figure 1 Highlights the site location from an aerial perspective.

Figure 2 Illustrates the Berith Street as seen at the site frontage.



Figure 1: Location of the Subject Site



Figure 2: Berith Street at the Site Frontage

2.2 Public Transport Services

The local area was assessed for available public transport services that were both easily accessible from the subject site and provide viable alternative options to private trips. This assessment identified that the site lies within comfortable walking distance to a number of bus routes, as listed below:

- Route 146 – Wheeler Heights to Manly. Service operates daily.
- Route 158 – Manly to Collaroy Plateau. Service operates only on weekdays.
- Route 180 – Collaroy Plateau to City Wynyard. Service operates daily.
- Route E79 – Wheeler Heights to City Wynyard (Express Service). Service operates only on weekdays.
- Route E80 – Collaroy Plateau to City Wynyard (Express Service). Service operates only on weekdays.

Figure 3 below illustrates the public transport map for the subject site area, outlining the coverage of the above listed bus services. All the above bus services can be accessed from bus stops located along Rose Avenue and Veterans Parade, within a 400m distance (5 minute walk) of the subject site. All the above bus services include accessible services with space for wheelchairs, prams or strollers.

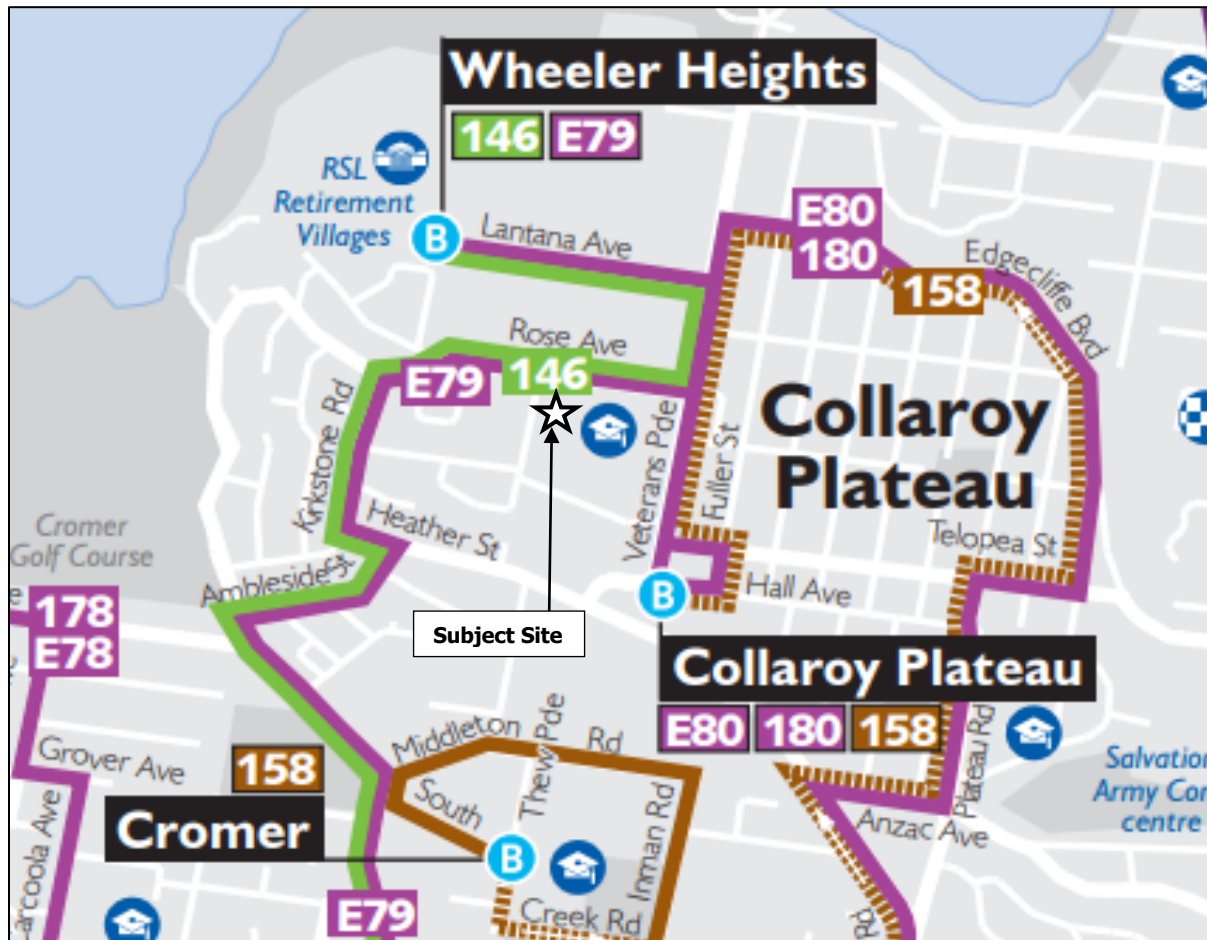


Figure 3: Public Transport Map for the Site Vicinity

As per the above, there are a number of bus services that can be accessed within the close vicinity (5 minute walking distance) of the subject site. These routes operate with various frequencies and provide coverage to much of the surrounding region including destinations such as Manly, Collaroy Plateau and City Wynyard.

In light of the above, it was concluded that the site has good accessibility via public transport. Prospective tenants will be able to carry out most non-local trips through these options, thus reducing the propensity to drive.

3. Car Parking Provision Assessment

The car parking provision requirements for the proposed development were determined based on two policy documents as follows;

- 1) State Environmental Planning Policy (Housing for Seniors or People With a Disability) 2004; and
- 2) State Environmental Planning Policy (Affordable Rental Housing) 2009.

In relation to self-contained dwellings, Division 4 of the State Environmental Planning Policy (Housing for Seniors or People With a Disability) 2004 document stipulates a requirement of 0.5 car spaces for each bedroom, when the development application is made by a person other than a social housing provider (which is the case for the current proposal).

Applying the above parking rate to the proposed development comprising 6 units with a total of 16 bedrooms (2 x 2 bedroom units + 4 x 3 bedroom units), leads to a requirement of 8 car parking spaces. The proposed development includes provision for 8 car spaces (all of which are disability accessible spaces). Therefore, the proposed development satisfies the relevant parking provision requirement based on Division 4 of the State Environmental Planning Policy (Housing for Seniors or People With a Disability) 2004.

Division 6 (Residential development—Land and Housing Corporation) of the State Environmental Planning Policy (Affordable Rental Housing) 2009, stipulates the following minimum car parking provision requirement for residential developments with 20 dwellings or less on a single site;

- (i) for development on land in an *accessible area*—0.4 parking spaces for each dwelling containing 1 bedroom, 0.5 parking spaces for each dwelling containing 2 bedrooms and 1 parking space for each dwelling containing 3 or more bedrooms, or

- (ii) for development that is not in an *accessible area*—0.5 parking spaces for each dwelling containing 1 bedroom, 1 parking space for each dwelling containing 2 bedrooms and 1.5 parking spaces for each dwelling containing 3 or more bedrooms

In the above policy, an *accessible area* means land that is within:

- a) *800 metres walking distance of a public entrance to a railway station or a wharf from which a Sydney Ferries ferry service operates, or*
- b) *400 metres walking distance of a public entrance to a light rail station or, in the case of a light rail station with no entrance, 400 metres walking distance of a platform of the light rail station, or*
- c) *400 metres walking distance of a bus stop used by a regular bus service (within the meaning of the Passenger Transport Act 1990) that has at least one bus per hour servicing the bus stop between 06.00 and 21.00 each day from Monday to Friday (both days inclusive) and between 08.00 and 18.00 on each Saturday and Sunday.*

As discussed in **Section 2.2**, although the subject site is located within close proximity to a number of bus routes, none of them satisfy condition (c) above. Therefore, the subject site is considered not to be within an accessible area.

Accordingly, adopting the parking rate for developments not in accessible areas, the proposed development (with 2 x 2 bedroom units and 4 x 3 bedroom units) should provide a total of 8 car spaces. The proposed development includes provision for 8 car spaces. Therefore, the proposed development satisfies the relevant parking provision requirement based on the State Environmental Planning Policy (Affordable Rental Housing) 2009.

4. Car Park Design Review

The following section will carry out the necessary checks to certify whether the car parking area (provided within the basement level) has been designed to satisfy the minimum requirements outlined by the Australian Standards. Reference is made to AS 2890.1 and AS 2890.6 for compliance. This section shall be read in conjunction with the complete site layout plans submitted as a part of the Development Application lodgement.

4.1 Disability Accessible Parking Spaces

The disability accessible parking spaces shall be designed in accordance with AS 2890.6:2009, as follows;

- The disability accessible car parking space should be designed at 2.4m width and 5.4m length (with an aisle width of 5.8m);
- A shared space of equal dimensions shall be provided adjacent to the car parking space; and
- Both the car parking space and the shared space should indicate appropriate line markings. The shared space should include a bollard in order to prevent motorists parking at this location.

It is noted that all 8 car spaces proposed within the basement level car park are designed as disability accessible car spaces and they all satisfy the above identified minimum desing requirements. Additionally, car space 1 is located adjacent to a wall and therefore an additional 300mm clearance has been provided at this space against the wall for door opening as required by AS 2890.1.

4.2 Circulation / Vehicle Conflicts

As per AS 2890.1, the proposed access to the car parking area is categorised under access category 1 (<25 car spaces, frontage road local). Therefore, the entry/exit combined access points should provide at least 3m width.

However, the proposed access way to the basement level off Berith Street is designed at 5.5m for the first 6m of length to accommodate two way movement of vehicles. This provision will enable simultaneous entry and exit movement of vehicles into and out of the car park (thus preventing vehicles queuing back on Berith Street).

4.3 Gradients within Parking Modules

AS 2890.1 stipulates that parking modules, at maximum, should have a grade of 1 in 16 (measured in any direction other than parallel to the angle of parking). In addition, AS 2890.6 stipulates that the disability accessible car parking space and the shared area shall not exceed the grade of 1:40 in any direction. The proposed car parking spaces are at grade and therefore comply with the above requirements.

4.4 Gradient of Access Driveway

In relation to the gradient of the access driveway, AS 2890.1 requires the first 6m into the car park to include a maximum grade of 5% (1 in 20). The first 6m into the proposed car park has been graded at 5% and therefore it complies with the above requirement.

4.5 Headroom Requirements

AS 2890.6 stipulates following headroom requirements in relation to disability accessible car parking spaces:

- The path of vehicular travel from the car park entrance to all parking spaces for people with disabilities and from those spaces to the car park exit shall have a minimum headroom of 2.2 m.
- The headroom above each dedicated space and adjacent shared area, measured from the level of the dedicated space shall be a minimum of 2.5 m.

The proposed basement level car park complies with the above requirements.

4.6 Column Positioning

The obstruction free design envelope presented in AS 2890.1 (shown below) was tested for each car space. It was found that all car spaces were designed to satisfy this obstruction free design envelop.

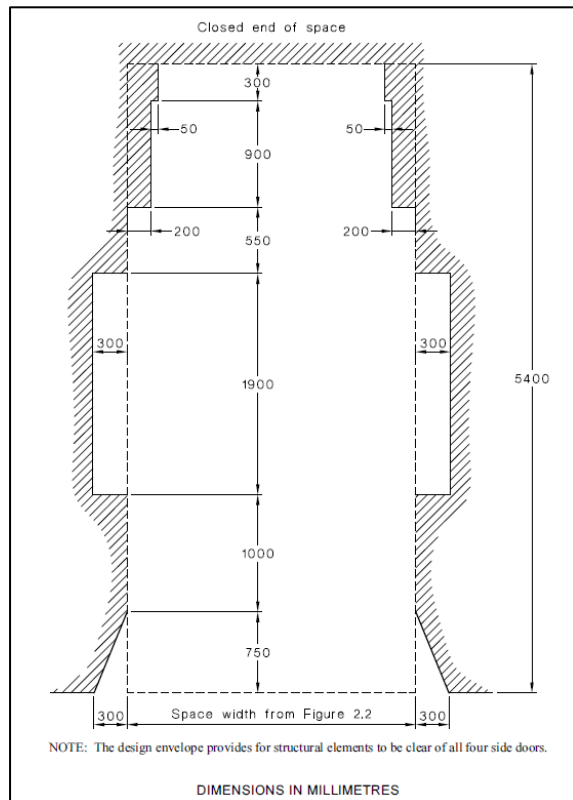


Figure 4: Obstruction Free Design Envelope (AS2890.1)

4.7 Ramp Width and Grade

AS 2890.1-2004 states the grade requirements for straight ramps at private or residential car parks as follows:

- (i) Longer than 20 m—1 in 5 (20%) maximum.
- (ii) Up to 20 m long—1 in 4 (25%) maximum. The allowable 20 m maximum length shall include any parts of grade change transitions at each end that exceed 1 in 5 (20%).

(iii) A stepped ramp comprising a series of lengths each exceeding 1 in 5 (20%) grade shall have each two lengths separated by a grade of not more than 1 in 8 (12½%) and at least 10 m long.

Furthermore, where the difference in grade between two sections of ramp or floor is greater than 1:8 (12.5 percent) for a summit grade change, or greater than 1:6.7 (15 percent) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming.

The proposed ramp between the ground level and the basement level is less than 20m in length and includes a maximum grade of 20%. Each end of this 20% ramp include 2m long transition sections graded at 12.5%. Therefore, the proposed ramp grades and transition sections comply with the relevant requirements.

The proposed ramp into the basement car park is a one-way ramp. The minimum ramp width requirement, for straight sections, as per AS 2890.1:2004 is 3.0m. However, the Australian Standard also stipulates;

Where there is to be a kerb or barrier higher than 150 mm and closer than 300 mm from one edge of the roadway or ramp, the roadway or ramp shall be widened to provide a minimum of 300 mm clearance to the obstruction. If there is to be a high kerb or barrier on both sides, the width increase shall be sufficient to provide 300 mm on both sides.

Accordingly, when ramps are located adjacent to walls, the total width of the ramp should be 3.6m (3.0m ramp width + 300mm clearance on either side). The proposed one-way ramp is designed at 3.6m width and is therefore compliant against the minimum width requirement.

5. Traffic Impact Assessment

A traffic impact assessment was undertaken to determine in potential impacts caused by the proposed development upon the local road network. According to the *Guide to Traffic Generating Developments (RMS, TDT 2013/04)*, a **medium density residential building** will generate, approximately;

- 0.4-0.5 trips per unit in the weekday peak hour; and
- 4-5 trips per unit, daily.

Adopting the higher end values of the trip rates stipulated above for conservative estimation, the proposed development (with 6 units) is estimated to generate following trip generation levels;

- 3 weekday peak hour trips; and
- 30 daily trips.

All of the above identified trips will be realised onto the midblock of Berith Street as turning movements. It is noted the above established peak hour and daily trip levels are conservative since they have been determined notwithstanding the traffic generation levels from the existing development located at the subject site. Furthermore, considering the proposed use of seniors living as well as good active and public transport options afforded to the site, is likely to reduce the peak hour vehicle trips entering and exiting the subject site.

Even if the full trip generation rate is realised, the above trip figures are insignificant (peak hour trip generation level of 3 trips), and would not be expected to generate any noticeable impacts of the existing local road network. As such, no ramifications to the existing traffic and pedestrian conditions are anticipated to result from any traffic generated by the proposed development.

6. Conclusions

APEX Engineers were engaged by Astute Invest Pty Ltd to provide a traffic impact assessment as a part of the development application (under SEPP SL Housing) for the proposed 6 unit (2 x 2 bedroom units + 4 x 3 bedroom units) seniors' living development at 3 Berith Street in Wheeler Heights.

The local vicinity of the subject site is primarily of residential nature. The subject site is serviced by a number of bus routes, which can be accessed from bus stops located within a 5 minute walking radius of the subject site. As such, it was concluded that prospective tenants can carry out most trips via public transport, eliminating the need for driving trips.

A parking provision assessment was undertaken in accordance with the State Environmental Planning Policy (Housing for Seniors or People With a Disability) 2004 and the State Environmental Planning Policy (Affordable Rental Housing) 2009. Based on the parking rates presented in the State Environmental Planning Policy (Housing for Seniors or People With a Disability) 2004, the proposed development should provide 8 car parking spaces (all disability accessible car spaces). Based on the parking rates presented in the State Environmental Planning Policy (Affordable Rental Housing) 2009, for land not within an accessible area, the proposed development should provide 8 car spaces. The proposed development includes provision for 8 car spaces (all of which are disability accessible car spaces) – which satisfies the requirements obtained from both policy documents considered above.

The proposed car parking design was assessed with reference to AS 2890.1 and AS 2890.6. It was found that the proposed design was compliant with the relevant design requirements.

The daily and peak hour trip generations for the proposed development were determined from the trip rates stipulated for medium density residential

developments in the *Guide to Traffic Generating Developments (RMS NSW TDT 2013/04)*. Using the rates offered within this guide, a weekday peak hour rate of 3 trips and a daily trip rate of 30 trips was established. This number of trips are considered minimal and are unlikely to eventuate into any adverse impacts to the local road network.

In light of the above, the proposed development is expected to accommodate its parking demand and will impose generally negligible traffic impacts to the local road network.