TTW Taylor Thomson Whitting

Traffic and Parking Assessment

Prepared for Munns Sly Moore / August 2017

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1.0 Introduction

Taylor Thomson Whitting have been engaged to provide a traffic engineering assessment of a proposed development consisting of 7 units located within Block 9, Section 46 Turner on Forbes Street. The traffic engineering assessment includes the following:

- Providing a description of the existing site;
- Providing a description of the existing road network;
- Outlines the traffic generated by the existing arrangement;
- Describes the proposed development;
- Determining the number of car spaces required for the development in accordance with the ACTPLA Parking and Vehicular Access General Code (PVAGC);
- Determine where the car spaces can be located to comply with the requirements of the PVAGC;
- Determine peak and daily traffic volumes generated by the proposed developments in accordance with the RMS Guide to Traffic Generating Developments;
- Describes the parking and vehicular access arrangements for the development and assess their compliance against the relevant codes and standards.
- Carry out turning circle analysis in accordance with AS2890 and Austroads publications to develop suitable car parking, driveway and ramp geometries;
- Assess available sight lines for vehicles entering and exiting the proposed developments, including sight lines to pedestrians and cyclists.

The report then provides commentary on:

- Outlines the summary of findings of the investigation, and
- Provides a conclusion as to the suitability of the proposed development.

2.0 Project Description

The project consists of the construction of a new 7 unit development incorporating basement parking, kerb side waste collection and a new basement access ramp located on the western side of Forbes Street.

3.0 Existing Site Description

The existing site currently consists of a single residential building on a single block. The site is accessed off a current driveway to the west of Forbes Street. The block is presently zoned as residential, and this is not subject to change.

Pedestrian access to the block is available via the existing footpath on the western verge of Forbes Street.

Figure 1: Location of Development

The layout of the proposed block in relation to Forbes Street is illustrated below in Figure 2.

Figure 2: Position of developed block in Relation to Adjacent Intersection

4.0 Existing Road Network

This section details specific information relating to the form and performance of the surrounding road network.

4.1 Description

The site is located on Forbes Street which is classified as a local road connecting Greenway Street, David Street, Condamine Street and Towns Crescent within the suburb of Turner.

4.2 Existing Issues

It is understood that there are no existing traffic issues on Forbes Street.

5.0 Existing Developments Traffic Generation

The peak and daily volumes generated by the existing residences have been assessed using the generation rates nominated in Section 3.3.1 of the RMS Guide to Traffic Generating Developments. The guide nominates the total number of daily vehicle trips to be 9 per dwelling with weekday peak hour traffic being generated at 0.85 vehicle trips per hour.

The following table summarises the combined vehicle trips generated by the existing dwelling located on Block 9.

Time Period	Total Maximum	Anticipated Arrivals	Anticipated Departures
Daily	9	4.5	4.5
AM & PM Peak	1	0.5	0.5

Table 1: Traffic Generated by the Existing Development

6.0 Description of Proposed Development

The proposed 7 units development consists of :

- Six, two bed units, and
- One, three bed unit

The planned development incorporates basement car parking for 11 vehicles, accessed via a driveway ramp located from Forbes Street.

Pedestrian access to the development is maintained via the existing footpath on the western side of Forbes Street.

7.0 Proposed Development Car Parking Requirements

7.1 Car Parking Generation

The car parking requirements for the proposed development have been determined in accordance with the requirements of Section 3.1.5 of the ACTPLA Parking and Vehicular Access General Code (PVAGC) which states the following:

- One (1) parking space per single bedroom dwelling; and
- A minimum average provision of 1.5 spaces per two-bedroom dwelling, provided that each two-bedroom dwelling is allocated a minimum of one (1) parking space and each two (2) bedroom dwelling is allocated no more than two (2) parking spaces; or
- Two (2) parking spaces per two-bedroom dwelling; and

- Two (2) parking spaces for each dwelling with three or more bedrooms; plus
- One (1) visitor space per four (4) dwellings or part thereof where a complex comprises four (4) or more dwelling

The above parking generation rates result in the following parking requirements for each of the unit developments:

Unit description	Generation Rate	Number of Units	Car Spaces Required
2 Bed	1.5	6	9
3 Bed	2	1	2
Visitor Spaces	1 per 4 units	7	2
Total			13

Table 2: Summary of Parking Requirements

7.2 Location of Car Parking

The requirements for locating of the car spaces detailed in Table 2 have been determined in accordance with Section 3.1.4 of the ACTPLA Parking and Vehicular Access General Code which states:

- Long stay parking is to be provided on site;
- Operational parking is to be provided on site;
- Visitor parking is to be provided on site or within 100m of the proposed development.

The proposed development caters for the resident's entire car parking requirements on site. The visitor car parking is proposed within existing on street car spaces located within 100m of the proposed development in accordance with the PVAGC.

The visitor car spaces can be located within on street parking areas along Forbes Street and Macleay Street illustrated in Figure 3.

Figure 3: Parking Located within 100m of Proposed Development.

7.3 Assessment of Proposed Parking Arrangements

TTW has undertaken two spot checks at Forbes Street in July 2017. To determine whether there is sufficient available on-street car parking to cater for the new 2 car spaces. There are generally car spaces available in the signposted car parking areas within a 100m radius of the proposed development. During peak visitor times on the weekends and outside of working hours there are sufficient car spaces available to cater for the 2 on street visitor car spaces.

8.0 Proposed Development Traffic Generation

The peak and daily traffic volumes anticipated to be generated by the proposed development have been assessed using the generation rates nominated in Section 3.3.2 of the RMS Guide to Traffic Generating Developments. The guide nominates the total number of daily vehicle trips to be in the range of 4 to 5 vehicles trips for each one and two-bedroom unit, and 5-6.5 for each 3-bedroom unit, and peak weekday traffic being generated at 0.4-0.5 and 0.5-0.65 respectively.

The following table summarises the anticipated vehicle trips generated by the proposed development.

Time Period	Total Maximum	Anticipated Arrivals	Anticipated Departures
Daily	36.5	18.25	18.25
AM & PM Peak	3.65	1.8	1.8

Table 3: Traffic Generated by the Proposed Development

9.0 Parking and Vehicular Access Arrangement

The proposed vehicular access arrangements, car park geometries, ramp grades and sight lines have been assessed against the requirements of AS2890.1, the DUS Design Standards for Urban Infrastructure – Driveways and Austroads Guidelines to determine compliance with the relevant standards.

The proposed layout has been found to be compliant with the above standards. Each of the specific compliance elements are described further in the following sections.

9.1 Resident's Parking and Geometry

The car parking layout has been developed using the requirements of AS2890.1 for a user class 1A. The layout of the car parks consists of the following:

- 2.4m wide car spaces (equal to the minimum requirement of 2.4m);
- 5.4m long car spaces (equal to the 5.4m required by AS2890.1);
- 2.7m wide car spaces adjacent to walls or obstructions greater than 150mm (equal to the minimum requirement);
- Provision for 1(one) adaptable car parking space with shared area in accordance with AS2890.6,
- 6.34m wide parking aisle (0.59m greater than the minimum requirement of 5.8m),
- Columns located outside of the parking envelope
- A small vehicle carparking space measuring 2.3m wide by 5.4m in length complying with the minimum recommended dimensions required by AS2890.1 and ACTPLA Parking and Vehicular Code

The layout of the car park achieves a higher level of amenity for users due to the increase in width of the parking aisle, and as such exceeds the minimum accepted requirements of AS2890.1.

As the residents parking is located on site it also satisfies the requirements of the PVAGC for the location of residents parking.

9.2 Visitors

Assessment of available existing on street car parking located within 100m of the proposed development resulted in the proposal for on street visitor parking being deemed suitable. In addition to the car spaces nominated in section 7.3 of this report there are additional on street car spaces on Macleay Street and within Haig park to the south of the development available after hours and during weekends. The proposal for locating visitor car spaces off site complies with the requirements of the PVAGC.

9.3 Driveway Position

In considering the location of shared entry and exit driveway to the development, the existing driveway on the eastern boundary will be retained and upgraded to a HD1 type driveway in accordance with the ACT Design Standards for Urban Infrastructure – Driveways and standard drawing DS – 502.

The proposed driveway has had its location and geometry checked using Auto turn software in accordance with the Austroads technical guidelines for the use of Auto turn. The proposed driveway position and geometry allows residents to turn into and out of the site in a single movement without impeding traffic on Forbes Street.

The interface of the driveway (verge crossing) and the basement ramp have been checked to ensure that the clear zone envelope of 2.5m by 2.0m is available at the property boundary to ensure sufficient sight lines to pedestrians in accordance with section 3.2.4 of AS2890.1.

9.4 Entry Control of the Driveway and Basement Ramp

Due to the narrow nature of the development site the basement ramp is proposed for two-way access controlled travel for use by one vehicle at a time.

The control of traffic on the basement ramp was developed as per previous driveways previously approved for similar driveways, as such the following method has been implemented:

- Drivers entering the site swipe their access control device which triggers a flashing light in the basement signalising to drivers in the basement that a vehicle is entering and they are required to give way;
- Drivers within the basement are to hold outside of the nominated turning zone to ensure the entry movement is unobstructed;
- Drivers exiting the basement are to swipe their access control device to trigger a flashing light at the entry to the site signalising to drivers entering the site off Forbes Street that a car is currently exiting. In this instance drivers entering the site may lay by in the vehicle crossing or the holding bay located within the property boundary to let the exiting vehicle exit the site, and
- Due to the size of the development and the peak AM and PM vehicle movements anticipated (3.6 vehicle movements per hour) the frequency of two vehicles entering and exiting the site at the same time is anticipated to be very low.

This strategy has been implemented successfully in several similar developments in the Dickson area. One similar example located west of the subject site along Antill Street and owned by Housing ACT has had no reported operational issues.

9.5 Ramp Grades

The basement ramp has been designed to ensure that the following ramp grading requirements are satisfied:

- Max 2.5% fall across pedestrian paths;
- Maximum grade of 5% for 6m measured from the property boundary into the site;
- Maximum grade of 25% for straight ramps, and
- Maximum instantaneous change in grade of 12.5%.

The proposed basement ramp achieves all the above requirements

9.6 Sight Distance at Access Driveway

The interface of the driveway (verge crossing) and the basement ramp have been checked to ensure that the clear zone envelope of 2.5m by 2.0m is available at the property boundary to ensure sufficient sight lines to pedestrians in accordance with section 3.2.4 of AS2890.1.

The speed limit through Forbes Street is currently 50 Km/hour. The upgraded access driveway has been designed to cater for the adequate sight distance of 40 m to the left and 40m to the right in accordance with section 3.2.4 of AS2890.1, s shown in Figure 4 below. Clear sight lines have been provided at the property line to ensure adequate visibility to pedestrians. The areas adjacent to the driveway are cleared of any obstructions.

Figure 4: Sight Distance Diagram

10.0 Waste Collection

Waste is proposed to be stored on site within the screened bin storage area located to the north side of the development. The bin storage area is sized to cater for both 120L waste and 240L recycling MGBs in accordance with the ACT No Waste Code requirements for developments of 10 units or less.

Transferring of the MGBs to the verge shall be by the residents through a direct travel route of grades less than 3.0%. Transferring of waste from residences to the bin enclosure involves a maximum travel path length of 15m.

Waste is proposed to be collected by kerb side collection from the areas within the verge nominated in Figure 5 which is clear of on street parking, trees, traffic signals and signage.

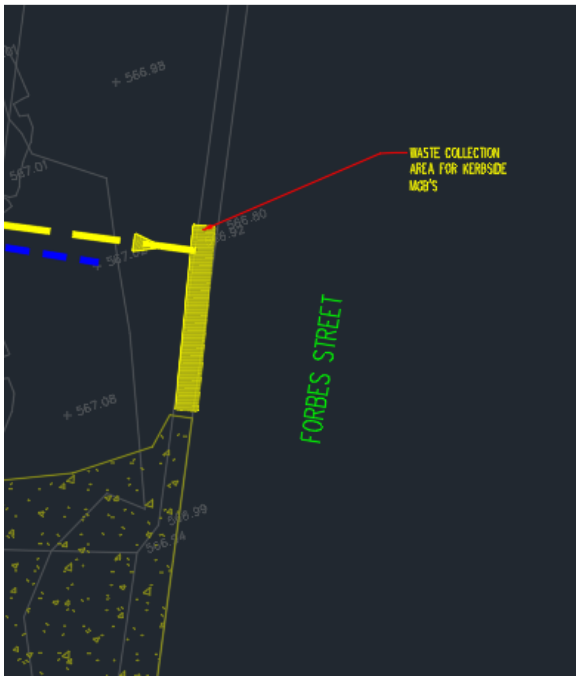

Figure 5: MGB Collection Area

11.0 Summary of Findings

The following is a summary of the findings of the investigation:

- The proposed development site is currently occupied by a single residential building;
- The existing use of Block 9 generates peak traffic volumes of 2 vehicles per hour;
- The proposed development consists of 7 units;
- The proposed development is anticipated to generate peak traffic volumes of 3.6 vehicles per hour, which represents an increase of 2.6 vehicles per hour over the existing conditions;
- The proposed driveway location satisfies the relevant pedestrian and vehicle safety requirements of TCCS and AS2890.1 for entry into and out of development site;
- The proposed driveway meets the sight clearance requirements for pedestrian and vehicle safety in accordance with AS2890.1;
- There is currently sufficient available on street parking to cater for the additional 2 visitor spaces required within 100 m of the development;
- The proposed vehicle access driveway and car parking layout has been checked in accordance with the relevant standards and have been deemed to fully comply;
- The waste is proposed to be picked up via kerb side collection, and there is sufficient room on the verge to accommodate the MGBs.

12.0 Conclusion

The proposed development satisfies the requirements for parking, vehicular access, waste management, pedestrian safety, vehicle safety, zoning requirements and land use.

It is recommended that the traffic and parking elements of the development be accepted for the purpose of Development Approval.

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Appendix A – Turning Demonstration